



VERBAL & NON-VERBAL

Reasoning for Competitive Exams

with Practice Sets

Gajendra Kumar

Abhishek Banerjee

- **Head Office :** B-32, Shivalik Main Road, Malviya Nagar, New Delhi-110017
 - **Sales Office :** B-48, Shivalik Main Road, Malviya Nagar, New Delhi-110017
- Tel. :** 011-26691021 / 26691713

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PREFACE

Every great structure was once a blueprint. Every aspirant was once confused and most importantly , it is not necessary to think where you are today, it is important to realise where you want to see yourself in the future.

A small story that touched my heart, which is mentioned in the book “you can win !” - by Shiv Khera is the story of a balloon man . “There was a man who made his living by selling balloons at fairs. He had balloons of all colours including Red, Yellow, Blue, and Green. Whenever the business was slow, he would release a helium filled balloon into the air and when the children saw it go up, all wanted to buy one and his sales would go up again. He continued this process the entire day. One day he felt some one tugging at his jacket. He turned around and found a little boy who asked, “If you release a black balloon, would that also fly ?” The man replied with empathy, “Son it is not the colour of balloon, it is what is inside that makes it go up. “

It is what is “inside” that matter. The same thing applies to our lives. The thing inside of us makes us go up.

The path to competitive exams is full of ups and downs. Your motivation and attitude will help you to find a way and fulfil your dreams.

As we all are aware, LOGICAL REASONING is one of the important sections that we are required to prepare for BANKING, RAILWAYS, all SSC Exams, GATE, IAS, CAT, MAT, CMAT, Defence exams like AFCAT, DRDO, LIC exams etc. The book has 2 parts - Verbal and Non-Verbal Reasoning as it is asked by these names in the various examinations mentioned above.

This is the only section where students generally feel confident. But to excel, a lot of practice is needed. This book has been designed in such a way so that an aspirant not only clears the concept but can also tackle any kind of question that they come across, be it from the previous years or recent years.

Each chapter of this book contains theory with Solved Examples. The chapter's Exercise part has been sub-divided into four sections on the basis of the difficulty level of the questions, i.e.

- **Concept Applicator :** Easy
- **Concept Builder :** Easy-Moderate
- **Concept Cracker :** Moderate
- **Concept Deviator :** Difficult

The exercise in the book contains previous year's questions of the various exams.

At the end of the 29 chapters, a Miscellaneous Question Bank is provided. It contains around 500+ Quality Questions that will provide enhanced practice, much needed to crack this section, to the students.

The book also provides 8 Speed Practice Sets, along with detailed solutions, will help the aspirants to understand the new pattern of the examination as well as to understand the importance of time management.

In writing this book the most distinctive contribution has been of Mr. Deepak Agrawal, Director of Disha publication, who guided us time and again. He motivated us during various stages of preparation of the book.

We would also like to thank our students who not only helped us in completion of the book but also helped us while checking its answers, these includes but not limited to Deepika Keshri, Atraye Dey, Pappu Yadav, Saurabh Upadhyay, Ashutosh Kashyap, Moulima Mukherjee. We would be really happy to receive critical observation and suggestion from the students and esteemed teachers for further improvement of the book. You can reach out to us on below given email id

Gajendra Kumar and Abhishek Banerjee
(gajendra591@gmail.com, abhishekb004@gmail.com)

Dedicated To

My strength, My motivation, My parents, Mr Prodyut Banerjee
And Rita Banerjee

-- Abhishek Banerjee

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MISCELLANEOUS QUESTION BANK

QB-1 – QB-54

SPEED TEST 1 to 8 (with solutions)

ST-1 – ST-18

Part A : Verbal Reasoning

Chapter

1

Number Series Completion

Section	Level	No. of Questions
Concept Applicator	Very Easy	20
Concept Builder	Easy	20
Concept Cracker	Moderate	30
Concept Deviator	Difficult	25

THEORY

In this chapter we will discuss all the questions based on number series. In this type of questions candidate have to follow a definite pattern throughout the series. The task for the candidate is to follow the pattern and to complete the given series with the best alternative or to find the wrong term in the series.

DIFFERENT PATTERNS OF NUMBER SERIES

Pattern 1: When the difference between the consecutive numbers is same/ constant or the number series is in arithmetic progression.

$a, a + d, a + 2d, a + 3d, a + 4d, \dots, a + (n - 1)d$. Where a is first term, d is the common difference

Ex 1: 24, 21, 18, ?, 12, 9.

Where the difference is -3, answer is 15

Pattern 2: Any constant number is added to the difference of the consecutive numbers and form a series.

Ex 2: 2, 4, 8, 14, 22, 30

Next No. is 32 as $\begin{array}{ccccccc} 2 & 4 & 8 & 14 & 22 & 32 \\ & 2 & (2+2) & (4+2) & (6+2) & (8+2) \end{array}$

Ex 3: 3, 4, 6, 9, 13, 18, __, Answer is 24 because $\begin{array}{ccccccccccccc} 3 & 4 & 6 & 9 & 13 & 18 & 24 \\ | & | & | & | & | & | & | \\ 1 & 2 & 3 & 4 & 5 & 6 & \end{array}$

Pattern 3: Multiplication or division Pattern

When a series is multiplied or divide by certain constant.

Ex 4: 6174, 882, 126, ?. Answer is 18, the series is divisible by 7.

Ex 5: 1, 2, 3, 6, 9, 18, ?, 54

- | | | |
|--------|-------------------|--------|
| (a) 18 | (b) 27 | (c) 36 |
| (d) 81 | (e) None of these | |

Solution: The given series is in the pattern $\times 2, \times 3/2, \times 2, \times 3/2, \times 2, \dots$

So, the missing term is $18 \times 3/2 = 27$ Or

$$\begin{array}{ccccccccc} 1 & 2 & 3 & 6 & 9 & 18 & ? & 54 \\ \underbrace{+1}_{1} & \underbrace{+1}_{1 \times 3} & \underbrace{+3}_{3 \times 3} & \underbrace{+9}_{9 \times 3} & \underbrace{+27}_{9 \times 3} & & & \end{array}$$

Ans: (b) 27

Pattern 4: When a series follows the following pattern add, multiply, add, multiply, add, ..., or add, subtract, add, subtract, add, ... etc.

Ex 6: 4, 6, 12, 14, 28, 30,

Solution: 4 $\underbrace{6}_{+2} \underbrace{12}_{\times 2} \underbrace{14}_{+2} \underbrace{28}_{\times 2} \underbrace{30}_{+2} \underbrace{60}_{\times 2}$

60 is the next number

Ex 7: 8, 28, 116, 584, ?

(R.R.B 2002)

- | | | |
|----------|-------------------|----------|
| (a) 1752 | (b) 3502 | (c) 3504 |
| (d) 3508 | (e) None of these | |

Solution: The given series is in the pattern: $\times 3 + 4, \times 4 + 4, \times 5 + 4, \dots$

$$\begin{aligned} (8 \times 3) + 4 &= 28 \\ (28 \times 4) + 4 &= 116 \\ (116 \times 5) + 4 &= 584 \\ (584 \times 6) + 4 &= 3508 \end{aligned}$$

So, the missing term is $584 \times 6 + 4 = 3508$.

Ans: Option (d)

Ex 8: 3 4 10 33 136 685 ?

- | | | |
|----------|----------|----------|
| (a) 3430 | (b) 4802 | (c) 5145 |
| (d) 4116 | (e) 5488 | |

Solution: In this particular Series, the pattern is-

$$3 \times 1 + 1 = 4; 4 \times 2 + 2 = 10; 10 \times 3 + 3 = 33; 33 \times 4 + 4 = 136; 136 \times 5 + 5 = 685; 685 \times 6 + 6 = 4116.$$

Hence option (d)

Pattern 5: Series with Square or cube or square root or cube root of the number.

Ex 9: 1, 9, 25, 49, ?, 121 (S.S.C.)

- | | | |
|---------|-------------------|--------|
| (a) 64 | (b) 81 | (c) 91 |
| (d) 100 | (e) None of these | |

Solution: The given series consists of squares of consecutive odd numbers i.e $1^2, 3^2, 5^2, 7^2, \dots$

So, the missing term = $9^2 = 81$

Ans: Option (b)

Pattern 6: TRIANGULAR NUMBER

When any number series is in the form $a, a + (a + 1), a + (a + 1) + (a + 2), a + (a + 1) + (a + 2) + (a + 3), \dots, n^{\text{th}}$ term of the series be $\left[\frac{n(n+1)}{2} \right]$.

Ex 10: 1, 3, 6, 10, 15, 21, find the 15th term of the series?

Solution : 15th term = $\left[\frac{n(n+1)}{2} \right] = \left[\frac{15(15+1)}{2} \right] = 120$ where $n = 15$.

Pattern 7: Product of the digits and summation with any constant, gives next number of the series.

Ex 11: 69, 55, 26, 13, 5 [Find the Wrong term of the Series]

- | | | |
|--------|--------|--------|
| (a) 69 | (b) 55 | (c) 26 |
| (d) 13 | (e) 5 | |

Solution: We found that the series contains each term is one more than the product of the digits of the preceding term. Thus $(6 \times 9) + 1 = 55$, $(5 \times 5) + 1 = 26$, $(2 \times 6) + 1 = 13$, $(1 \times 3) + 1 = 4$. Hence option (e).

Pattern 8: Difference Between the adjacent numbers increases by a constant number.

Ex 12: 2, 7, 17, 32, ...?

- | | | |
|--------|--------|--------|
| (a) 42 | (b) 52 | (c) 47 |
| (d) 27 | (e) 62 | |

Solution: In this particular series the gap between the numbers are 5, 10, 15, ...so the next difference must be 20. Than the next number be 52. Hence option (b)

Pattern 9: Percentage increasing and decreasing pattern

Ex 13: 105, 94.5, 103.95, 93.56, ...?

- | | | |
|------------|-------------------|------------|
| (a) 102.91 | (b) 102.98 | (c) 102.95 |
| (d) 103.91 | (e) none of these | |

Solution: In this particular Series the numbers are arranged on percentage increase and decrease pattern. As first there is 10% decrease and than 10% increase..i.e $105 - 10\% \text{ of } 105 = 94.5$, $94.5 + 10\% \text{ of } 94.5 = 103.95$..and so on. Hence option (a) 102.91 is the very next number of the series.

Pattern 10: Division or Multiplication with increasing and decreasing numbers.

Ex 14: 51975, 9450, 2100, 600, 240, 160 ?

- | | | |
|---------|---------|---------|
| (a) 80 | (b) 120 | (c) 320 |
| (d) 240 | (e) 300 | |

Solution: The pattern is

$$\begin{array}{ccccccccc} 51975 & \swarrow & 9450 & \swarrow & 2100 & \swarrow & 600 & \swarrow & 240 & \swarrow & 160 & \swarrow & ? \\ \div 5.5 & & \div 4.5 & & \div 3.5 & & \div 2.5 & & \div 1.5 & & \div 0.5 & & \end{array}$$

? = $160 \times 0.5 = 320$. Hence Option (c)

Ex 15: 16, 12, 18, 40.5, 121.5, 455.625 ?

- | | | |
|---------------|---------------|---------------|
| (a) 2050.1125 | (b) 2050.2125 | (c) 2050.3125 |
| (d) 2050.4125 | (e) 2050.5125 | |

Solution: The pattern of the above Series:

$16 \times 0.75 = 12$, 12×1.5 (i.e $0.75 + 0.75 = 1.5$) = 18, 18×2.25 (i.e $1.5 + 0.75 = 2.25$) = 40.5, 40.5×3 (i.e $2.25 + 0.75 = 3$) = 121.5,, $455.625 \times 4.50 = 2050.3125$. Option (c)

Ex 16: 4, 18, 48, 100, 180, 294 ?

- | | | |
|---------|---------|---------|
| (a) 448 | (b) 424 | (c) 436 |
| (d) 460 | (e) 412 | |

Solution: The pattern is, here 3rd order difference is constant.

$$\begin{array}{ccccccccc} 4 & \swarrow & 18 & \swarrow & 48 & \swarrow & 100 & \swarrow & 180 & \swarrow & 294 & \swarrow & ? \\ +14 & & +30 & & +52 & & +80 & & +114 & & +154 & & \\ & \swarrow & \\ & +16 & & +22 & & +28 & & +34 & & +40 & & & \end{array}$$

? = $294 + 154 = 448$

1. CONCEPT APPLICATOR

Directions (Qs. 1-5): What should come in place of question mark (?) in the following number series?

1. 1, 5, 13, 25, 41, ?
(a) 51 (b) 57
(c) 61 (d) 63
(e) None of these

2. 1, 1, 2, 6, 24, ?, 720
(a) 100 (b) 104
(c) 108 (d) 120
(e) None of these

3. 6, 13, 28, 59, ?
(a) 111 (b) 113
(c) 114 (d) 122
(e) None of these

4. 3, 15, ?, 63, 99, 143
(a) 27 (b) 35
(c) 45 (d) 56
(e) None of these

5. 5760, 960, ?, 48, 16, 8
(a) 120 (b) 160
(c) 192 (d) 240
(e) None of these

**Directions (Qs. 6-10): What should
of question mark (?) in the fol-
series?**

6. 81, 512, 2401, 7776, 15625, 16
(a) 2187 (b) 196
(c) 729 (d) 512
(e) 6561

7. 8, 64, 216, 512, 1000, 1728, ?
(a) 4096 (b) 274
(c) 3375 (d) 219
(e) 4913

8. 72, 63, 54, 45, ...?.....
(a) 36 (b) 81
(c) 27 (d) 90
(e) 18

9. 3, 7, 14, 24, ...?...
(a) 34 (b) 28
(c) 38 (d) 40
(e) 37

10. 12, 15, 19, 24, ?
(a) 28 (b) 27
(c) 30 (d) 32
(e) 34

11. 2187, 729, 243, 81, 27, 9, ?
(a) 36 (b) 3
(c) 18 (d) 6
(e) 12

12. 6, 26, 134, 666, 3334, 16666, ?
(a) 84344 (b) 83443
(c) 84434 (d) 83334
(e) 83344

13. 4, 18, 48, 100, 180, 294, ?
(a) 416 (b) 480
(c) 512 (d) 384
(e) 448

14. 20, 24, 33, 49, 74, 110 ?
(a) 133 (b) 147
(c) 159 (d) 163
(e) 171

15. 529, 841, 961, 1369, 1681, 1849, ?
(a) 2809 (b) 2601
(c) 3249 (d) 3481
(e) 2209

16. 16, 24, 48, 120, 360, 1260, ?
(a) 3780 (b) 4725
(c) 5355 (d) 5040
(e) 4410

17. 8, 31, 122, 485, 1936, 7739, ?
(a) 30950 (b) 46430
(c) 34650 (d) 42850
(e) 38540

18. 499, 622, 868, 1237, 1729, 2344, ?
(a) 3205 (b) 3082
(c) 2959 (d) 3462
(e) 2876

19. 231, 342, 453, 564,?....
(a) 576 (b) 475
(c) 675 (d) 567
(e) 676

20. 796, 675, 554, 433,?....
(a) 512 (b) 231
(c) 213 (d) 312
(e) 321

2. CONCEPT BUILDER

Directions (Qs. 1-5): In the following number series only one number is wrong. Find out the wrong number. [BANK OF INDIA PO]

[BANK OF INDIA PO]

Directions (Qs. 11-15): In the following number series only one number is wrong. Find out the wrong number.

[BANK OF MAHARASHTRA
(AGRICULTURE OFFICER)]

11. 3, 7, 16, 35, 72, 153, 312
(a) 7 (b) 153
(c) 35 (d) 72
(e) 16

12. 18, 20, 23, 32, 48, 73, 109
(a) 20 (b) 23
(c) 32 (d) 48
(e) 73

13. 7, 4, 5, 9, 20, 51, 106.5
(a) 4 (b) 5
(c) 9 (d) 20
(e) 51

14. 6, 10, 14, 34, 66, 130, 258
(a) 10 (b) 14
(c) 34 (d) 66
(e) 130

15. 2, 7, 30, 138, 524, 1557, 3102
(a) 7 (b) 30
(c) 138 (d) 524
(e) 1557

Directions (Qs. 16-20): In the following number series only one number is wrong. Find out the wrong number.

17. 3, 4, 10, 32, 136, 685, 4116
 (a) 10 (b) 32
 (c) 136 (d) 4116
 (e) all are correct
18. 2, 3, 4, 4, 6, 8, 9, 12, 16
 (a) 3 (b) 6
 (c) 9 (d) 12
 (e) none of these
19. 4, 10, 22, 46, 96, 190, 382 (SSC)
 (a) 4 (b) 10
 (c) 96 (d) 382
 (e) none of these
20. 380, 188, 92, 48, 20, 8, 2 (RRB)
 (a) 8 (b) 20
 (c) 48 (d) 188
 (e) none of these

3 CONCEPT CRACKER

Direction (Qs. 1-5): In each of these questions a number series is given. Below the series one number is given followed by (A), (B), (C), (D) and (E). You have to complete this series following the same logic as in the original series and answer the question that follows?

[RBI GRADE B- OFFICER]

1. 5 9 25 91 414 2282.5
 3 (A) (B) (C) (D) (E)

What will come in the place of (C)?

- (a) 63.25 (b) 63.75
 (c) 64.25 (d) 64.75
 (e) None of these

2. 15 9 8 12 36 170
 19 (A) (B) (C) (D) (E)

What will come in the place of (B)?

- (a) 18 (b) 16
 (c) 22 (d) 24
 (e) None of these

3. 7 6 10 27 104 515
 9 (A) (B) (C) (D) (E)

What will come in the place of (D)?

- (a) 152 (b) 156
 (c) 108 (d) 112
 (e) None of these

4. 6 16 57 244 1245 7505
 4 (A) (B) (C) (D) (E)

What will come in the place of (D)?

- (a) 985 (b) 895
 (c) 925 (d) 845
 (e) None of these

5. 8 9 20 63 256 1285
 5 (A) (B) (C) (D) (E)
- What will come in the place of (E)?
 (a) 945 (b) 895
 (c) 925 (d) 845
 (e) None of these

Direction (Qs. 6-7): In the following number series only one number is wrong. Find out the wrong number. [CORPORATION BANK (PO)]

6. 8, 11, 17, 47, 128, 371, 1100
 (a) 11 (b) 47
 (c) 17 (d) 371
 (e) 128

7. 1, 5, 13, 31, 61, 125, 253
 (a) 1 (b) 5
 (c) 31 (d) 61
 (e) 125

Direction (Qs. 8-12): In the following number series only one number is wrong. Find out the wrong number.

[ORIENTAL BANK OF COMMERCE (PO)]

8. 11, 18, 29, 42, 59, 80, 101
 (a) 42 (b) 18
 (c) 29 (d) 59
 (e) None of these

9. 2, 9, 32, 105, 436, 2195, 13182
 (a) 436 (b) 2195
 (c) 9 (d) 32
 (e) None of these

10. 5, 55, 495, 3465, 17325, 34650, 51975
 (a) 495 (b) 34650
 (c) 55 (d) 17325
 (e) None of these

Direction (Qs. 13-17) What should come in place of the question mark (?) in the following number series? [IDBI BANK (PO)]

[IDBI BANK (PO)]

15. 8000, 1600, 320, 64, 12.8 ?

 - (a) 2.56
 - (b) 3.5
 - (c) 3.2
 - (d) 2.98
 - (e) None of these

16. 6, 9, 15, 27, 51, ?

 - (a) 84
 - (b) 99
 - (c) 123
 - (d) 75
 - (e) None of these

Direction (Qs. 18-22): In the following number series only one number is wrong. Find out the wrong number.

[ALLAHABAD BANK (PO)]

Direction (Qs. 23-27) What should come in place of the question mark (?) in the following questions?

4. CONCEPT DEVIATOR

1. What should come next in the following number series? **[CORPORATION BANK (PO)]**

9753118642297531864229753
18642975

2. What should come next in the following number series?

- Directions (Qs. 3-7): What should come in place of the question mark (?) in the following number series? [ANDHRA BANK PO]**

Directions (Qs. 8-12): What should come in place of the question mark (?) in the following number series? [INDIAN OVERSEAS BANK PO]

Directions (Qs. 13-17): What should come in place of the question mark (?) in the following number series?

Directions (Qs. 18-22): In each of these questions, a number series is given. In each series, only one number is wrong. Find out the wrong number.

[SBI (ASSOCIATES) PO]

Directions (Qs. 23-25): In each of these questions, a number series is given. In each series, only one number is wrong. Find out the wrong number.

Answer with Explanation

Concept Applicator

1. (c) The given series is in the pattern $+ 4, + 8, + 12, + 16, \dots$
So, the missing term $= 41 + 20 = 61$
2. (d) The given series is in the pattern $\times 1, \times 2, \times 3, \times 4, \dots$
So, the missing term $= 24 \times 5 = 120$
3. (d) The given series is in the pattern $\times 2 + 1, \times 2 + 2, \times 2 + 3, \dots$
So, the missing term $= 59 \times 2 + 4 = 122$
4. (b) The given series is in the pattern $(2^2 - 1), (4^2 - 1), \dots, (8^2 - 1), (10^2 - 1), (12^2 - 1)$. So, the missing term is $(6^2 - 1) = 35$
5. (c) The given series is in the pattern $\div 6, \div 5, \div 4, \div 3, \div 2$. So, the missing term is $960 \div 5 = 192$
6. Option(e) Series is $9^2, 8^3, 7^4, 6^5, 5^6, 4^7, 3^8$
 $? = 3^8 = 6561$
7. (b) Series is $2^3, 4^3, 6^3, 8^3, 10^3, 12^3, \dots$
Then, $? = 14^3 = 2744$.
8. (a) The gap is of -9
9. (e)
10. (c) the difference between the numbers increases by 1.
11. (b)
12. (d)

$$\begin{aligned} & 6 \times 5 - 4 = 26 \\ & 26 \times 5 + 4 = 134 \\ & 134 \times 5 - 4 = 666 \\ & 666 \times 5 + 4 = 3334 \\ & 3334 \times 5 - 4 = 16666 \\ & 16666 \times 5 + 4 = ? \\ & ? = 83334 \end{aligned}$$
13. (e)

$$\begin{aligned} & ? = 294 + 154 = 448 \end{aligned}$$
14. (c) The series is: $+ 2^2, + 3^2, + 4^2, + 5^2, + 6^2, \dots$
15. (e) The series is: $23^2, 29^2, 31^2, 37^2, 41^2, \dots$ (Square of prime numbers)
16. (d) The series is $\times 1.5, \times 2, \times 2.5, \times 3, \times 3.5$
17. (a) The series is $\times 4 - 1, \times 4 - 2, \times 4 - 3, \times 4 - 4, \dots$
18. (b) The series is $+ 123, + (123 \times 2), + (123 \times 3), + (123 \times 4), \dots$
19. (c) the difference of the numbers (+ 111).
20. (d) The difference of the number is (- 121).

Concept Builder

1. (a) All nos. in the given series are squares of odd nos., except 1296
 $1296 = (36)^2$
 2. (c) $13 + 14 = 27$
 $14 + 27 = 41$
 $27 + 41 = 68$
 $41 + 68 = 109$
 3. (e)
 4. (d) The series is:
 $+ 3^3, + 5^3, + 7^3, + 9^3, + 11^3, + 13^3, \dots$
 5. (d) $4 \times 4 + (4 \times 3) = 28$
 $28 \times 5 + (5 \times 4) = 160$
- $68 + 109 = 117$
So, 45 is the wrong number in this series.

Number Series Completion

11

$$160 \times 6 + (6 \times 5) = 990$$

$$990 \times 7 + (7 \times 6) = 6972$$

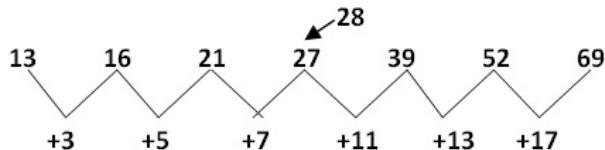
$$6972 \times 8 + (8 \times 7) = 55832$$

$$55832 \times 9 + (9 \times 8) = 502560$$

6. (e)

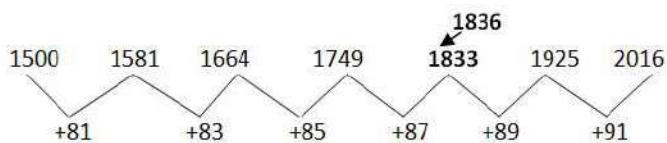


7. (c)



Prime numbers will be added. So wrong number = 27. Correct number is 28.

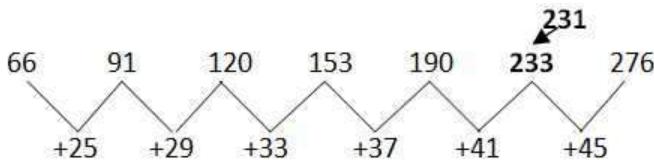
8. (c)



⇒ Wrong number is 1833

⇒ Correct number is 1836.

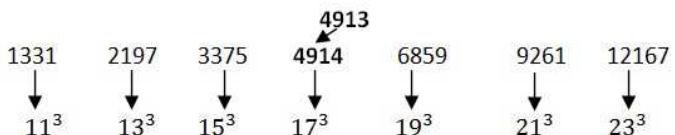
9. (b)



⇒ Wrong number = 233

⇒ Correct number = 231

10. (a)



⇒ Wrong number is 4914

⇒ Correct number is 4913

11. (d) The series is $\times 2 + 1$, $\times 2 + 2$, $\times 2 + 3$, $\times 2 + 4$, $\times 2 + 5$

12. (a) The series is $18 + 1^2 = 19$; $19 + 2^2 = 23$; $23 + 3^2 = 32$;
 $32 + 4^2 = 48$; $48 + 5^2 = 73$; $73 + 6^2 = 109$

13. (e) The series is $\times 0.5 + 0.5$, $\times 1 + 1$, $\times 1.5 + 1.5$,
 $\times 2 + 2$, $\times 2.5 + 2.5$, $\times 3 + 3$

14. (b) The series is $\times 2 - 2$,
.....

15. Option(c) $(2 - 1) \times 7 = 7$; $(7 - 2) \times 6 = 30$; $(30 - 3) \times 5 = 135$; $(135 - 4) \times 4 = 524$;
 $(524 - 5) \times 3 = 1557$; $(1557 - 6) \times 2 = 3102$

16. (d) pattern is : $\times 2 + 1$, $\times 3 + 1$, $\times 2 + 1$, $\times 3 + 1$,
....

17. (b) pattern is : $\times 1 + 1$, $\times 2 + 2$, $\times 3 + 3$, $\times 4 + 4$,
.....

18. (c) pattern is : the series is the combination of three series –each term is twice the preceding term.

(i) 1st, 4th, 7th term i.e 2, 4, 9,

(ii) 2nd, 5th, 8th terms i.e 3, 6, 12,

(iii) 3rd, 6th, 9th terms i.e 4, 8, 16,

So, 9 is wrong.

19. (c) pattern is : + 6, + 12, + 24, + 48, + 96, + 192

20. (c) pattern is : - 192, - 96, - 48, - 24, - 12, - 6

Concept Cracker

1. (d) The series is $\times 1.5 + 1.5$, $\times 2.5 + 2.5$, $\times 3.5 + 3.5$, $\times 4.5 + 4.5$, $\times 5.5 + 5.5$
2. (b) The series is $(15 - 6) \times 1 = 9$; $(9 - 5) \times 2 = 8$;
 $(8 - 4) \times 3 = 12$; $(12 - 3) \times 4 = 36$,
 $(36 - 2) \times 5 = 170$
Similarly the question row, a = $(19 - 6) \times 1 = 13$; b = $(13 - 5) \times 2 = 16$
3. (a) The series is $\times 1 - 1$, $\times 2 - 2$, $\times 3 - 3$, $\times 4 - 4$,
 $\times 5 - 5$
4. (e) The series is $\times 2 + 2^2$, $\times 3 + 3^2$, $\times 4 + 4^2$, $\times 5 + 5^2$, $\times 6 + 6^2$
5. (c) The series is $\times 1 + 1$, $\times 2 + 2$, $\times 3 + 3$, $\times 4 + 4$, $\times 5 + 5$
6. (c) The series is $\times 3 - 13$
7. (c) The series is $+ 2^2$, $+ 2^3$, $+ 2^4$, $+ 2^5$, $+ 2^6$, $+ 2^7$
8. (e) The series is $+ 7$, $+ 11$, $+ 13$, $+ 17$, $+ 19$, $+ 23$
 $11 + 7 = 18$, $18 + 11 = 29$, $29 + 13 = 42$, $42 + 17 = 59$, $59 + 19 = 78$, $78 + 23 = 101$.

- The wrong number is 34650; $17325 \times 3 = 51975$
9. (d) The series is $(+ 7 \times 1)$, $(+ 6 \times 2)$, $(+ 5 \times 3)$, $(+ 4 \times 4)$, $(+ 3 \times 5)$, $(+ 2 \times 6)$.
The wrong number is 32;
 $(9 + 6) \times 2 = 15 \times 2 = 30$
10. (b) The series is $\times 11$, $\times 7$, $\times 5$, $\times 3$, $\times 1$. The wrong no. is 34650; $17325 \times 3 = 51975$
11. (a) The series is 2^2 , $+ 3^2$, $+ 4^2$, $+ 5^2$, $+ 6^2$, $+ 7^2$.
The wrong no. is 56; $32 + 5^2 = 32 + 25 = 57$
12. (c) The series is $\times 1 + 1$, $\times 2 + 2$, $\times 3 + 3$, $\times 4 + 4$, $\times 5 + 5$, $\times 6 + 6$.
The wrong no. is 38; $12 \times 3 + 3 = 36 + 3 = 39$
13. (d) The series is $\times 7 - 1$, $\times 6 - 1$, $\times 5 - 1$, $\times 4 - 1$, $\times 3 - 1$
14. (e) The series is $+ 2^2$, $+ 4^2$, $+ 6^2$, $+ 8^2 + 10^2$
15. (a) The series is $\div 5$.
16. (b) The series is $+ 3$, $+ 6$, $+ 12$, $+ 24$, $+ 48$,
17. (c) The series is $\times 1 + 1$, $\times 2 + 2$, $\times 3 + 3$, $\times 4 + 4$, $\times 5 + 5$
18. (b) The series is

$$\times \frac{1}{2} - 2, \times \frac{1}{2} - 2, \times \frac{1}{2} - 2, \times \frac{1}{2} - 2, \times \frac{1}{2} - 2$$

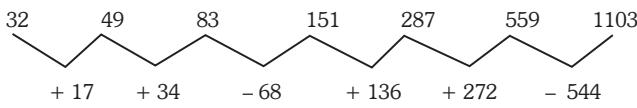
19. (d) The series is $\times 1 + 2$, $\times 2 + 3$, $\times 3 + 4$, $\times 4 + 5$, $\times 5 + 6$, $\times 6 + 7$. Correct answer 177
20. (e) The series $+ (1)^2$, $+ (3)^2$, $+ (5)^2$, $+ (7)^2$, $+ (9)^2$, $+ (11)^2$. Correct answer 171.
21. (a) The series is $\times 1 + (1)^2$, $\times 2 + (2)^2$, $\times 3 + (3)^2$, $\times 4 + (4)^2$, $\times 5 + (5)^2$, $\times 6 + (6)^2$
22. (c) The series is
 $\times \frac{1}{2} + \frac{1}{2}, \times 1 + 1, \times 1.5 + 1.5, \times 2 + 2, \times 2.5 + 2.5, \times 3 + 3$
Correct answer is 6.75
23. (d)
24. (b) The series is $\times 1 + 1$, $\times 1.5 + 1$, $\times 2 + 1$, $\times 2.5 + 1$, $\times 3 + 1$, ...
25. (c) The series is $+ 12$, $- 24$, $+ 36$, $- 48$, $+ 60$,
26. (e) The series is $\times 2 - 5$, $\times 2 - 10$, $\times 2 - 15$, $\times 2 - 20$, $\times 2 - 25$,
27. (e) $\times 2.5 + 20$.
28. (e) The given series is $+ (11 \times 1)$, $+ (11 \times 3)$, $+ (11 \times 5)$, $+ (11 \times 7)$, $+ (11 \times 9)$. So next no. is 302
29. (c) The given series is $- (9 \times 9)$, $- (9 \times 8)$, $- (9 \times 7)$, $- (9 \times 6)$, $- (9 \times 5)$
30. (c) The given series is
 $+ (14)^2$, $+ (13)^2$, $+ (12)^2$, $+ (11)^2$, $+ (10)^2$

Concept Deviator

1. (c) 9 7 5 3 1 1 / 8 6 4 2 2 / 9 7 5 3 1 / 8 6 4 2 2 / 9 7 5
3 1 / 8 6 4 2 / 9 7 5 3 / 8 6 4 2

2. (e) $24 \div 4 + 6 - 3 \times 4 = 6 + 6 - 12 = 0$

3. (c)



6. (a) 1050 420 168 67.2 26.88 10.752 4.3008
 $\div 2.5$ $\div 2.5$ $\div 2.5$ $\div 2.5$ $\div 2.5$ $\div 2.5$

7. (e) 0 6 24 60 120 210 336
 $+ (6 \times 1)$ $+ (6 \times 3)$ $- (6 \times 6)$ $+ (6 \times 10)$ $+ (6 \times 15)$ $- (6 \times 21)$
 $+ 2$ $+ 3$ $+ 4$ $+ 5$ $+ 6$

4. (b)

462 → -90 → 552 → +98 → 650 → -106 → 756 → +114 → 870 → -122 → 992 → +130 → 1122

5. (d)

15 18 16 19 17 20 18

8. (b) The pattern of the number series is as given below :

$$\begin{aligned}8 + 2 &= 10 \\10 + 8 (&= 2 \times 3 + 2) &= 18 \\18 + 26 (&= 3 \times 8 + 2) &= 44 \\44 + 80 (&= 3 \times 26 + 2) &= 124 \\124 + 424 (&= 3 \times 80 + 2) &= 366\end{aligned}$$

9. (d) The pattern of the number series is as given below:

$$\begin{aligned}13 + 1 \times 12 &= 13 + 12 = 25 \\25 + 3 \times 12 &= 25 + 36 = 61 \\61 + 5 \times 12 &= 61 + 60 = 121 \\121 + 7 \times 12 &= 121 + 84 = 205 \\205 + 9 \times 12 &= 205 + 108 = 313\end{aligned}$$

10. (a) The pattern of the number series is given as follows:

$$\frac{656}{2} + 24 = 328 + 24 = 352$$

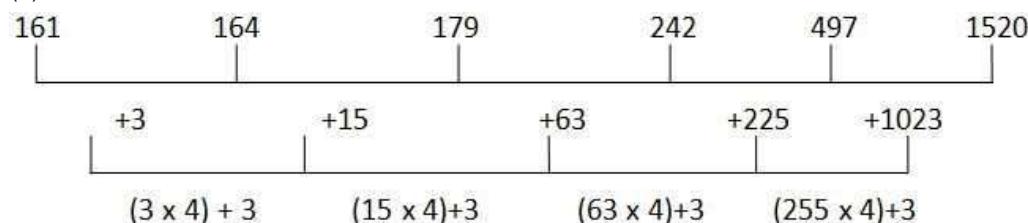
$$\frac{352}{2} + 24 = 176 + 24 = 200$$

$$\frac{200}{2} + 24 = 100 + 24 = 124$$

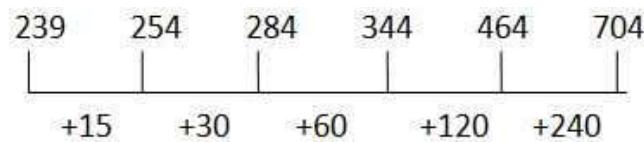
$$\frac{124}{2} + 24 = 62 + 24 = 86$$

$$\frac{86}{2} + 24 = 43 + 24 = 67$$

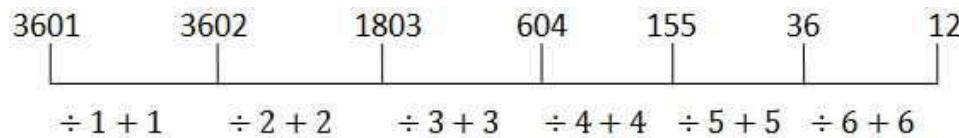
16. (c)



17. (e)



18. (d)



11. (c) The pattern of the number series is given as follows:

$$\begin{aligned}454 + 18 &= 472 \\472 - 27 &= 445 \\445 + 18 &= 463 \\463 - 27 &= 436 \\436 + 18 &= 454\end{aligned}$$

12. (b) The pattern of the number series is given as follows:

$$\begin{aligned}12 \times 4 - 30 &= 48 - 30 = 18 \\18 \times 4 - 36 &= 72 - 36 = 36 \\36 \times 4 - 42 &= 144 - 42 = 102 \\102 \times 4 - 48 &= 408 - 48 = 360 \\360 \times 4 - 54 &= 1440 - 54 = 1386\end{aligned}$$

13. (d)

$$\begin{array}{ccccccc}8 & & 11 & & 20 & & 47 & & 128 & & 371 \\& | & & | & & | & & | & & | & & | \\+(3)^1 & & +(3)^2 & & +(3)^3 & & +(3)^4 & & +(3)^5 & & \end{array}$$

14. (c)

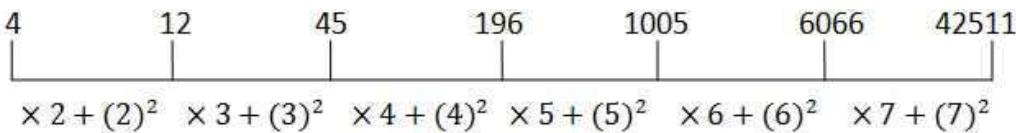
$$\begin{array}{ccccccc}71 & & 78 & & 99 & & 134 & & 183 & & 246 \\& | & & | & & | & & | & & | & & | \\+(7 \times 1) & & +(7 \times 3) & & +(7 \times 5) & & +(7 \times 7) & & +(7 \times 9) & & \end{array}$$

15. (b)

$$\begin{array}{ccccccc}342 & & 337.5 & & 328.5 & & 315 & & 297 & & 274.5 \\& | & & | & & | & & | & & | & & | \\-(4.5 \times 1) & & -(4.5 \times 2) & & -(4.5 \times 3) & & -(4.5 \times 4) & & -(4.5 \times 5) & & \end{array}$$

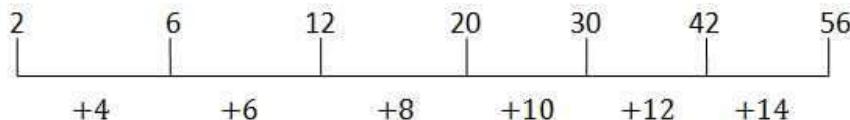
14

19. (b)



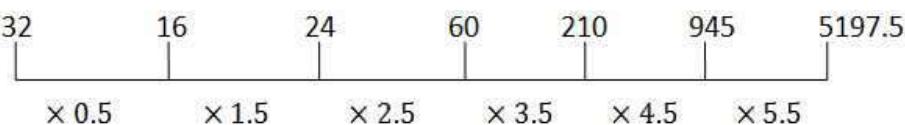
42 is written in place of 45.

20. (a)



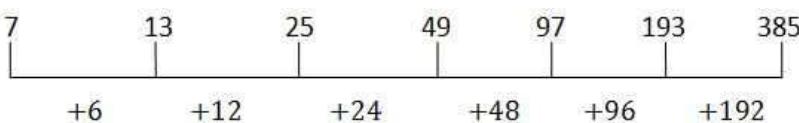
8 is written in place of 6.

21. (e)



65 is written in place of 60.

22. (d)



is written in place of 193.

23. (d)

The pattern of number series is as follows :

$$7 \times 2 - 2 = 12$$

$$12 \times 4 - (2 + 6) = 48 - 8 = 40$$

$$40 \times 6 - (8 + 10) = 240 - 18 = 222$$

$$222 \times 8 - (18 + 14) = 1776 - 32 = 1744 \neq 1742$$

$$1744 \times 10 - (32 + 18) = 17440 - 50 = 17390$$

24. (c)

The pattern of number series is as follows :

$$6 \times 7 + 7^2 = 42 + 49 = 91$$

$$91 \times 6 + 6^2 = 546 + 36 = 582 \neq 584$$

$$582 \times 5 + 5^2 = 2910 + 25 = 2935$$

$$2935 \times 4 + 4^2 = 11740 + 16 = 11756$$

$$11756 \times 3 + 3^2 = 35268 + 9 = 35277$$

25. (e)

The pattern of number series is as follows:

$$9050 - 15^3 = 9050 - 3375 = 5675$$

$$5675 - 13^3 = 5675 - 2197 = 3478$$

$$3478 - 11^3 = 3478 - 1331 = 2147$$

$$2147 - 9^3 = 2147 - 729 = 1418$$

$$1418 - 7^3 = 1418 - 343 = 1075 \neq 1077$$

Chapter

2

Alpha Series Completion

Section	Level	No. of Questions
Concept Applicator	Very Easy	20
Concept Builder	Easy	20
Concept Cracker	Moderate	10
Concept Deviator	Difficult	18

THEORY

In this type of questions, a series of single, pairs or groups of letters or combinations of letters and numbers is given. Candidate is required to recognise this pattern and accordingly find the missing terms or the wrong terms.

To understand this chapter or to perform well, one has to understand the following concept of values or relationship between Alphabets and Numericals.

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Alphabets	Q	R	S	T	U	V	W	X	Y	Z						
Numbers	17	18	19	20	21	22	23	24	25	26						

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Reverse order	Z	Y	X	W	V	U	T	S	R	Q	P	O	N	M	L	K
Alphabets	Q	R	S	T	U	V	W	X	Y	Z						
Reverse order	J	I	H	G	F	E	D	C	B	A						

It is also recommended, that one must Remember "

 "

This will help you to understand the concept or to find out the values of Alphabets without finding or writing all the alphabets with their respective values.

Ex 1: A, D, G, J, M?

Solution: A → D → G → J → M → ? = (P)

As the pattern is the gap between the letters is +3. So required letter is P.

Ex 2: 1, A, 3, C, 5, E, 7, ?

Solution: As we follow the pattern we found that the difference between the numbers is 2 and the difference between the alphabets is also two. So next be G.

Ex 3: aabab ab ab bba

Solution: Option (a) which justifies the pattern, as $\boxed{b}aab$, $ab\boxed{b}a$, $b\boxed{a}ab$, $\boxed{a}bba$

Ex 4: aa __ baa __ aaa __ ba __ ba

Solution: Option (c) the pattern, as aa \boxed{a} ba , a \boxed{b} a aa \boxed{a} ba , \boxed{a} ba

Ex 5: C2E, E5H, G12K, 127N, ?

Solution: The series follows for patterns.

$$\text{For Numbers : } \frac{2}{3}, \frac{5}{7}, \frac{12}{15}, \frac{27}{(15 \times 2 + 1)} = 31$$

For Alphabet : 

Option (c)

1. CONCEPT APPLICATOR

Directions (Qs. 1-10): In each of the following questions various terms of an alphabet series are given with one or more terms missing as shown (?). Choose the missing terms out of the given alternatives.

1. B, D, F, I, L, P, ? (S.S.C)

(a) R	(b) S
(c) T	(d) U
(e) None of these	
2. C, Z, F, X, I, V, L, T, O, ?, ? (R.B.I.)

(a) O, P	(b) P, Q
(c) R, R	(d) S, R
(e) None of these	
3. M, N, O, L, R, I, V, ? (BANK P.O)

(a) A	(b) E
(c) F	(d) H
(e) Z	
4. A, G, L, P, S, ? (R.R.B)

(a) U	(b) W
(c) X	(d) Y
(e) None of these	
5. AI, BJ, CK, ? (R.R.B)

(a) DL	(b) DM
(c) GH	(d) LM
(e) None of these	
6. ATTRIBUTION, TTRIBUTION, RIBUTIO, IBUTI, ? (I.B.P.S)

(a) IBU	(c) UT
(c) UTI	(d) BUT
(e) None of these	
7. ABD, DGK, HMS, MTB, SBL, ? (S.S.C.)

(a) XKW	(b) ZAB
(c) ZKU	(d) ZKW
(e) None of these	
8. ajs, gpy, ?, sbk, yhq (I.GNOU)

(a) dmv	(b) mve
(c) oua	(d) qzi
(e) None of these	
9. Z, Y, X, U, T, S, P, O, N, K, ?, ? (R.R.B.)

(a) H, G	(b) H, I
(c) I, H	(d) J, I
(e) None of these	

10. A, I, P, V, A, E, ?

- | | |
|-------------------|-------|
| (a) E | (b) F |
| (c) G | (d) H |
| (e) None of these | |

Directions (Qs.11-20): In each of the following questions various terms of an alphabet series are given with one or more terms missing as shown (?). Choose the missing terms out of the given alternatives.

11. GH, JL, NQ, SW, YD, ? (R.B.I.)

(a) EJ	(b) FJ
(c) EL	(d) FL
(e) None of these	
12. PERPENDICULAR, ERPENDICULA, RPENDICUL, ? (R.B.I.)

(a) PENDICUL	(b) PENDIC
(c) ENDIC	(d) ENDICU
(e) None of these	
13. Z, W, S, P, L, I, E, ? (S.S.C.)

(a) E	(b) F
(c) G	(d) H
(e) None of these	
14. BMO, EOQ, HQS, ? (S.S.C.)

(a) KSU	(b) LMN
(c) SOV	(d) SOW
(e) None of these	
15. a, d, c, f, ?, h, g, ?, i (S.S.C.)

(a) e, j	(b) e, k
(c) f, j	(d) j, e
(e) None of these	
16. H, I, K, N, ? (IGNOU)

(a) O	(b) Q
(c) R	(d) S
(e) None of these	
17. AZ, GT, MN, ?, YB (R.R.B.)

(a) JH	(b) SH
(c) SK	(d) TS
(e) None of these	

18. Z, X, S, I, R, R, ?, ?

- (a) G, I
(c) J, K
(e) None of these

19. AZ, CX, FU, ? (Hotel Management)

- (a) IR
(c) JQ
(e) None of these

20. u, b, i, p, w, ?

- (a) d
(b) f
(c) q
(d) z
(e) None of these

2. CONCEPT BUILDER

Directions (Qs. 1-10): In each of the following letter series, some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

1. aba ___ aa aa

- (a) .abbb
(c) .aabb
(e) none of these

2. ab ___ baa ___ ab ___

- (a) .aaaa
(c) .aabab
(e) none of these

3. m nm n an a ma ___

- (a) .aamnan
(c) .aammnn
(e) aaaamm

(C.B.I.)

4. a ba b b a b

- (a) .abaab
(c) .aabba
(e) none of these

(Hotel Management, R.R.B.)

5. stt tt tts ___

- (a) .sts
(c) .sstt
(e) none of these

(S.S.C.)

6. op mo n pnlop ___

- (a) .mnpmon
(c) .mnompn
(e) none of these

7. nmmn mmnn mnmm ___

- (a) .nmmn
(c) .nnmm
(e) mnmm

(C.P.O.)

8. tu rt s usrtu ___

- (a) .rtusru
(c) .rsurtr
(e) rsurss

(S.S.C.)

9. ba cb b bab

- (a) .acbb
(c) .bcaa
(e) bbca

(I.A.F.)

10. bca b aabc a caa

- (a) .acab
(c) cbab
(e) ccaa

Directions (Qs. 11-20): In each of the following letter series, some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

11. aa ba bb ab aab

- (a) .aaabb
(c) .bbaab
(e) none of these

(S.S.C.)

12. ab d aaba na badna b

- (a) .andaa
(c) badna
(e) none of these

13. a n b ncb ncb

- (a) abbbcc
(c) bacbab
(e) none of these

(S.S.C.)

14. a b abaa aab aba

- (a) aaabb
(c) babab
(e) none of these

3. CONCEPT CRACKER

Directions (Qs. 1-5): In each of the following questions, a series of letters and numbers is given, the terms of which follow certain definite pattern in groups. However, some terms in the series are missing, which are given in the same order as one of the alternatives below the series. Choose the correct alternative.

Directions (Qs. 6-10): Study the following information and answer the question that follow:-

All the vowels in the English Alphabet are retained in their original places and the remaining letters are written in the reverse order. The new sequence looks like : A, Z, Y, X, E, W, Now each of the letters in the new sequence represents the letter in the original sequence.

4. CONCEPT DEVIATOR

Directions (Qs. 1-6): Read the following carefully and answer the question that follow:-

1. AZ, GI, MN, ?, YB which one of the following can replace the question mark?

(a) KF	(b) RX
(c) SH	(d) TS
2. J2Z, K4X, I7V, ?, H16R, M22P which one of the following can replace the question mark?

(a) I11T	(b) L11S
(c) L12T	(d) L11T
3. Fill up the blanks gfe _ ig _ eii _ fei _ gf _ ii

(a) eigfi	(b) ifgie
(c) figie	(d) ifige
4. If 18514 stands for AHEAD, what does 31385 stand for?

(a) CATCH	(b) CASSET
(c) CONQUER	(d) CACHE

5. In a particular code, the digits from 0 to 9 are each represented by a different letter of the alphabet, the letter always representing the same digit. In case the following sum holds true when it is expressed in digits, which of the following cannot be correct?

$$\begin{array}{r}
 \begin{array}{cccc} B & C & D & E \end{array} \\
 + \quad \begin{array}{ccc} A & D & E \end{array} \\
 \hline
 \begin{array}{cccc} I & D & H & G \end{array}
 \end{array}$$

- (a) G must be even
 - (b) C + A must be greater than 9
 - (c) D must be greater than 3.
 - (d) B must be smaller than I
6. Complete the sequence of numbers below:

1, 11, 21, 1211, 111221,

- | | |
|--------------|-------------|
| (a) 312211 | (b) 311211 |
| (c) 11133212 | (d) 1223123 |

Directions (Qs. 7-9): Study the following information and answer the question that follow:-

The letters of the English alphabet are numbered from 26 to 1 such that 26 stands for A, 25 stands for B, and so on. The assigned numbers are used to write the letters of the original alphabet.

7. What will be the sum total of all vowels in the sequence?

- | | |
|--------|-------------------|
| (a) 78 | (b) 84 |
| (c) 76 | (d) None of these |
8. Which of the following sequences denotes a valid word?

(a) 6-12-17-23	(b) 5-11-18-22
(c) 5-12-18-23	(d) 5-12-17-23
 9. If each of the alphabets stands for the number which denotes it, what will be the next term in the following sequence?
Z, W, R, K, --

(a) A	(b) B
(c) C	(d) D

Directions (Qs. 10-13): Study the following information and answer the question that follow:-

In the English alphabet, letters from A to M denote numeric values from -13 to -1 (such that A is -13, B is -12,) and letters from N to Z denote values from 1 to 13 (such that N means 1, O means 2,).

10. Which of the following words will have a negative numeric value as a product of the numeric codes?

(a) HIS	(b) HELL
(c) ROD	(d) None of these
11. Which one of the following words will have an absolute numeric value equal to that of BELL as a product of the numeric codes?

(a) YELL	(b) HELL
(c) RODE	(d) None of these
12. Assuming that the salaries and perks are basically coded with the help of designations using the code given above, who will be drawing the highest salary amongst the following?

(a) PEON	(b) CLERK
(c) HEAD	(d) None of these
13. Out of the given four groups of letters, three groups follow a certain code. Which one of these is the odd group that does not follow the code?

(a) DSFU	(b) PGRI
(c) INKR	(d) BUDW

Directions (Qs. 14-16): Study the following information and answer the question that follow:-

In the English alphabet, letters from A to M denote numeric values from 1 to 13 (such that A is 1, B is 2,) and letters from N to Z denote numeric values from -13 to -1 (such that N is -13, O is -12,).

14. The numeric value of which of the following equations will be a whole number?
- (a) KISS/RAPP (b) HIS/HELL
(c) HISS/YOUR (d) None of the above
15. Assuming that the salaries are basically coded with the help of employee names using the code given above, who among the following will be drawing the highest salary?
- (a) PREM (b) SHAN
(c) RAMU (d) None of the above
16. Following the above mentioned code, which of the following will be true?
- (a) GS – TSZ = 0 (b) PRO = DLW
(c) ROD = YET (d) None of the above

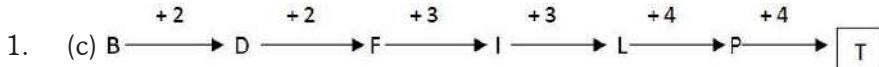
Directions (Qs. 17-18): Study the following information and answer the question that follow:-

In each of the following letter series, some of the letters are missing, which are given below it. Choose the correct alternative.

17. D_F_DEE_D_EF_DE_F
- (a) EFFDED (b) EFFDDF
(c) EFFDFE (d) None of the above
18. _OPO_QOPQ_RQPO_POR_O
- (a) APRQO (b) QPORO
(c) QPROO (d) None of the above

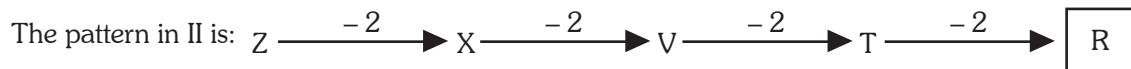
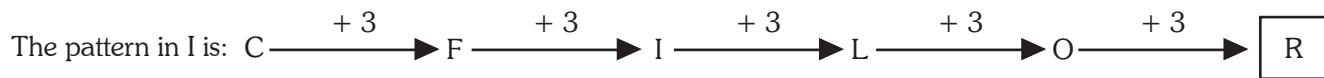
Answer with Explanation

Concept Applicator



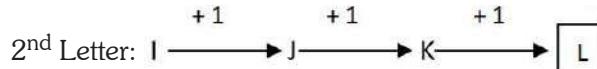
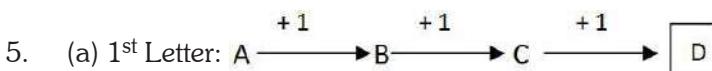
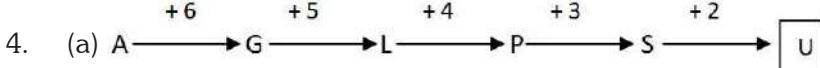
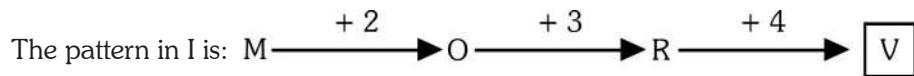
2. (c) The sequence given below is a combination of two series:

I. C, F, I, L, O, ? and II. Z, X, V, T, ?

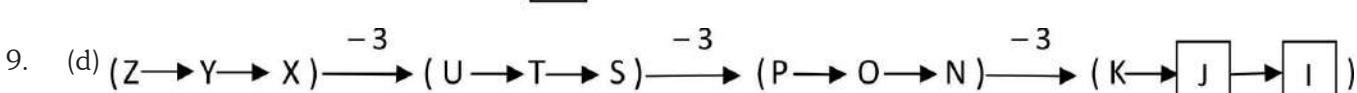
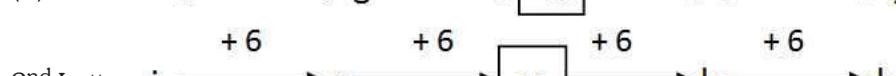
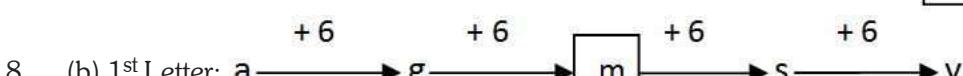
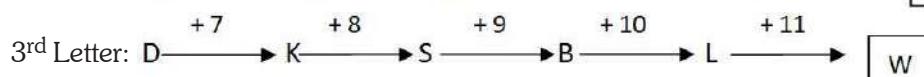
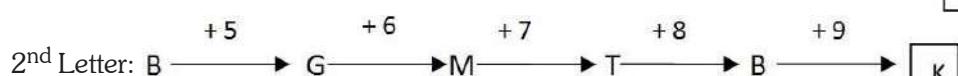
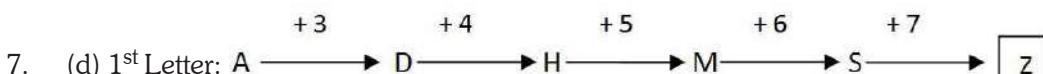


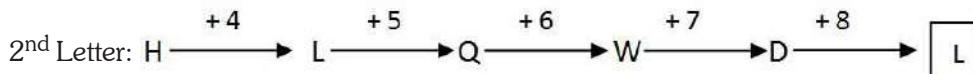
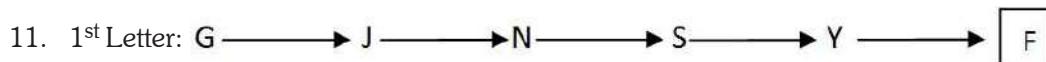
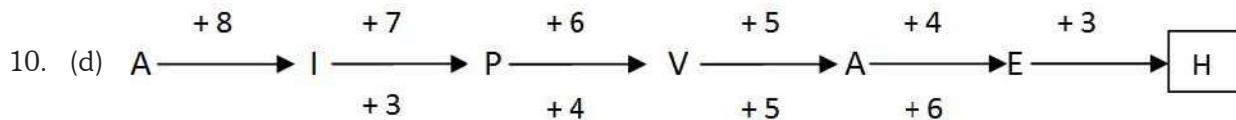
3. (b) The sequence given below is a combination of two series:

I. M, O, R, V and II. N, L, I, ?

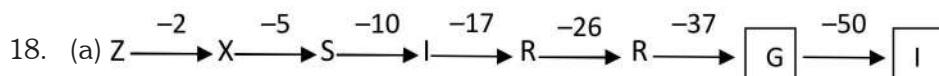
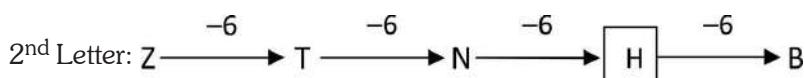
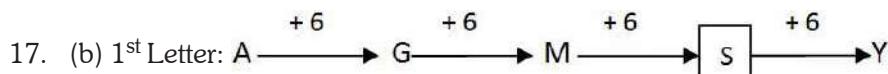
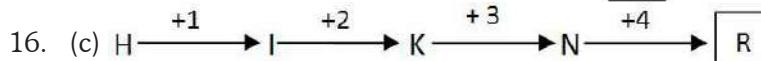
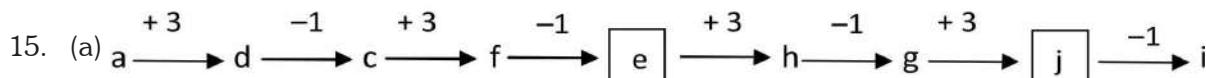
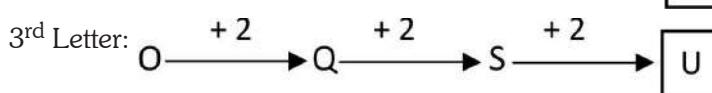
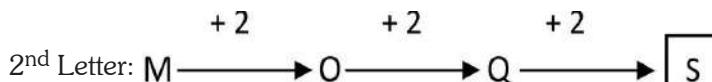
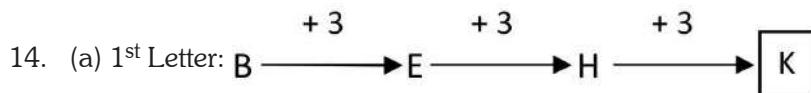
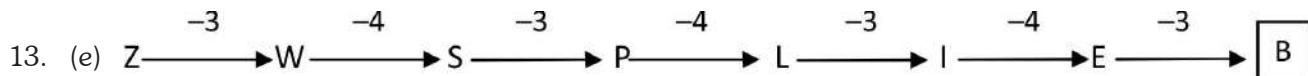


6. (c) In the first step one letter from the beginning and one letter from the end of the term is removed to give the next term. In the second step two letters from the beginning of a term are removed. These two steps are repeated alternatively and thus the missing term is UTI.

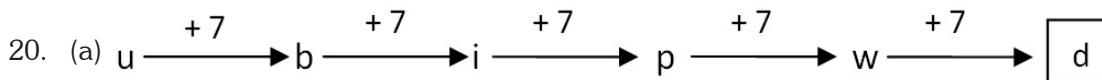
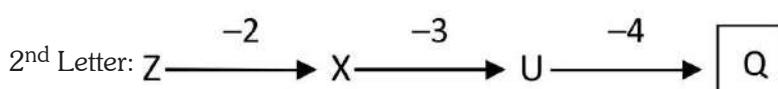
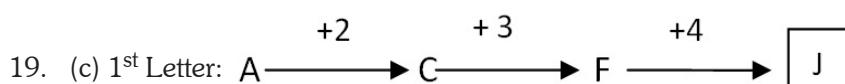




12. (e) Each term of the series is obtained by removing two letters from the preceding term – one from the beginning and one from the end. So, the missing term is PENDICU.



Here, the numbers representing the difference between the consecutive terms of the series again form a series – 2, 5, 10, 17, 26, 37, 50 – in which the pattern is + 3, + 5, + 7, + 9, + 11, + 13.

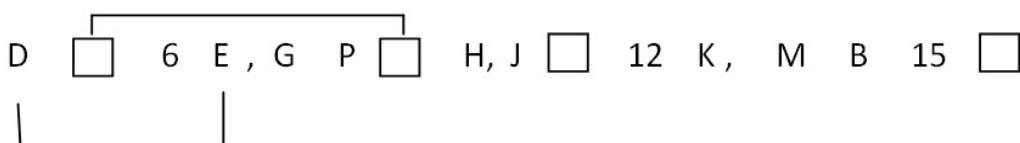


Concept Builder

1. (b) the pattern is... (aab)
2. (b) the pattern is ..(aba)
3. (c) the pattern is ... man
4. (d) the pattern is ...abb
5. (d) the pattern is ...tst
6. (a) the pattern is ... mogn
7. (c) the pattern is ... nnmm
8. (d) the pattern is ... rtus
9. (b) the pattern is ... babc
10. (a) the pattern is ... bcaa
11. (c) if we follow the pattern, i.e ... (baab)
12. (a) the pattern is .. (abadna)
13. (d) the pattern is ... (abnccb)
14. (e) the pattern may be ... (baa)
15. (a) the pattern is the letter change their place in cyclic order.
16. (a) the pattern is the letters moves in cyclic order.
17. (d)
18. (c)
19. (c) the pattern is .. number of a's increases by one and b is decreases by one.
20. (c)

Concept Cracker

1. (a) Clearly we can understand that the alphabets are arranged according to their respective numbers.
2. (a) The pattern is ...
- Z – A = 25 – 1 = 24, Y – B = 25 – 2 = 23, X – C = 24 – 3 = 21, W – D = 23 – 4 = 19,
3. (d)



First letter is D and last letter or very next letter is E. And so on..., G – H, J – K, so last letter box contain N.

Number like 6 – [] – 12 – 15 , as we can find the numbers are having difference of 3. So the second box be 9.

So these two in option d.

4. (d)
5. (d)
6. (a) The valid word will be formed by PUNYT that will become MUNCH.
7. (c) Here from the given options YTINA becomes CHINA which is a name of country.
8. (c) From the given options AKIEQ represent 'ARIEL' which is a famous brand.
9. (d) In the rearrangement we can get the word MUSCIE, FLOOD, STINT (Which are meaningful) from options (1), (2), (3) respectively.
10. (d) Original Word : C A R T O O N
pattern: - 1 + 1 - 1 + 1 - 1 + 1 - 1
Coded word: B B Q U N P M

Similarly OSHNZSX stands for NTGOYTW. i.e.

O	S	H	N	Z	S	X
- 1	+ 1	- 1	+ 1	- 1	+ 1	- 1
N	T	G	O	Y	T	W

Concept Deviator

1. (c) AZ, GT, MN, __, YB

In this series letter contain AZ, second letter G. From this we can see that A to G increasing order but Z to T decreasing order. 3rd letter also maintain same pattern respect to 2nd letter.

Now, we are considering position of each letter according to the alphabetical order.

$$A + 6 = G, G + 6 = M \Rightarrow M + 6 = S$$

$$Z - 6 = T, T - 6 = N \Rightarrow N - 6 = H$$

So, fourth term will be = SH

2. (d) J2Z, K4X, I7V, __, H16R, M22P

Here first letter contain 2 letters and one numeric value.

1st term of each letter : J K I __ H M

Here j to k increasing order but k to I decreasing order ,again h to k also increasing order.

Each step + 1, - 2, + 3, - 4.....

$$J + 1 = K, K - 2 = I, I + 3 = L,$$

$$L - 4 = H, H + 5 = M,$$

2nd term also increases by + 2, + 3, + 4, + 5 order.

$$2 + 2 = 4, 4 + 3 = 7, 7 + 4 = 11, 11 + 5 = 16,$$

$$16 + 6 = 22$$

3rd term decreases by 2 fixed order.

$$Z - 2 = X, X - 2 = V, V - 2 = T$$

Fourth letter will be L11T.

3. (b) gfe __ ig __ eii __ fei __ gf __ ii

Above series cannot be solve directly because some alphabet repeated.

So, take each option individually and put it .

Among all 4 given options only option 2 satisfied the series : gfeii/gfeii/....

4. (d) 18514 denotes AHEAD

Means 1 → A, 8 → H According to the alphabetical position.

Same as 31385, 3→A, 1→C, 3 → C, 8 → H, 5 → E
31385 ⇒ CACHE.

5. (c) Since E + E =G and maximum carry over is 1 then

$$1 + D + D = H$$

From here we can not conclude that D must be greater than 3

6. (a) Given sequence is

$$1, 11, 21, 1211, 111221, \dots\dots$$

Now analyse the terms –

$$1^{\text{st}} \text{ term} = 1$$

2nd term – It describes the 1st term that is has “one” “one” or 11

3rd term It describes the 2nd term that it has “two” “one” or 21

4th term It describe the 3rd term that it has “one” “2” and “one” “1” or 1211

5th term describes the 4th term that it has “one” “1”, “one” “2” and “two” “1” or 111221

Hence the 6th term would be – “Three” “1”, “two” “2” and “one” “1” or 312211

Solution from 7 to 9:

A	26	J	17	S	8
B	25	K	16	T	7
C	24	L	15	U	6
D	23	M	14	V	5
E	22	N	13	W	4
F	21	O	12	X	3
G	20	P	11	Y	2
H	19	Q	10	Z	1
I	18	R	9		

$$\begin{aligned} 7. \quad & (\text{b}) \text{ Sum of total vowels in the sequence} \\ & = A (26) + E (22) + I (18) + O (12) + U (6) \\ & = 26 + 22 + 18 + 12 + 6 = 84 \end{aligned}$$

8. (c) $5 - 12 - 18 - 23 \Rightarrow V - O - I - D \Rightarrow \text{VOID}$, is a valid word.

$$9. \quad (\text{b}) Z, W, R, K, \dots \Rightarrow 1, 4, 9, 16, \dots \Rightarrow 1^2, 2^2, 3^2, 4^2, \dots$$

Observing the given sequence, we conclude that $5^2 = 25 = B$ should be the next valid alphabet

Solution From 10 to 12:

As per the given conditions –

Letter	Number	Letter	Number
A	- 13	N	1
B	- 12	O	2
C	- 11	P	3
D	- 10	Q	4
E	- 9	R	5
F	- 8	S	6
G	- 7	T	7

Letter	Number	Letter	Number
H	- 6	U	8
I	- 5	V	9
I	- 4	W	10
K	- 3	X	11
L	- 2	Y	12
M	- 1	Z	13

10. (c) Evaluate the given words.

$$\text{HIS} \equiv (-6) \times (-5) \times 6 = 180$$

$$\text{HELL} \equiv (-6) \times (-9) \times (-2) \times (-2) = 216$$

$$\text{ROD} \equiv 5 \times 2 \times (-10) = -100$$

11. (a) Product of the numeric value of BELL will be
 $= (-12) \times (-9) \times (-2) \times (-2) = 432$.

Solution From 14 to 16

The letters and their numeric values are as follows.

Letter	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Value	1	2	3	4	5	6	7	8	9	10	11	12	13	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1

14. (d) From the given options only option 4 gives us a whole number.
 15. (a) PREM has the highest salary of 6435.
 16. (a) Evaluating the options we will get option (1): $GS - TSZ = (7)(-8) - (-7)(-8)(-1) = 0$ is correct
 17. (c) If we split the alphabets in a group of 3 we get following arrangement
DEF/EDE/EFD/DEF/EDE/EF
 Here, DEF are rotating in cyclic order.
 18. (d) Analyse the options one by one–

Option (A): A O P O P Q O P Q R R Q P O Q P O R Q O

Option (B): Q O P O P Q O P Q Q R Q P O R P O R Q O

Option (C): Q O P O P Q O P Q R R Q P O Q P O R Q O

None of (A), (B) and (C) follow any logical pattern.

Product of the numeric value of YELL will be

$$12 \times (-9) \times (-2) \times (-2) = -432.$$

Hence, the answer is option (1).

12. (c) Multiplying the numeric codes which are assigned to those alphabets for the designations
 $\text{PEON} \equiv 3 \times (-9) \times 2 \times 1 = -54$
 $\text{CLERK} \equiv (-11) \times (-2) \times (-9) \times 5 \times (-3) = 2970$
 $\text{HEAD} \equiv (-6) \times (-9) \times (-13) \times (-10) = 7020$
 Thus, the highest salary is for the designation HEAD.
 13. (c) INKR is the answer as all other three are having the same sum, which is equal to -4.

Chapter

3

Linear Arrangement

Section	Level	No. of Questions
Concept Applicator	Very Easy	25
Concept Builder	Easy	23
Concept Cracker	Moderate	28
Concept Deviator	Difficult	25

THEORY

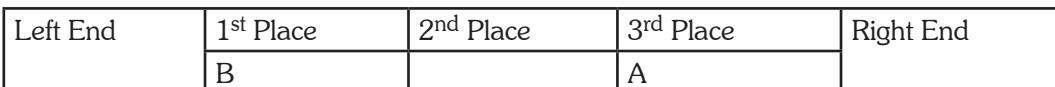
In Linear arrangement problems we are generally given a set of information about positioning of different elements with respect to other elements. From the given set of information we have to use the given information systematically to find the actual arrangement of the elements. The arrangements can be in a straight line, on chair, in rooms in a row. Another type of arrangement is arrangement in two rows parallel to each other.

Left & Right: We can use Left and Right as per Information that generally is given and its interpretation is as follows:

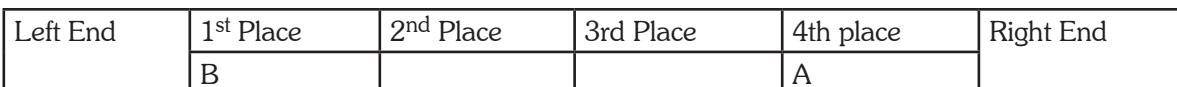
- **Left & Right:** We can use Left and Right as per our convenience. Generally (and in this book) we will use as follow:



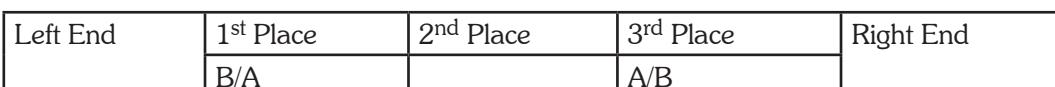
- **A is 2 places right of B:** Generally students used to get confuse that how many gaps are there between A and B. Here in this case there is only 1 gap between A and B. As it is explained in the diagram below.



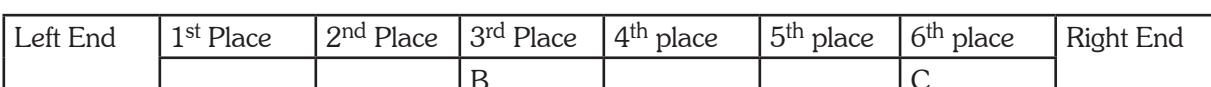
- **A is 3 places left of B:** Here in this case there is only 2 gaps between A and B. As it is explained in the diagram below. If B is at 1st place then A is at 4th place.



- **A stays 2 places away of B:** Here in this case it is not given who is in right and who is in left so we have two different cases:



- **A stays 2 places away of B who is 3 place left of C:** In this case, we can assume that B is at 3rd place then C is at 6th place,



Example 1. Six friends A, B, C, D, E and F are sitting in a row facing towards North. C is sitting between A and E. D is not at the end. B is sitting immediate right to E. F is not at the right end.

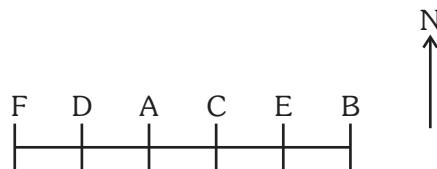
Q1. Who is on the extreme right? (SSC)

- | | | |
|-------|-------------------|-------|
| (a) B | (b) E | (c) F |
| (d) G | (e) none of these | |

Q2. Who is exactly in between F and A?

- | | | |
|-------|-------------------|-------|
| (a) A | (b) C | (c) E |
| (d) D | (e) none of these | |

Solution: B is to the immediate right of E i.e E, B. C is between A and E i.e A, C, E, B. as, D is not at the ends and F is not inn right end, so sequence in the row becomes:



1. So, extreme right is B, option (a)

2. So, exactly in between F and A, is D , option (d).

Example 2. A,B,C,D,E,F and G are sitting on a wall and all of them are facing east. C is on the immediate right of D. B is at an extreme end and has E as his neighbour. G is between E and F. D is sitting third from the south end.

(CPO)

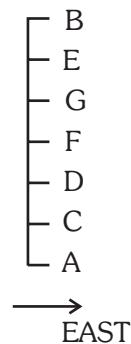
Q3. Who is sitting to the right of E?

- | | | |
|-------|-------------------|-------|
| (a) A | (b) C | (c) D |
| (d) F | (e) none of these | |

Q4. Which of the following pairs are sitting at the extreme ends?

- | | | |
|--------|-------------------------|--------|
| (a) AB | (b) AE | (c) CB |
| (d) FB | (e) cannot be determine | |

Solution: The arrangement is :



3. Option (e). G is right of E

4. Option (a) AB

1. CONCEPT APPLICATOR

Directions (Qs.1–2): Read the following information and answer the questions given below:

1. Five friends A,B,C, D and E are standing in a row facing south but not necessarily in the same order. Only B is between A and E, C is immediate right to E and D is immediate left to A. on the basis of above information, which of the following statements is definitely true? (SBI)

- (a) B is to the left of A
- (b) D is third to the left of E
- (c) B is to the right of E
- (d) A is second to the left of C
- (e) None of these

2. A, P, R, X, S and Z are sitting in a row. S and Z are in the centre and A and P are at the ends. R is sitting on the left of A. then who is sitting on the right of P? (SSC)

- | | |
|-------|-------|
| (a) A | (b) S |
| (c) X | (d) Z |
| (e) R | |

Directions (Qs.3–6): Read the following information and answer the questions given below:

[BANK OF INDIA PO]

- (i) P, Q, R, S and T finished the work, working from Monday to Saturday, one of the days being a holiday, each working overtime only on one of the days.
- (ii) R and T did not work overtime on the first day
- (iii) Q worked overtime the next day after the holiday
- (iv) The overtime work done on the previous day of the holiday was by R
- (v) There was a two days' gap between the days on which P and Q worked overtime.
- (vi) P worked overtime the next day of the overtime day of S.

3. When did T work overtime?

- (a) On the day previous of that on which S worked overtime
- (b) On the next day of the day on which Q worked overtime
- (c) Two days after the day on which S worked overtime
- (d) Cannot be determined
- (e) None of these

4. How many days' gap was there between the days on which P and T worked overtime?

- (a) Three
- (b) Two
- (c) One
- (d) Cannot be determined
- (e) None of these

5. On what day did R work overtime?

- | | |
|-------------------|-------------|
| (a) Monday | (b) Tuesday |
| (c) Thursday | (d) Friday |
| (e) None of these | |

6. Which of the following is a correct statement?

- (a) P worked overtime, last among them.
- (b) P worked overtime earlier than S
- (c) The holiday was on Friday
- (d) S worked overtime earlier than Q
- (e) None of these

Directions (Qs.7–11): Study the following information carefully and answer the questions given below: [RBI GRADE B OFFICER]

- (i) A, B, C, D, E, F, G and H are eight students, each having a different height.
- (ii) D is shorter than A but taller than G
- (iii) E is taller than H but shorter than C
- (iv) B is shorter than D but taller than F
- (v) C is shorter than G
- (v) G is not as tall as F
- 7. Which of the following is definitely false?
 - (a) G is shorter than F
 - (b) C is shorter than F
 - (c) F is taller than C
 - (d) B is taller than E
 - (e) All are true
- 8. If another student J, who is taller than E but shorter than G, is added to the group, which of the following will be definitely true?
 - (a) C and J are of the same height
 - (b) J is shorter than D
 - (c) J is shorter than H
 - (d) J is taller than A
 - (e) None of these

Directions (Qs.12–14): Study the following information carefully and answer the questions, which follow: [SYNDICATE PO]

[SYNDICATE PO]

Five plays A, B, C, D and E were organized in a week from Monday to Saturday with one play each day and no play was organized on one of these days. Play D was organized before Thursday but after Monday. Play E was organized on Saturday. Play C was not organized on the first day. Play B was organized on the next day on which play C was organized. Play A was organized on Tuesday.

12. On which day was play B was organized?

(a) Thursday (b) Friday
(c) Wednesday (d) data inadequate
(e) None of these

13. On which day was no play organized?

(a) Monday (b) Wednesday
(c) Thursday (d) Data inadequate
(e) None of these

14. Which play was organized on Wednesday?

(a) A (b) C
(c) D (d) Data inadequate
(e) None of these

Directions (Qs. 15-19): Study the following information to answer the given questions:

[CENTRAL BANK OF INDIA PO]

- (i) Six plays are to be organized from Monday to Sunday – one play each day with one day when there is no play. ‘No play’ day is not Monday or Sunday.
 - (ii) The plays are held in sets of 3 plays each in such a way that 3 plays are held without any break, ie 3 plays are held in such a way that there is no ‘No

Directions (Qs. 20-25): Study the following information to answer the given questions:

[CORPORATION BANK POI]

Twelve people are sitting in two parallel rows containing six people each, in such a way that there is an equal distance between adjacent persons. In row 1, P, Q, R, S, T and V are seated and all of them are facing south. In row 2, A, B, C, D, E and F are seated and all of them are facing north. Therefore, in the given seating arrangement each member seated in a row faces another member of the other row. A sits third to right of D. neither A nor D sits

Linear Arrangement

at extreme ends. T faces D. V does not face A and V does not sit at any of the extreme ends. V is not an immediate neighbour of T. B sits at one of the extreme ends. Only two people sit between B and E. E does not face V. two persons sit between R and Q. R is not an immediate neighbour of T. C does not face V. P is not an immediate neighbour of R.

20. Who amongst the following sit at extreme ends of the rows?

- | | |
|-------------------|----------|
| (a) B, E | (b) S, T |
| (c) P, R | (d) B, F |
| (e) None of these | |

21. Who amongst the following faces A?

- | | |
|-------|-------|
| (a) R | (b) T |
| (c) P | (d) Q |
| (e) S | |

22. How many persons are seated between T and S?

- | | |
|-----------|----------|
| (a) one | (b) Two |
| (c) Three | (d) Four |
| (e) None | |

23. P is related to V in the same way as C is related to F. which of the following is E related to, following the same pattern?
- | | |
|-------------------|-------|
| (a) B | (b) D |
| (c) C | (d) A |
| (e) None of these | |

24. Which of the following is true regarding F?

- | |
|---|
| (a) F sits second to right of C |
| (b) F is not an immediate neighbour of A. |
| (c) F sits third to left of D |
| (d) F sits at one of the extreme ends of the line |
| (e) F faces V. |

25. Who amongst the following sits exactly between P and Q?

- | |
|--------------------------|
| (a) R |
| (b) V |
| (c) S |
| (d) T |
| (e) Cannot be determined |

2. CONCEPT BUILDER

Directions (Qs.1–3): Study the following information for answer the given questions:

[CORPORATION BANK PO]

A building has seven floors numbered one to seven, in such a way that the ground floor is numbered one, the floor above it number two, and so on, such that the topmost floor is numbered seven. One out of seven people viz, A, B, C, D, E, F and G, lives on each floor. A lives on fourth floor. E lives on the floor immediately below F's floor. F does not live on the second or the seventh floor. C does not live on an odd-numbered floor. B does not live on a floor immediately above or below C's floor. D does not live on the topmost floor. G does not live on any floor below E's floor.

1. Who lives on the topmost floor?

- | | |
|--------------------------|-------|
| (a) B | (b) C |
| (c) E | (d) G |
| (e) Cannot be determined | |

2. Who lives immediately above D's floor?

- | | |
|-------|-------|
| (a) A | (b) B |
| (c) C | (d) F |
| (e) G | |

3. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?

- | | |
|-------|-------|
| (a) F | (b) D |
| (c) B | (d) G |
| (e) C | |

Directions (Qs. 4–5): Study the following information carefully and answer the given questions. [ALLAHABAD BANK PO]

Amongst five friends, each got a different percentage of marks in the examination. Poonam scored more than Ben but less than Ajay. Ajay scored 70% marks. Shreya scored less marks than only Kim. The one who scored the minimum marks scored 65% marks and the one who scored the highest, scored 87% marks.

4. Who scored the second lowest marks?

- | |
|------------|
| (a) Ben |
| (b) Kim |
| (c) Shreya |
| (d) Ajay |
| (e) Poonam |

5. Who is the most likely to have scored 82% marks?

- (a) Ben (b) Poonam
- (c) Shreya (d) Kim
- (e) Either Kim or Ben

Directions (Qs. 6 to 11): Study the following information to answer the given questions:

[ALLAHABAD BANK PO]

Ten people are sitting in two parallel rows containing five people each, in such a way that there is an equal distance between adjacent persons. In row 1, P, Q, R, S and T are seated and all of them are facing south. In row 2, A, B, C, D and E are seated and all of them are facing north. Therefore, in the given seating arrangement, each member seated in a row faces another member of the other row. D sits third to the left of A. P faces immediate neighbour of D. R sits second to the right of P. only one person sits between Q and S. B and E are immediate neighbours. E does not face P and Q. allahabad bank 2011

6. How many persons are seated between Q and T?

- (a) None (b) one
- (c) two (d) three
- (e) cannot be determined

7. Four of the following five are alike in a certain way and thus form a group. Which is the one that does not belong to that group?

- (a) R (b) S
- (c) C (d) T
- (e) A

8. Who amongst the following are sitting exactly in the middle of the rows?

- (a) P, E (b) S, D
- (c) S, A (d) A, R
- (e) P, B

9. Which of the following is true regarding B?

- (a) A and C are immediate neighbours of B
- (b) B sits at one of the extreme ends of the line
- (c) Q faces B
- (d) T is an immediate neighbour of the person facing B
- (e) D sits on the immediate left of B

10. Four of the following five are alike in a certain way and thus form a group. Which is the one that does not belong to that group?

- (a) T - E (b) Q - C
- (c) S - B (d) R - A
- (e) P - D

11. Who amongst the following faces S?

- (a) A (b) B
- (c) C (d) D
- (e) E

Directions (Qs. 12 – 16): Study the following information carefully and answer the given questions:

[ANDHRA BANK PO]

(i) Five topics A, B, C, D and E are to be discussed one topic each day, from Monday to Saturday.

(ii) Topic A will be discussed before E and topic B will be discussed before D.

(iii) Topics B and D will not be discussed on the first day.

(iv) There will be one rest day denoted by F.

(v) There will be a gap of two days between the days on which topics D and B will be discussed

(vi) Topic C will be discussed immediately before the rest day. The rest day will not be the second or the fourth day. Andhra bank 2011

12. Which of the following is the correct sequence of the discussion on the topics including the rest day 'F'?

- (a) AEBFCD (b) ABECFD
- (c) AEBCFD (d) cannot be determined
- (e) None of these

13. Which of the following is a correct statement?

- (a) Topic A will be discussed on Tuesday
- (b) Discussion on topic C will be immediately preceded by discussion on topic B
- (c) Discussion on topic B will take place before that on A
- (d) Thursday is the rest day
- (e) None of these

14. On which of the following days will the topic C be discussed?

- (a) Tuesday (b) Wednesday
- (c) Friday (d) Cannot be determined
- (e) None of these

15. How many days' gap will be there between the days on which topic E and B will be discussed?

- (a) Nil (b) One
- (c) Two (d) Three
- (e) None of these

16. With reference to A, the discussion on topic E will take place _____.

- (a) immediately on the next day
- (b) after a day's gap
- (c) after three days
- (d) Cannot be determined
- (e) None of these

Directions (Qs. 17-19): Study the following information to answer the given questions:

[INDIAN OVERSEAS BANK PO]

P, Q, R, S, T, V and W are sitting in a straight line facing north. Each one of them lives on a different floor in the same building which is numbered from one to seven. Q sits fourth to the left of the person living on the 6th floor. Either Q or the person living on the 6th floor sits at the extreme ends of the line. Only one person sits between Q and W. W lives on the 3rd floor. The person living on the 1st floor sits third to right of S. S is not an immediate neighbor of W. Only one person lives between T and the person who lives on the 2nd floor. P and R are immediate neighbours of each other. P does not live on the 6th floor. One who lives on the 5th floor sits third to right of the one who lives on the 7th floor.

Directions (Qs. 20 – 23): Study the following information to answer the given questions:

Directions (Qs. 1–5): Study the following information to answer the given questions:

[CORPORATION BANK PO]

Each of the seven plays viz. P, Q, R, S, T, V and W are scheduled to be staged on a different day of a week starting from Monday and ending on Sunday of the same week. Play V is scheduled on Thursday. Two plays are scheduled to be held between Play V and Play P. only one play is scheduled between Play T and Play S. Play

T is not scheduled on the days immediately before or immediately after the day when Play V is scheduled. Play R is scheduled the day immediately before the day when Play W is scheduled. Play S is not scheduled after Play Q.

2. Which of the following plays is scheduled on Saturday?
- Q
 - W
 - R
 - S
 - T
3. R is related to S in a certain way. In the same way P is related to V based on the given schedule. Which of the following is W related to following the same pattern?
- P
 - Q
 - R
 - T
 - Cannot be determined
4. On which of the following days is Play W scheduled?
- Monday
 - Tuesday
 - Wednesday
 - Saturday
 - Cannot be determined
5. Which of the following plays is scheduled on Friday?
- R
 - T
 - Q
 - W
 - S

Directions (Qs. 6 – 11): Study the following information to answer the given questions:

[SBI ASSOCIATES BANK PO]

Twelve people are sitting in two parallel rows containing six people each such that they are equidistant from each other. In row 1 : P, Q, R, S, T and V are seated and all of them are facing South. In row 2 : A, B, C, D, E and F are seated and all of them are facing North. Therefore, in the given seating arrangement, each member seated in a row faces another member of the other row.

S sits third to the right of Q. Either S or Q sits at an extreme end of the line. The one who faces Q sits second to the right of E. Two people sit between B and F. neither B nor F sits at an extreme end of the line. The immediate neighbour of B faces the person who sits third to the left of P. R and T are immediate neighbours. C sits second to the left of A. T does not face the immediate neighbour of D.

6. Who amongst the following sit at the extreme ends of the rows?
- S, D
 - Q, A
 - V, C
 - P, D
 - Q, F
7. Who amongst the following faces S?
- A
 - B
 - C
 - D
 - F

8. How many persons are seated between V and R?
- One
 - Two
 - Three
 - Four
 - None of these
9. P is related to A in the same way as S is related to B based on the given arrangement. Which of the following is T related to, following the same pattern?
- C
 - D
 - E
 - F
 - Cannot be determined
10. Which of the following is true regarding T?
- F faces T
 - V is an immediate neighbour of T
 - F faces the one who is second to the right of T
 - T sits at one of the extreme ends of the line
 - Q sits second to the right of T
11. Four of the following five are alike in a certain way based on the given arrangement and so form a group. Which is the one that does not belong to that group?
- A - T
 - B - T
 - F - P
 - C - V
 - E - Q

Directions (Qs. 12 – 13) : Read the following information carefully and answer the questions which follow.

[IBPS CWE PO/MT]

A, B, C, D, E and F live on different floors in the same building having six floors numbered one to six (the ground floor is numbered one, the floor above it is numbered two, and so on, and the topmost floor is numbered 6). A lives on an even-numbered floor. There are two floors between the floors on which D and F live. F lives on a floor above D's floor. D does not live on the floor numbered two. B does not live on an odd-numbered floor. C does not live on any of the floors below F's floor. E does not live on a floor immediately above or immediately below the floor on which B lives.

12. Who among the following live on the floors exactly between D and F?
- E, B
 - C, B
 - E, C
 - A, E
 - B, A
13. On which of the following floors does B live?
- Sixth
 - Fourth
 - Second
 - Fifth
 - Cannot be determined

Directions (Qs. 14 – 20): Study the following information to answer the given questions.

[RBI GRADE B OFFICER]

Eight people, viz A, B, C, D, E, F, G and H are sitting in a straight line facing North. Each of them has passed a recruitment exam and must join the office in different months, viz January, February, March, April, May, June, July and August but not necessarily in the same order.

- G sits third to the right of the person who joins in May. The person who joins in August sits second to the right of G. A and E are immediate neighbours of each other. Neither A nor E has joining dates in either May or August. Neither A nor E is an immediate neighbour of G.
- H sits third to the right of the person whose joining date is in January. Neither A nor E has joining dates in January. H's joining date is not in August
- Only two people sit between E and the person whose joining date is in July. The person whose joining date is in February sits on the immediate left of D.
- Only one person sits between E and B. C joins before July. E joins after April. G joins after A.

14. In which of the following months does H join the office?

- | | |
|-----------|--------------|
| (a) April | (b) June |
| (c) July | (d) February |
| (e) March | |

15. Who among the following sits exactly between E and B?

- | |
|--|
| (a) The person whose joining date is in May |
| (b) The person whose joining is in January |
| (c) D |
| (d) A |
| (e) The person whose joining date is in August |

16. 'H' is related to 'July' in a certain way based on the above arrangement. 'B' is related to 'June' following the same pattern. '_____ ' is related to 'May' following the same pattern.

- | | |
|-------|-------|
| (a) F | (b) G |
| (c) A | (d) D |
| (e) C | |

17. Which of the following is true regarding D?

- | |
|---|
| (a) Only two people sit to the left of D |
| (b) D is sitting second to the right of the person whose joining date is in July. |
| (c) E and B are immediate neighbours of D |
| (d) D's joining date is in May. |
| (e) None is true |

18. Who among the following has joining date in June?

- | | |
|-------|-------|
| (a) F | (b) E |
| (c) G | (d) D |
| (e) C | |

19. How many people sit between C and the person whose joining date is in April?

- | | |
|----------|-----------|
| (a) None | (b) One |
| (c) Two | (d) Three |
| (e) Four | |

20. Who among the following are sitting at extreme ends of the line?

- | |
|---|
| (a) A and the person whose joining date is in August |
| (b) The person whose joining date is in May and E |
| (c) C and G |
| (d) The persons whose joining dates are in March and June |
| (e) None of these |

Directions (Qs. 21 – 23): Read the following information carefully and answer the questions which follow.

[RBI GRADE B OFFICER]

P, Q, R, S, T and V live on different floors of the same building having six floors numbered one to six (the ground floor is numbered 1, the floor above it is numbered 2, and so on, and the topmost floor is numbered 6). There are two floors between on which Q and V live. Q lives on a floor below V's floor. Neither P nor T lives on a floor immediately above or immediately below the floor on which Q lives. P does not live on an odd-numbered floor. There is only one floor between the floors on which S and T live. T does not live on a floor immediately above or immediately below the floor on which R lives.

21. On which of the following floors does V live?

- | | |
|--------------------------|---------------------|
| (a) 4 th | (b) 3 rd |
| (c) 6 th | (d) 5 th |
| (e) Cannot be determined | |

22. Who among the following lives on eth topmost floor, ie floor number 6?

- | | |
|-------------------|-------|
| (a) T | (b) S |
| (c) R | (d) P |
| (e) Either V or P | |

23. How many floors are there between the floors on which R and T live?

- | | |
|----------|-----------|
| (a) None | (b) One |
| (c) Two | (d) Three |
| (e) Four | |

Directions (Qs. 24–25): Read the following information carefully and answer the questions which follow.

[RBI GRADE B OFFICER]

Directions (Qs. 26–28): Study the following information carefully to answer the given questions:

[IBPS PO/MT]

Each of the six friends – A, B, C, D, E and F – scored

- different marks in an examination. C scored more than only A and E. D scored less than only B. E did not score the least. The one who scored the third highest marks scored 81 marks. E scored 62 marks.

4. CONCEPT DEVIATOR

Directions (Qs. 1–3): Study the following information to answer the given questions.

Ajay would do five tasks: A, B, C, D and E, starting at 9 am in the morning. A is the first task and takes two hours. B can be done after A is completed and requires 1 hour. Work on C which would take 1 hour can start only after A and B are complete. Ajay can do task D along with B and C and would take 3 hours for that. Activity E with duration of 1 hour can start on completion of A, B, C and D.

Directions (Qs. 4–6): Study the following information to answer the given questions.

Six products - Ariel, Vivel, Rin, Nirma, Gillette Gel and Pepsodent - are to be placed in six display windows' of a shop numbered 1-6 from left to right of a shopper standing outside the shop. As per the company requirements, Rin and Ariel should be displayed next to each other, but Ariel should be at least three windows away from Nirma. Pepsodent is preferred to be kept between Gillette Gel and Rin but away from Vivel at least by two windows. Vivel cannot be displayed next to Rin for the reasons of mixed-product identity. Also Vivel cannot be displayed in window 1.

6. Which of the following products except Rin will be displayed left of Ariel but right of Gillette Gel?
- Vivel
 - Rin
 - Pepsodent
 - None of these

Directions (Qs. 7-9): Study the following information to answer the given questions.

In a cycling race, five participants from various nations — Chinese, Nepalese, Indian, Iraqi and English — take part. Track 1 is extreme left and Track 5 is extreme right. The following conditions exist:

- The Nepalese and the Englishmen are not cycling adjacent to each other.
 - The Iraqi is not in one of the extreme tracks.
 - The Chinese is to the left of the Indian.
7. If the Nepalese is in Track 3, the Chinese in Track 1, then the Indian could be in :
- Track 4
 - Track 2
 - Track 2 or 4
 - None of the above
8. If the Nepalese is in Track 4 and the Indian is in Track 3, then the English man could be in :
- Track 1
 - Track 2
 - Track 1 or 2
 - None of the above
9. If the Iraqi is to the left of the Chinese, then the Iraqi could be in :
- Track 2 only
 - Track 3 only
 - Track 2 or 3
 - None of the above

10. There are 6 volumes of books on a rack kept in order (such as, vol. 1, vol. 2 and so on). After some readers used them, their order got disturbed. The changes showed as follows:

Vol. 5 was directly to the right of vol. 2.

Vol. 4 has vol. 6 to its left and both were not at Vol. 3 splace.

Vol. 1 has Vol. 3 on right and Vol. 5 on left.

An even numbered volume is at Vol. 5's place.

Find the order in which the books are kept now, from the 4 given alternatives:

- 6, 3, 5, 1, 4, 2
- 4, 6, 3, 5, 1, 2
- 3, 4, 1, 6, 5, 3
- 2, 5, 1, 3, 6, 4

Directions (Qs. 11-15): Refer to the following statements and answer the questions:

Seven students Priya, Ankit, Raman, Sunil, Tony, Deepak and Vicky take a series of tests. No two students get similar marks. Vicky always scores more than Priya. Priya always scores more than Ankit. Each time either Raman scores the highest and Tony gets the least, or alternatively Sunil scores the highest and Deepak or Ankit scores the least.

11. If Sunil is ranked sixth and Ankit is ranked fifth, which of the following can be true?
- Vicky is ranked first or fourth
 - Raman is ranked second or third
 - Tony is ranked fourth or fifth
 - Deepak is ranked third or fourth
12. If Raman gets the highest, Vicky should be ranked not lower than:
- Second
 - Third
 - Fourth
 - Fifth
13. If Raman is ranked second and Ankit is ranked first, which of the following must be true?
- Sunil is ranked third
 - Tony is ranked third
 - Priya is ranked sixth
 - none of these
14. If Sunil is ranked second, which of the following can be true?
- Deepak gets more than Vicky
 - Vicky gets more than Sunil
 - Priya gets more than Raman
 - Priya gets more than Vicky
15. If Vicky is ranked fifth, which of the following must be true?
- Sunil scores the highest
 - Raman is ranked second
 - Tony is ranked third
 - Ankit is ranked second
16. Among Anil, Bibek, Charu, Debu, and Eswar, Eswar is taller than Debu but not as fat as Debu. Charu is taller than Anil but shorter than Bibek. Anil is fatter than Debu but not as fat as Bibek. Eswar is thinner than Charu, who is thinner than Debu. Eswar is shorter than Anil. Who is the thinnest person?
- Bibek
 - Charu
 - Debu
 - Eswar
17. Ganesh Cultural Centre for promoting arts has appointed 3 instructors for music, dance, and painting. Music instructor takes session from 12 noon to 4:00 pm on Monday, Thursday and Sunday. The sessions of dance instructor are scheduled on Tuesday, Thursday, Wednesday and Sunday between 10:00 am to 2:00 pm. The 9:00 am to 12:00 noon slot on Tuesday, Friday and Thursday and also 2:00 pm to 4:00 pm slot on Wednesday, Saturday and

Sunday is filled up by Painting Instructor. On which day(s) of a week the dance and painting sessions are simultaneously held?

- (a) Sunday and Wednesday
- (b) Tuesday and Friday
- (c) Tuesday and Thursday
- (d) Only on Tuesday

Directions (Qs. 18–22): Read the following information and choose the right alternative in the questions that follow.

During the cultural week of an institute six competitions were conducted. The cultural week was inaugurated in the morning of 19th October, Wednesday and continued till 26th October. In the span of 8 days six competitions namely debate, folk dance, Fash-p, street play, rock band, and group song, were organized along with various other cultural programs. The information available from the institute is:

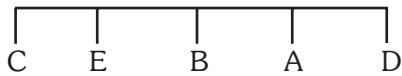
- i. Only one competition was held in a day.
 - ii. Rock band competition was not conducted on the closing day.
 - iii. Fash-p was conducted on the day prior to debate competition.
 - iv. Group song competition was conducted neither on Wednesday nor on Saturday.
 - v. None of the competition was conducted on Thursday and Sunday.
 - vi. Street Play competition was held on Monday.
 - vii. There was gap of two days between debate competition and group song competition.
18. The cultural week started with which competition?
- (a) Fash-p competition
 - (b) Debate competition
 - (c) Street play competition
 - (d) rock band competition
19. How many days gap is there between rock band competition and group song competition?
- (a) Two
 - (b) Three
 - (c) four
 - (D) Five
20. Which pair of competition was conducted on Wednesday?
- (a) Rock band competition & debate competition
 - (b) Debate competition & fash-p competition
 - (c) Rock band competition & folk dance competition
 - (d) None of these

21. Which competition exactly precedes the street play competition?
 - (a) rock band competition
 - (b) Group song competition
 - (c) Debate competition
 - (d) Fash-p competition
 22. Fash-p competition follows with which competition?
 - (a) Debate competition
 - (b) Street play competition
 - (c) Rock band competition
 - (d) None of these
- Directions (Qs. 23–25):** Read the information given below and answer the questions that follow the information.
- A parking lot can accommodate only six cars. The six cars are parked in two rows in such a way that the front of the three cars parked in one row is facing the other three cars in the other row.
- i. Alto is not parked in the beginning of any row.
 - ii. Esteem is second to the right of i10.
 - iii. Punto which is the neighbor of Alto is parked diagonally opposite to i10.
 - iv. Swift is parked in front of Alto v. SX4 is parked to the immediate right of Alto. [IIFT]
23. If SX4 and Esteem exchange their positions mutually then car(s) adjacent to Esteem is (are)?
- (a) i10 and Swift
 - (b) Only Swift
 - (c) Only Alto
 - (d) Alto & Punto
24. If Alto changes position with i10 and Punto changes position with SX4 and Swift shifts one position to the right to accommodate Beatle then the car(s) parked adjacent to Beatle is (are)?
- (a) Punto only
 - (b) i10
 - (c) Punto and Alto
 - (d) Alto and Swift
25. In the original parking scheme four new cars enter the parking lot such that Wagon-R is second to the right, of i10 and Zen is second to the left of SX4. Jazz is parked second to the left of Wagon-R and Beat is parked to the right of Alto then the cars that moved out are?
- (a) Esteem and Swift
 - (b) Punto and Alto
 - (c) i10 and Alto
 - (d) Punto and SX4

Answer with Explanation

Concept Applicator

1. (b): As all are facing south ...so the arrangement be.



2. (c)

Solution for 3 – 6 :

Person	Overtime
S	Monday
P	Tuesday
R	Wednesday
Holiday	Thursday
Q	Friday
T	Saturday

3. (b) 4. (a) 5. (e)
6. (d)

Solution for 7 – 11 :

A > D > G(ii)

C > E > H(iii)

D > B > F(iv)

G > C(v)

F > G(vii)

Combining these, we get A > D > B > F > G > C > E > H

7. (e) is the correct answer.
8. (b) is the correct answer; A > D > B > F > G > C, J > E > H
9. (a) is the correct answer
10. (b) is the correct answer; G, C, E and H
11. (e) is the correct answer.

Solution for 12 – 14 :

Day	Play
Monday	No play
Tuesday	A
Wednesday	D

Day	Play
Thursday	C
Friday	B
Saturday	E

12. (b) is the correct answer.

13. (a) is the correct answer.

14. (c) is the correct answer.

Solution for 15 – 19:

Date	Day	Play
25	Monday	A
26	Tuesday	Z
27	Wednesday	B
28	Thursday	No play
29	Friday	M
30	Saturday	Q
31	Sunday	X

15. (e) is the correct answer i.e. A

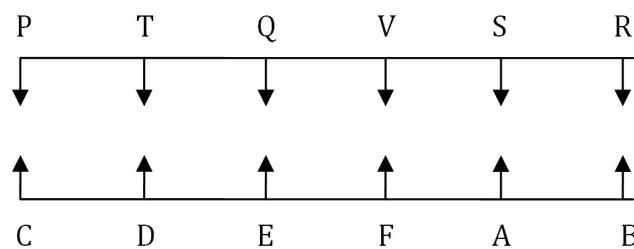
16. (a) is the correct answer

17. (b) is the correct answer

18. (d) is the correct answer

19. (c) is the correct answer

Solution for 20 – 25:



20. (c) is the correct answer

21. (e) is the correct answer

22. (b) is the correct answer

23. (a) is the correct answer

24. (e) is the correct answer

25. (d) is the correct answer

Concept Builder

Solution for 1 – 3:

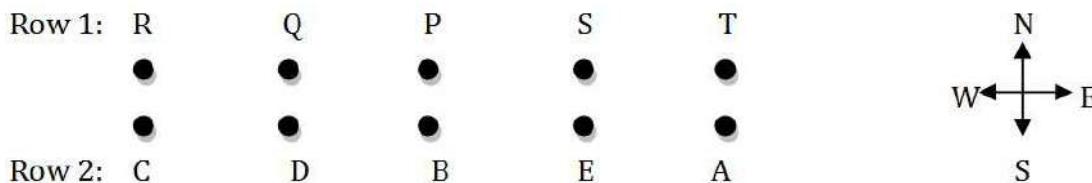
7	G
6	C
5	D
4	A
3	F
2	E
1	B

1. (d) is the correct answer
2. (c) is the correct answer
3. (e) is the correct answer; All others live on odd numbered floors

Solution for 4 – 5:

When arranged according to marks Kim (87%) > Shreya > Ajay (70%) > Poonam > Ben (65%)

4. (e) is the correct answer
5. (c) is the correct answer

Solution for 6 – 11:


6. (c) is the correct answer; P and S
7. (b) is the correct answer; All others are sitting at the ends
8. (e) is the correct answer
9. (e) is the correct answer
10. (d) is the correct answer; In all other, the second is the neighbour of the one facing the first.
11. (e) is the correct answer; E

Solution for 12 – 16:

Monday	A
Tuesday	E
Wednesday	B
Thursday	C
Friday	F
Saturday	D

12. (c) is the correct answer
13. (b) is the correct answer
14. (e) is the correct answer; Thursday
15. (a) is the correct answer

Solution for 16 – 22 :

- | | | | | | | |
|---|---|---|---|---|---|---|
| S | V | Q | T | W | P | R |
| | | | | | | |
| 4 | 2 | 7 | 1 | 3 | 5 | 6 |
16. (d) is the correct answer
 17. (a) is the correct answer
 18. (b) is the correct answer
 19. (c) is the correct answer; Except S, all others live on a floor with odd number.
 20. (e) is the correct answer; The floor number of every person is written by increasing 1 in their actual floor number but that of Q it is written by decreasing 1.
 21. (e) is the correct answer
 22. (e) is the correct answer;
- | | | | | | | | |
|--------|---|---|---|---|---|---|---|
| Floor: | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------|---|---|---|---|---|---|---|
- Original Arrangement: T V W S P R Q
- In alphabetical order: P Q R S T V W

Concept Cracker

Solution for 1 - 5:

Mon	P
Tue	R
Wed	W
Thu	V
Fri	S
Sat	Q
Sun	T

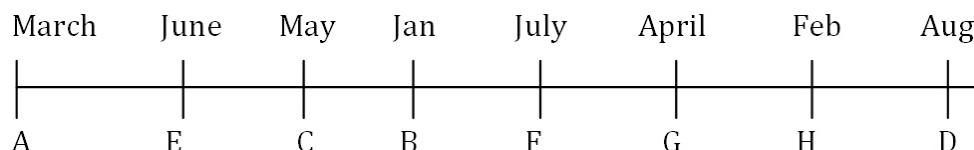
1. (c) is the correct answer
 2. (a) is the correct answer
 3. (b) is the correct answer
 4. (c) is the correct answer
 5. (e) is the correct answer

Solution for 6 - 11:

Row 1.	\downarrow	P	V	S	T	R	Q
Row 2.	\uparrow	C	F	A	E	B	D

6. (d) is the correct answer
 7. (a) is the correct answer

Solution for 14 – 20:



- 14. (d) is the correct answer
 - 16. (a) is the correct answer
 - 18. (b) is the correct answer
 - 20. (a) is the correct answer

Solution for 21 - 23:

Floor	Person
6	P
5	T
4	V
3	S
2	R
1	Q

21. (a) is the correct answer
22. (d) is the correct answer
23. (c) is the correct answer

Solution for 24 – 25: The information can be reproduced as follows:

Karan > Rahul > Dana > Sudha = Parul > Abhishek > Bharat

8. (b) is the correct answer
 9. (b) is the correct answer
 10. (c) is the correct answer
 11. (e) is the correct answer; there is a difference of one in all the rest

Solution for 12 – 13: From the information given in the question, we can have the following table:

Floor	Person
1	D
2	A
3	E
4	F
5	C
6	B

12. (d) is the correct answer; D lives on first floor and F on fourth. Hence, A and E, living on second and third floor respectively, is the required answer.

13. (a) is the correct answer; B lives on the sixth floor

15. (a) is the correct answer
17. (e) is the correct answer
19. (c) is the correct answer

24. (d) is the correct answer

25. (c) is the correct answer

Solution for 26 – 28: From given information,

> > > C > A, E(i)

Since E did not score the least, we get B > D > F
(81) > C > E (62) > A

26. (a) is the correct answer; C is most likely to score 70 marks as he is between F, who scored 81 marks and E, who scored 62 marks.

27. (e) is the correct answer

28. (c) is the correct answer; B's score is maximum according to above sequence. F has scored 81 marks. Then B's score = $81 + 13 = 94$ marks and D is between B and F. D is most likely to score 89 marks

Concept Cracker

Solution for 1 – 3:

1. (c) Given tasks are A, B, C, D, E (Here we will assume the condition to complete the work at the earliest)
From the 1st condition- Task A → from 9 am to 11 am,
From the 2nd condition B → from 11 am to 12 noon (Since it has started after completion of A)
From the 3rd condition C → from 12 noon to 1 pm
Task D's one hour work will be done along with B.
D's second hour work will be done along with C
Hence to commence E, D must complete 3 hrs.
Hence timing of task D → from 11 am to 2 pm and
After this the remaining task E → From 2 pm to 3 pm
2. (c) From the above solution E starts from 2 pm.
3. (b) From the solution of previous questions Ajay completed tasks at 3 pm.

Solution for 4 – 6:

Given that Six products - Ariel, Vivel, Rin, Nirma, Gillette Gel and Pepsodent

From 1st condition: Rin and Ariel are next to each other.
From 2nd condition at least two products are between Ariel & Nirma
From 3rd condition Pepsodent is kept between Gillette Gel and Rin, and at least 2 products between Pepsodent and Vivel.

From 4th condition: Vivel and Rin can not be next to each other.

From 5th condition Vivel is not kept at 1st window.

Final arrangement would be Nirma Gillette Pepsodent Rin Ariel Vivel

4. (c) From case II of the above table Rin is left of Ariel.
Hence, the answer is (3).
5. (c) If we interchange the position of Rin and Ariel, the item displayed in window 5 will be Rin.
6. (c) Except Rin, the product displayed left of Ariel but right of Gillette Gel is Pepsodent.

Solution for 7 – 9:

There are five tracks T1 T2 T3 T4 T5

Chinese --- Indian (Chinese is left of Indian)

7. (c) Chinese Indian/Iraqi Nepalese
Iraqi/Indian Englishmen.
Hence the Indian and the Iraqi should be in track 2 and track 4 in any order.

8. (d) The arrangement with the given condition is not possible as it contradicts the given conditions.
 9. (a) The arrangement in this case could be:
Nepalese Iraqi Englishman Chinese Indian
So Iraqi will be on track 2.
 10. (d) Initial Position is V1 V2 V3 V4 V5 V6
Now from the 1st condition: V2 V5
From 2nd condition V6 V4 and none of them at position number three hence they cannot be at 1st three places.
From 3rd condition V5 V1 V3
At 5th place even numbered book is placed.
From these information we can conclude that:-
V2 V5 V1 V3 V6 V4 hence 4 is correct.
- Solution for 11 – 15:**
- Vicky > Priya
Priya > Ankit
- One of them is true- Raman is highest or Tony is least or Sunil got highest and Deepak got least.
- Now for each and every question we have different cases -
11. (d) Since Sunil got the sixth and Ankit got the fifth rank, hence we can conclude that Raman must have got the highest and Tony must have got the least rank. And the order of ranks of Vicky, Priya and Ankit must be Vicky > Priya > Ankit. Vicky must have got the second or third rank and accordingly Priya must have got the third or fourth rank. Deepak must have got any rank among two, three and four.
 12. (c). If Raman gets the highest, then Tony will get least and be ranked 7th.
Now since Priya and Ankit are always ranked numerically higher than Vicky.
Hence, Vicky can never be ranked lower than 4th.
 13. (d) Given that Ankit is ranked 1st. But is not possible as he always scores less than Vicky and Priya. Hence this case is not possible and data is inconsistent.
 14. (a) If Sunil gets the second rank, then Raman gets the first rank and Tony gets the last rank. In that case Vicky's rank can be 3 or 4, and Priya's rank can be 4 or 5 and Ankit's rank can be 5 or 6 then Deepak's rank can be 3, 4 or 5.
 15. (a) If Vicky is ranked 5th, then Priya is ranked 6th and Ankit is ranked 7th. Then only possibility is Sunil is ranked 1st.

16. (d) From the given condition we can form the sequence as:

Sequence as per height : B > C > A > E > D

Sequence as per body build up : B > A > D > C > E

17. (c) From the information, dance and painting will held simultaneously as dance instructor are scheduled on Tuesday, Thursday, Wednesday and Sunday between 10:00 am to 2:00 pm and the 9:00 am to 12 noon slot on Tuesday, Friday and Thursday and also 2:00 pm to 4:00 pm slot on Wednesday, Saturday and Sunday is filled up by Painting instructor. So on Tuesday and Thursday both sessions will simultaneously held.

Tuesday : Dance 10 : 00 am to 2 : 00 pm, Painting 9 : 00 am to 12 : 00 noon. and on

Thursday: Dance – 10 : 00 am to 12 : 00 noon, Painting – 9 : 00 am to 12 : 00 noon.

Solution for 18 – 22:

From the given information: Date for competition from 19th October to 26th October (From Wednesday to Wednesday)

From (v), no competition was held on 20th and 23rd (i.e on Thursday & Sunday)

From (vi), Street play was held on 24th.

From (iii) and (vii), Debate must have been held on 22nd, Flash-P on 21st and Group song on 25th.

From (ii), Rock-band was held on 19th.

Hence from this we can draw following result:

Date	Day	Competition
19	Wednesday	Rock band
20	Thursday	-
21	Friday	Fash - p
22	Saturday	Debate
23	Sunday	-
24	Monday	Street Play

Date	Day	Competition
25	Tuesday	Group song
26	Wednesday	Falk dance

18. (d)

19. (d)

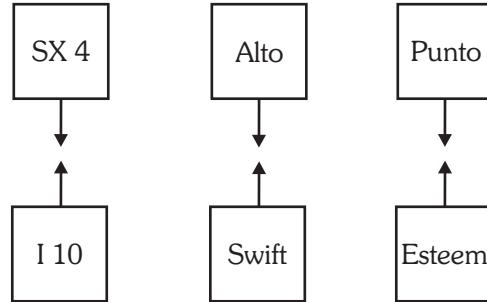
20. (c)

21. (c)

22. (c)

Solution for 23 – 25:

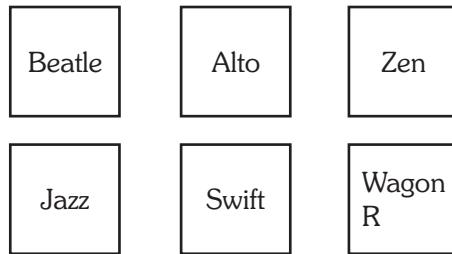
From given information original arrangement is as following



23. (c) If S 4 and Esteem exchange their positions, then Alto will be adjacent to Esteem.

24. (d) Alto and Swift will be adjacent to Beatle.

25. (d) Under the given conditions, the arrangement of cars will be as follows.



The cars that are moved out are Sx4, Punto, i10 and Esteem.

Chapter

4

Matrix Arrangement

Section	Level	No. of Questions
Concept Applicator	Very Easy	20
Concept Builder	Easy	20
Concept Cracker	Moderate	35
Concept Deviator	Difficult	20

THEORY

Matrix arrangement problems are the most common problem types in all aptitude test entrance exams. Unlike linear arrangement problems these are dealt with more than one variable / property of the objects. In linear arrangement, where the objects had only one property – their positioning, objects in matrix arrangement have multiple properties.

In general the information that is provided in these question is of two types:

1. Direct information: Information relating to an object with its property
2. Indirect information: Information that relates two or more properties of an object.

To handle this type of questions 1st we have to note down all the given information, then find out the parameters about which more information is given and then make a table and co-relate the given parameters to find out exact match.

For example if it is given that four students A, B, C, and D belongs to 4 different cities namely Delhi, Kolkata, Mumbai and Chennai. If it is given that A doesn't belongs to Chennai and Delhi, B belongs to Kolkata then we can represent this information as:

	Delhi	Kolkata	Mumbai	Chennai
A	X	X	✓	X
B	X	✓	X	X
C		X	X	
D		X	X	

Lets proceed towards the questions and see how to deal these types of questions.

1. CONCEPT APPLICATOR

Directions (Qs. 1-5): Study the following information carefully to answer these questions.

BANK OF BARODA PO

A, B, C, D, E, F and G are members of a sports club and have liking for different games, viz Carrom, Table Tennis, Badminton, Bridge, Hockey, Football and Lawn Tennis but not necessarily in the same order. Each one of them has a liking for different musical instruments, viz Sitar, Guitar, Harmonium, Flute, Tabla, Banjo and Santoor, not necessarily in the same order. B likes Carrom and Banjo. E likes to play Bridge but not Harmonium or Tabla. The one who plays Hockey plays Sitar. F plays Guitar but not Table Tennis or Lawn Tennis. A plays badminton and Flute. The one who plays Lawn Tennis does not play Tabla. C plays Harmonium and G plays Hockey.

1. Who plays Santoor?

- | | |
|-------------------|------------|
| (a) D | (b) A |
| (c) E | (d) D or E |
| (e) None of these | |

2. D plays which game?

- | | |
|-------------------|--------------------------|
| (a) Table Tennis | (b) Lawn Tennis |
| (c) Football | (d) Cannot be determined |
| (e) None of these | |

3. Which of the following combinations of game-person-musical instrument is definitely correct?

- | | |
|----------------------------|--|
| (a) Badminton-B-Flute | |
| (b) Table Tennis-E-Santoor | |
| (c) Lawn Tennis-D-Tabla | |
| (d) Table Tennis-C-Tabla | |
| (e) None of these | |

4. Who plays Football?

- | | |
|-------------------|-------|
| (a) C | (b) D |
| (c) G | (d) F |
| (e) None of these | |

5. Who plays Table Tennis?

- | | |
|-------------------|--------------------------|
| (a) C | (b) F |
| (c) D | (d) Cannot be determined |
| (e) None of these | |

Directions (Qs. 6-10): Study the following information carefully and answer these questions.

[BANK OF BARODA AO]

P, Q, R, S, T, W and Z are seven students studying in three different institutes – A, B and C. There are three

girls among the seven students who study in each of the three institutes. Two of the seven students study BCA, two study medicine and one each studies Aviation Technology, Journalism and MBA. R studies in the same college as P, who studies MBA in college B. No girl studies Journalism or MBA. T studies BCA in college A and his brother W studies Aviation Technology in college C. S studies Journalism in the same college as Q. Neither R nor Z studies BCA. The girl who studies BCA does not study in college C.

6. Which of the following pairs of students study medicine?

(a) QZ	(b) WZ
(c) PZ	(d) SZ
(e) None of these	
7. In which college does Q study?

(a) A	(b) B
(c) C	(d) data inadequate
(e) None of these	
8. In which of the colleges do three of them study?

(a) A	(b) B
(c) A and B	(d) C
(e) None of these	
9. What is the field of study of Z?

(a) Aviation Technology	
(b) BCA	
(c) MBA	
(d) Medicine	
(e) None of these	
10. Which of the following three represents girls?

(a) SQR	(b) QRZ
(c) SQZ	(d) Data inadequate
(e) None of these	

Directions (Qs. 11-15): Study the following information carefully and answer the given questions. [NABARD BANK OFFICER]

A, B, C, D, E, F and G are seven friends studying seven different branches of engineering, namely Mechanical, Chemical, Electrical, Electronics, Civil, Computer and Aeronautical Engineering, not necessarily in this order. Each of them studies in three different colleges, X, Y and Z. Not less than two study in any college. D studies

Electrical engineering in College X. The one who studies Chemical Engineering does not study in college Z. F studies Aeronautical Engineering in college Y with only B. A does not study in college X and does not study Civil Engineering. E studies Computer Engineering and does not study in college X. G studies Electronics Engineering but not in college X. none in college X studies Mechanical or Civil Engineering .

Directions (Qs. 16–20): Study the following information carefully and answer the questions given below.

[UNITED BANK OF INDIA]

P, Q, R, S, T, V and W are seven students of a college. Each of them has a favourite subject from Physics, Chemistry,

Directions (Qs. 1–5): Study the following information carefully and answer the questions given below. [Andhra bank]

P, Q, R, S, T and M are six students of a school, one each studies in Class I – VI. Each of them has a favourite colour from red, black, blue, yellow, pink and green, not necessarily in the same order. Q likes black and does not study in Class IV or V, the one who studies in Class IV

English, Biology, History, Geography and Philosophy, not necessarily in the same order. Each of them also has a favourite sport from Football, Cricket, Hockey, Volleyball, Badminton, Table Tennis, and Basketball, not necessarily in the same order.

R likes Philosophy and his favourite sport is Hockey. The one who likes Football likes English. T's favourite sport is not Badminton or Table Tennis, V does not like either History or Biology. The one whose favourite sport is Basketball does not like physics. W likes chemistry and his favourite sport is Volleyball. S likes Geography. Q's favourite sport is Badminton. V does not like English and his favourite sport is not Basketball. P's favourite sport is Cricket. The one whose favourite sport is Badminton does not like biology.

2. CONCEPT BUILDER

Directions (Qs. 1–5): Study the following information carefully and answer the questions given below.

P, Q, R, S, T and M are six students of a school, one each studies in Class I – VI. Each of them has a favourite colour from red, black, blue, yellow, pink and green, not necessarily in the same order. Q likes black and does not study in Class IV or V, the one who studies in Class IV

does not like green. P studies in Class II. M likes blue and does not study in Class IV. The one who likes yellow studies in Class VI. S likes pink and studies in Class I. R does not study in Class VI.

1. In which class does R study?

 - (a) V
 - (b) III
 - (c) IV
 - (d) Data inadequate
 - (e) None of these

Matrix Arrangement

Directions (Qs. 6–10): Study the following information carefully and answer the questions given below. [RBI GRADE B OFFICER]

P, Q, R, S, T, V and W are seven students of a school. Each of them studies in a different standard – from standard IV to standard X – not necessarily in the same order. Each of them has a favourite subject from English, Science, History, Geography, Mathematics, Hindi and Sanskrit, not necessarily in the same order. Q studies in VII standard and does not like either Mathematics or Geography. R likes English and does not study either in V or IX. T studies in VIII standard and likes Hindi. The one who likes Science studies in X standard. S studies in IV standard. W likes sanskrit. P does not study in X standard. The one who likes Geography studies in V standard.

10. Which of the following combinations of student-standard-subject is correct?

 - (a) T – VII – Mathematics
 - (b) W – VII – Sanskrit
 - (c) Q – VII – Geography
 - (d) V – X – Science
 - (e) None of these

Directions (Qs. 11–15): Study the following information carefully and answer the questions given [SBI BANK PO]

[SBI BANK PO]

A, B, C, D, E, F, G and H are eight employees of an organization working in three departments, viz Personnel, Administration and Marketing with not more than three of them in any department. Each of them has a different choice of sports from football, cricket, volleyball, badminton, lawn tennis, basketball, hockey and table tennis, not necessarily in the same order. D works in Administration and does not like either football or cricket. F works in Personnel with only A, who likes table tennis. E and H do not work in the same department as D. C likes hockey and does not work in Marketing. G does not work in Administration and does not like either cricket or badminton. One of those who work in Administration likes football. The one who likes volleyball works in Personnel. None of those who work in Administration likes either badminton or lawn tennis. H does not like cricket.

Directions (Qs. 16–20): Study the following information carefully and answer the questions given below

[CORPORATION BANK PO]

A, B, C, D, E, F, G, and H are eight students of a school. They study in Std VI, VII and VIII with not more than three in any Std. Each of them has a favourite subject from Physics, Geography, English, Marathi, Mathematics, Chemistry, Biology and Economics not necessarily in the same order. D likes Chemistry and studies in Std VIII with only H. B does not study in Std VII. E and A study in the same Std but not with B. C and F study in the same Std. Those who study in Std VI do not like mathematics or Biology. F likes Physics. The one who studies in Std VIII likes English. C does not like Geography. A's favourite subject is Marathi and G does not like Biology.

16. Which subject does H like?

- (a) English (b) Marathi
- (c) Science (d) Data inadequate
- (e) None of these

17. What is G's favourite subject?

- (a) Biology (b) Physics
- (c) Marathi (d) Data inadequate
- (e) None of these

18. What is C's favourite subject?

- (a) Economics (b) Biology
- (c) English (d) Geography
- (e) Data inadequate

19. Which of the following combinations of student – Std – Subject is correct?

- (a) C – VII – Economics (b) D – VI – Chemistry
- (c) G – VII – Physics (d) B – VIII – Mathematics
- (e) None is correct

20. Which of the following groups of students study in Std VII?

- (a) EAF (b) ECG
- (c) EAG (d) Data inadequate
- (e) None of these

3 CONCEPT CRACKER

Directions (Qs. 1–7): Study the following information carefully and answer the given questions.

[SYNDICATE BANK PO]

Seven friends A, B, C, D, E, F and G studied in colleges X, Y and Z and are currently in different professions, namely Medicines, Fashion Designing, Engineering, Business, Acting, Teaching and Architecture (not necessarily in the same order). At least two and not more than three friends has studies in the same college. C is an architect and studied in college Y. E is not a businessman. Only G amongst the seven friends studied in college X along with E. F is an Engineer and did not study in college Y. B is an actor and did not study in the same college as F. A did not study in college Z. those who studied in college X are neither Fashion Designers nor teachers. None of those who studied in college Y is a teacher.

1. Who amongst the following have studied in college Z?

- (a) B, A (b) C, F
- (c) B, D, F (d) A, D
- (e) D, F

2. Which of the following groups represents the students of college Y?

- (a) C, E, G (b) A, C, D
- (c) A, B, C (d) D, B, C
- (e) None of these

3. What is the profession of F?

- (a) Engineering (b) Business
- (c) Medicines (d) Acting
- (e) None of these

4. Who amongst the following is in the profession of Medicine?

- (a) E (b) G
- (c) A (d) D
- (e) None of these

5. What is the profession of A?

- (a) Teaching (b) Medicine
- (c) Business (d) Fashion designing
- (e) None of these

6. Which of the following combinations of person, college and profession is definitely correct?

- (a) E – X – Fashion Designing
- (b) F – X – Engineering
- (c) A – Y – Businessman
- (d) D – Z – Teaching
- (e) None of these

7. Who amongst the following is a teacher?

- (a) A (b) D
- (c) E (d) G
- (e) None of these

Directions (Qs. 8 – 12): Read the following passage carefully and answer the questions given below it.

[PUNJAB SIND BANK]

A group of seven friends A, B, C, D, E, F and G, work as Economist, Agriculture Officer, IT Officer, Terminal Operator, Clerk, Forex Officer and Research Analyst, for Banks. L, M, N, P, Q, R and S, but not necessarily in the same order. C works for Bank N and is neither a Research Analyst nor a Clerk. E is an IT Officer and works for Bank R. A works as Forex Officer and does not work for Bank L or Q. The one who is an Agriculture Officer works for Bank M. The one who works for Bank L works as a Terminal Operator. F works for Bank Q. G works for Bank P as a Research Analyst. D is not an Agriculture Officer.

8. Who amongst the following works as an Agriculture Officer?
 - (a) C (b) B
 - (c) F (d) D
 - (e) None of these
9. What is the profession of C?
 - (a) Terminal Operator (b) Agriculture Officer
 - (c) Economist (d) Cannot be determined
 - (e) None of these
10. For which Bank does B work?
 - (a) M (b) S
 - (c) L (d) Either M or S
 - (e) None of these
11. What is the profession of the person who works for Bank S?
 - (a) Clerk (b) Agriculture Officer
 - (c) Terminal Operator (d) Forex Officer
 - (e) None of these
12. Which of the following combinations of person, profession and the bank is correct?
 - (a) A – Forex Officer – M
 - (b) D – Clerk – L
 - (c) F – Agriculture Officer – Q
 - (d) B – Agriculture Officer – S
 - (e) None of these

Directions (Qs. 13–17): Study the following information carefully and answer the given questions
[CORPORATION BANK]

One of the seven subjects, viz Maths, Zoology, Botany, Chemistry, Physics, English and Statistics, is taught on one day in a week starting from Monday and ending

on Sunday. Chemistry is taught on Thursday. English is taught the day immediately next to the day when Zoology is taught. English is taught neither on Tuesday nor on Saturday. Only one lecture is held between Chemistry and Botany. Two lectures are scheduled between Maths and Zoology. Statistics is taught neither on Monday nor on Sunday.

13. On which of the following days is Physics taught?
 - (a) Monday (b) Tuesday
 - (c) Wednesday (d) Thursday
 - (e) Friday
14. How many subjects are taught between Botany and Zoology?
 - (a) None (b) One
 - (c) Two (d) Three
 - (e) Four
15. Which of the following subjects is taught on Saturday?
 - (a) Botany (b) Statistics
 - (c) Zoology (d) Maths
 - (e) Physics
16. On which of the following days Statistics is taught?
 - (a) Tuesday (b) Wednesday
 - (c) Thursday (d) Friday
 - (e) Cannot be determined
17. If statistics is related to Zoology and Physics is related to Botany in a certain way, then which of the following would Chemistry be related to, following the same pattern?
 - (a) Maths (b) Statistics
 - (c) Physics (d) English
 - (e) Cannot be determined

Directions (Qs. 18–22): Study the following information carefully and answer the questions given below.

P, Q, R, S, T, V, W and Z are going to three destinations Delhi, Chennai and Hyderabad in three different vehicles – Honda City, Swift D'Zire and Ford Ikon. There are three females among them – one in each car. There are at least two persons in each car. R is not travelling with Q and W. T, a male is travelling with only Z and they are not going to Chennai. P is travelling in Honda City and is going to Hyderabad. S is the sister of P and is travelling by Ford Ikon. V and R are travelling together. W is not going to Chennai.

18. Members of which of the following cars are going to Chennai?
 - (a) Honda City

Matrix Arrangement

29. Who is seated between R and the person from PNB?
- The person from Oriental Bank of Commerce
 - P
 - Q
 - The person from Syndicate Bank
 - S
30. Who amongst the following sit at extreme ends of the rows?
- D and the person from PNB
 - The persons from Indian Bank and UCO Bank
 - The persons from Dena Bank and P
 - The persons from Syndicate Bank and D
 - C, Q
31. Who amongst the following faces the person from Bank of Maharashtra?
- The person from Indian Bank
 - P
 - R
 - The person from Sydicate Bank
 - The person from Canara Bank
32. P is related to Dena Bank in the same way as B is releted to PNB based on the given arrangement.
- Who amongst the following is D related to, following the same pattern?
- Syndicate Bank
 - Canara Bank
 - Bank of Maharashtra
 - Indian Bank
 - Oriental Bank of Commerce
33. Four of the following five are alike in a certain way based on the given seating arrangement and thus form a group. Which is the one that does nto belong to that group?
- Canara Bank
 - R
 - Syndicate Bank
 - Q
 - Oriental Bank of Commerce
34. Who amongst the following is from Syndicate Bank?
- C
 - R
 - P
 - D
 - A
35. C is from which of the following banks?
- Dena Bank
 - Oriental Bank of Commerce
 - UCO Bank
 - Synidcate Bank
 - Canara Bank

4. CONCEPT DEVIATOR

Directions for Question Nos. 1 – 6:

In a Public Sector Undertaking Township, there are five executives – Ambrish, Amit, Rohit, Manu and Tarun. Two of them play Cricket while the other three play different games viz. Football, Tennis and Chess. One Cricket player and a Chess player stay in the third flat, whereas the other three stay in different flats, i.e. 2nd, 4th and 5th. Two of these five players are mechanical engineers while the other three are quality inspector, design engineer and power engineer respectively. The chess player is the oldest in age while one of the cricket players, who plays at the national level, is the youngest in age. The age of the other cricket player, who plays at the regional level, lies between the football player and the chess player. Manu is a regional level player and stays in the 3rd flat while Tarun is a quality inspector and stays in the 5th flat. The football player is a design engineer and stays in the 2nd Flat. Amit is a power engineer and plays Chess while Ambrish is the mechanical engineer and plays Cricket at the national level.

- Who stays in the 4th flat?
 - Ambrish
 - Amit
 - Rohit
 - Manu
- What does Tarun play?
 - Chess
 - Football
 - Cricket
 - Tennis
- Who plays football?
 - Ambrish
 - Amit
 - Rohit
 - Manu
- Agewise, who among the following lies between Manu and Tarun?
 - Quality inspector
 - Mechanical engineer
 - Power engineer
 - Design engineer
- Who stay in the same flat?
 - Ambrish and Amit
 - Maim and Tarun
 - Amit and Manu
 - Rohit and Tarun
- The Chess player is a:
 - Power engineer
 - Mechanical engineer
 - Design engineer
 - Quality inspector

Directions for Question Nos. 7 – 9:

P, Q, R, S, T and X are six persons who decided to start a partnership business in computer hardware. Q, R and T are ladies and the rest are men. P, Q, R and X are well versed in hardware but the others do not know much about hardware. Q, S and X know marketing, but the others do not know anything about marketing.

Directions for questions 10–15: Study the 10 statements given below and answer the questions.

1. Six businessmen from six different nations are staying in different rooms in succession in the same row in a hotel.
 2. Each of them owns a different number of cars and has donated to different number of institutions during the last year.
 3. The businessman in Room no. 102 owns twice as many as the number of cars owned by the businessmen who has donated to 8 institutions in the last year.
 4. The businessman from Uruguay and the businessman in Room no. 106 together own 40 cars in total.
 5. The businessman from Argentina owns 8 cars less than the businessman from England but donated to 10 more institutions in the last year.
 6. Four times the number of cars owned by the businessman in Room no. 104 is lesser than the number of institutions to which he has donated in the last year.
 7. The businessman in Room No. 103 owns 12 cars and donated to 8 institutions in the last year.
 8. The businessman who owns 16 cars donated to 24 institutions in the last year.
 9. The businessman in Room no. 105 owns 8 cars and donated to 2 institutions less than those donated by the businessman from Canada in the last year.

The Brazilian businessman is staying two rooms ahead of the English businessman who is staying two rooms ahead of the Canadian businessman.

10. In which room is Brazilians businessman staying?
(a) Room no. 102 (b) Room no. 103
(c) Room no. 104 (d) Room no. 105

11. What is the number of institutions to which the Argentinean businessman donated in the last year?
(a) 8 (b) 3
(c) 18 (d) 24

12. The businessman of which country is staying in room no. 106?
(a) Argentina (b) Canada
(c) Uruguay (d) Germany

13. The businessman of which country has donated to 24 institutions in the last year?
(a) Argentina (b) Uruguay
(c) Canada (d) Germany

14. The businessman of which country owns the highest number of cars?
(a) Argentina (b) Uruguay
(c) Germany (d) Brazil

15. How many cars are owned by the English businessman?
(a) 8 (b) 12
(c) 4 (d) 20

Directions for questions 16 - 17:

Answer the questions based on the following information.

Director of an institute wants to distribute teaching assignments of HRM, Psychology, Development Studies, Trade policy and Finance to five of six newly appointed faculty members. Prof. Fotedar does not want any assignment if Prof. Das gets one of the five. Prof. Chaudhury desires either HRM or Finance or no assignment. Prof. Banik opines that if Prof. Das gets either Psychology or Trade Policy then she must get the other one. Prof. Eswar insists on an assignment if Prof. Acharya gets one.

16. Which of the following is valid faculty – assignment combination if all the faculty preferences are considered?

 - (a) Prof. Acharya - HRM, Prof. Banik – Psychology, Prof. Chaudhury – Development studies, Prof. Das – Trade Policy, Prof. Eswar – Finance
 - (b) Prof. Chaudhury - HRM, Prof. Das – Psychology, Prof. Acharya – Development studies, Prof. Banik – Trade Policy, Prof. Eswar – Finance
 - (c) Prof. Acharya - HRM, Prof. Banik – Psychology, Prof. Eswar – Development studies, Prof. Das – Trade Policy, Prof. Fotedar – Finance

- (d) Prof. Banik - HRM, Prof. Fotedar – Psychology, Prof. Eswar – Development studies, Prof. Chaudhuri – Trade Policy, Prof. Acharya – Finance
17. If Prof. Acharya gets HRM and Prof. Chaudhury gets Finance, then which of the following is not a correct faculty-assignment combination assuming all faculty preferences are considered?
- Prof. Das – Development Studies, Prof. Banik – Trade Policy
 - Prof. Fotedar – Development Studies, Prof. Banik – Trade Policy
 - Prof. Banik – Development Studies, Prof. Eswar – Trade Policy
 - Prof. Banik – Development Studies, Prof. Das – Trade Policy

Directions for questions 18 – 20:

Four houses Blue, Green, Red and Yellow are located in a row in the given order. Each of the houses is occupied by a person earning a fixed amount of a salary. The four persons are Paul, Krishna, Laxman, and Som.

Read the following instruction carefully:

- Paul lives between Som and Krishna
- Laxman does not stay in Blue house

- III. The person living in Red house earns more than that of person living in Blue
- IV. Salary of Som is more than that of Paul but lesser than that of Krishna
- V. One of the person earns ₹ 80, 000
- VI. The person earning ₹ 110,000 is not Laxman
- VII. The salary difference between Laxman and Son is ₹ 30,000
- VIII. The House in which Krishna lives is located between houses with persons earning salaries of ₹ 30,000 and ₹ 50,000
- IX. Krishna does not live in Yellow house, and the person living in yellow house is not earning lowest salary among the four persons.
18. Who lives in Red house?
- Paul
 - Krishna
 - Laxman
 - Som
19. Which house is occupied by person earning highest salary?
- Blue
 - Green
 - Red
 - Yellow
20. What is the salary earned by person living in Green house?
- ₹ 30,000
 - ₹ 50,000
 - ₹ 80,000
 - ₹ 110, 000

Answer with Solution

Concept Applicator

Solution for 1 – 5:

Member	Sports	Instrument
A	Badminton	Flute
B	Carrom	Banjo
C	Lawn Tennis	Harmonium
D	Table Tennis	Tabla
E	Bridge	Santoor
F	Football	Guitar
G	Hockey	Sitar

1. (c) is the right answer
2. (a) is the right answer
3. (e) is the right answer
4. (d) is the right answer
5. (c) is the right answer

Solution for 6 – 10:

Student	College	Subject
P(+)	B	MBA
Q(-)	A	BCA
R(-)	B	Medicine
S(+)	A	Journalism
T(+)	A	BCA
W(+)	C	Aviation
Z(-)	C	Medicine

6. (e) is the right answer; RZ
7. (a) is the right answer
8. (a) is the right answer
9. (d) is the right answer
10. (b) is the right answer

Solution for 11 – 15:

Friend	College	Branch
A	Z	Mechanical
B	Y	Civil
C	X	Chemical
D	X	Electrical
E	Z	Computer
F	Y	Aeronautical
G	Z	Electronics

11. (d) is the right answer
12. (a) is the right answer
13. (e) is the right answer
14. (c) is the right answer
15. (b) is the right answer

Solution for 16 – 20:

Student	Subject	Sport
P	Biology	Cricket
Q	History	Badminton
R	Philosophy	Hockey
S	Geography	Basketball
T	English	Football
V	Physics	Table Tennis
W	Chemistry	Volleyball

16. (b) is the right answer
17. (c) is the right answer
18. (d) is the right answer
19. (a) is the right answer
20. (e) is the right answer; English

Concept Builder

Solution for 1 – 5:

Student	Class	Color
P	II	Green
Q	III	Black
R	IV	Red

Student	Class	Color
S	I	Pink
T	VI	Yellow
M	V	Blue

1. (c) is the right answer
2. (e) is the right answer; Red

Matrix Arrangement

3. (a) is the right answer
4. (e) is the right answer
5. (d) is the right answer

Solution for 6 – 10:

Student	Standard	Subject
P	V	Geography
Q	VII	History
R	VI	English
S	IV	Maths
T	VIII	Hindi
V	X	Science
W	IX	Sanskrit

6. (b) is the right answer
7. (a) is the right answer
8. (c) is the right answer
9. (e) is the right answer; V
10. (d) is the right answer

Solution for 11 – 15:

Employee	Department	Sport
A	Pers	TT
B	Admin	Football
C	Admin	Hockey
D	Admin	Basketball
E	Mktg	Cricket

Employee	Department	Sport
F	Pers	Volleyball
G	Mktg	LT
H	Mktg	Badminton

11. (c) is the right answer
12. (b) is the right answer
13. (e) is the right answer
14. (a) is the right answer
15. (d) is the right answer

Solution for 16 – 20:

Student	Std	Subject
A	VII	Marathi
B	VI	Geography
C	VI	Economics
D	VIII	Chemistry
E	VII	Biology
F	VI	Physics
G	VII	Maths
H	VIII	English

16. (a) is the right answer
17. (e) is the right answer; Maths
18. (a) is the right answer
19. (e) is the right answer
20. (c) is the right answer

Concept Cracker

Solution for 1 – 7:

Friend	College	Subject
A	Y	Fashion
B	Y	Acting
C	Y	Architecture
D	Z	Teaching
E	X	Medicine
F	Z	Engineering
G	X	Business

1. (e) is the right answer
2. (c) is the right answer
3. (a) is the right answer
4. (a) is the right answer
5. (d) is the right answer

6. (d) is the right answer
7. (b) is the right answer

Solution for 8 – 12:

Friend	Bank	Occupation
A	S	Forex
B	M	Agriculture
C	N	Economist
D	L	TO
E	R	IT
F	Q	Clerk
G	P	Research

8. (b) is the right answer
9. (c) is the right answer
10. (a) is the right answer

11. (d) is the right answer
 12. (e) is the right answer

Solution for 13 – 17:

Days	Subject
Mon	Physics
Tue	Botany
Wed	Maths
Thurs	Chemistry
Fri	Statistics
Sat	Zoology
Sun	English

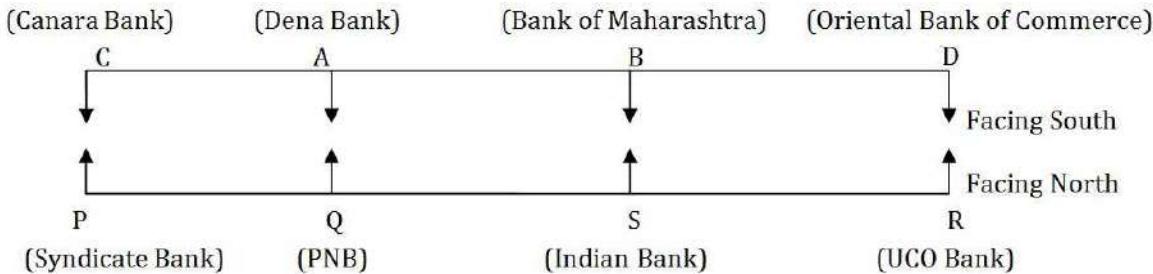
13. (a) is the right answer
 14. (d) is the right answer
 15. (c) is the right answer
 16. (d) is the right answer
 17. (b) is the right answer

Solution for 18 – 22:

On the basis of information given in the question, we can have the following table:

Person	Sex	Vehicle	Destination
P	Male	Honda City	Hyderabad
Q	Male/Female	Honda City	Hyderabad

27. (a) is the right answer

Solution for 28 – 35:


28. (b) is the right answer
 29. (e) is the right answer
 30. (d) is the right answer
 31. (a) is the right answer
 32. (d) is the right answer
 33. (d) is the right answer; Except Q, all are at the end of a row.
 34. (c) is the right answer
 35. (e) is the right answer

Person	Sex	Vehicle	Destination
R	Male	Fork Ikon	Chennai
S	Female	Ford Ikon	Chennai
T	Male	Swift D'Zire	Delhi
V	Male	Ford Ikon	Chennai
W	Male/Female	Honda City	Hyderabad
Z	Female	Swift D'Zire	Delhi

18. (c) is the right answer
 19. (a) is the right answer
 20. (d) is the right answer
 21. (c) is the right answer
 22. (b) is the right answer

Solution for 23 – 27:

X (Delhi)	Y (Chandigarh)	Z (Agra)
D (-)	C	A (-)
G (+)	F (-)	H(+)
E	B(+)	

23. (d) is the right answer
 24. (e) is the right answer
 25. (e) is the right answer
 26. (b) is the right answer

Concept Deviator

Solutions for 1 - 6:

We can conclude the following result:

Flat No.	Age wise decreasing	Qualification	Name
(3)	Chess player	Power Engineer	Amit
(3)	Cricket (Regional)	Mech. Engineer	Manu
(2)	Football	Design Engineer	Rohit
(5)	Tennis	Quality Inspector	Tarun
(4)	Cricket (National)	Mech. Engineer	Ambrish

- 1. (a)
- 2. (d)
- 3. (c)
- 4. (d)

- 5. (c)

- 6. (a)

Solutions for 7 – 9 :

We can summaries the given information as follows.

P	M	Hardware	
Q	F	Hardware	Marketing
R	M	Hardware	
S	F		Marketing
T	M		
X	F	Hardware	Marketing

- 7. (a) From the above result we can say that S is the male who knows marketing but not hardware.
- 8. (d)
- 9. (c)

Solutions for 10 – 15:

From the information given we can draw the following table:

Room no.	101	102	103	104	105	106
Country	Canada	Uruguay	England	Argentina	brazil	Germany
No. of cars		24	12	4	8	16
No. of car donated	x		8	18	x - 2	24

Let us assume that the number of Canadian institute they have donated is x, then that from Brazil is $x - 2$.

On the basis of data above table is drawn. From information 10, residents of Canada, England and Brazil are staying in alternate rooms in that order starting from left.

Though room numbers of residents of Canada, England and Brazil can also be 102, 104 and 106 respectively.

- 10. (d)
- 11. (c)
- 12. (d)
- 13. (d)
- 14. (b)
- 15. (b)
- 16. (b) From the data table can be made.

Case I when pro. Chaudhary had HRM and pro. Das had psychology.

	HRM	PS	D.ST	T.P	F
Fotedar	No	No	No	No	No
Das	No	Yes	No	No	No
Chaudhary	Yes	No	No	No	No
Banik	No	No	No	Yes	No
Eswar	No	No	No	No	Yes
Acharya	No	No	Yes	No	No

Case II when pro. Chaudhary had and pro. Das had Trade policy

	HRM	PS	D.ST	T.P	F
Fotedar	No	No	No	No	No
Das	No	No	No	Yes	No
Chaudhary	No	No	No	No	Yes
Banik	No	Yes	No	No	No
Eswar	No	No	Yes	No	No
Acharya	Yes	No	No	No	No

17. (d)

Solutions for 18 – 20:

The order of the house is given to us, it is Blue, Green, Red and Yellow, now it is given that Paul stay in between Som and Krishna hence Paul cannot stay at corner houses

i.e in the blue and Yellow house, the same thing applied for Krishna as well. Now from given condition about their salaries we can complete the following table:

Name	Blue	Green	Red	Yellow	Salary
Paul	X	✓	X	X	30000
Krishna	X	X	✓	X	110000
Laxman	X	X	X	✓	50000
Som	✓	X	X	X	80000

18. (b) Krishna is living in red house.

19. (c) Krishna is earning highest salary.

20. (a) Paul is living in green house and earning low salary.

Chapter

5

Circular Arrangement

Section	Level	No. of Questions
Concept Applicator	Very Easy	31
Concept Builder	Easy	54
Concept Cracker	Moderate	22
Concept Deviator	Difficult	35

THEORY

Circular arrangement is also a type of arrangement question with more complexity, in this case apart from normal arrangement we have different variables/ angles that we have to solve. Left or right information is given in both linear as well as circular arrangements but in circular arrangement for left or right you can choose either clockwise or anti clockwise. When people have to be seated in a row or a circular table the best way to determine the left hand and right hand position is to imagine yourself seated in that particular place.

To solve these type of questions we should follow these:

1. Draw the diagrammatic representation of the arrangement. E.g. draw a circle for a circular arrangement. Draw a dashed line for position on a straight line, Draw rectangle for rectangular table etc.
2. Mark the right hand and left hand position of the people keeping in mind the direction in which the individuals are facing.
3. Mark the direction i.e. North, south, West or facing towards the table or away from the table.
4. Identify the definite clues and locate them first on circular/ rectangular table whatever is given in the question.
5. Identify the relative position and locate the same to get an indicative position.
6. Use definite clues in conjunction with relative position clues to arrive at the final arrangement.
7. If people are seated around a table with no direction mentioned, it has to be read as facing towards the table.

Ex. 1:

Direction (1-4): Read the following information and answer the question given below:

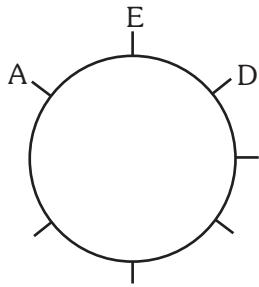
- (i) A, B, C, D, E, F and G are sitting along a circle facing at the centre and are playing cards,
- (ii) E is the neighbour of A and D
- (iii) G is not between F and C
- (iv) F is on the immediate right of A

(Bank of India PO)

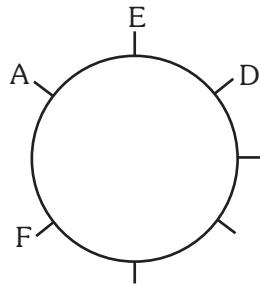
1. Who are the neighbour of B?
 - (a) C and D
 - (b) F and C
 - (c) A and F
 - (d) Data inadequate
 - (e) None of these

Solution:

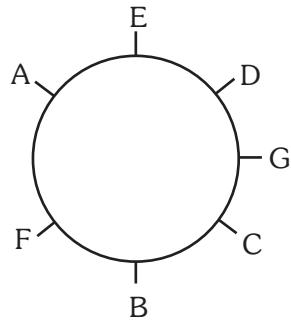
From the second point we can draw the figure below the position of A and D can interchange but the figures below can be drawn on following the position of F. Following the rest points figures are drawn below.



Step: I



Step: II



Step: III

1. Option (b)
 2. Option (c)
 3. Option (d)
 4. Option (e)
 5. Option (a)

1. CONCEPT APPLICATOR

Direction: (Qs. 1-6): Study the following information and answer the questions given below:

M, N, P, R, T, W, F and H are sitting around a circle facing the centre. P is third to the left of M and second to the right of T. N is second to the right of P. R is second to the right of W, who is second to the right of M. F is not an immediate neighbour of P.

1. Who is to the immediate right of P?

(a) H	(b) F
(c) R	(d) Data inadequate
(e) None of these	
2. Who is to the immediate right of H?

(a) R	(b) F
(c) M	(d) Data inadequate
(e) None of these	
3. Who is to the immediate left of R?

(a) P	(b) H
(c) W	(d) T
(e) Data inadequate	
4. Who is third to the right of H?

(a) T	(b) W
(c) R	(d) F
(e) Data inadequate	
5. Who is second to the right of F?

(a) M	(b) R
(c) T	(d) Data inadequate
(e) None of these	
6. In which of the following is the first person sitting in between the second and the third person?

(a) NHM	(b) PHN
(c) TRP	(d) TWF
(e) None of these	

Direction (Qs. 7-11): Study the following information carefully to answer these questions.

A, B, C, D, E, F, G and H are sitting along a circle facing at the centre. F is third to the right of C and second to the left of H. D is not an immediate neighbour of C or H. E is on the immediate right of A, who is second to the right of G.

[State Bank of India PO]

7. Who sits between G and D?

(a) H	(b) D
(c) F	(d) E
(e) None of these	

8. Which of the following is the correct position of B with respect to H?

I. Second to the right	II. Fourth to the right
III. Fourth to the left	IV. Second to the left.
(a) Only I	(b) Only II
(c) Only III	(d) Both II & III
(e) None of these	
9. Who is the second left of C?

(a) A	(b) B
(c) E	(d) D
(e) None of these	
10. Which of the following pairs of persons has first person sitting to the right of the second person?

(a) CB	(b) AE
(c) FG	(d) HA
(e) DB	
11. Who is to the immediate right of C?

(a) E	(b) B
(c) D	(d) B or D5
(e) None of these	

Direction (Qs. 12-16): Study the following information carefully to answer these questions.

Ashwini, Priya, Rani, Meeta, Geeta and Mukta are sitting along a circle facing at the centre. Ashwini is third to the left of Mukta and to the immediate right of Rani. Priya is second to the left of Geeta, who is not an immediate neighbour of Meeta.

[Bank of Baroda PO]

12. Who is to the immediate right of Priya?

(a) Meeta	(b) Sudha
(c) Mukta	(d) Cannot be determined
(e) None of these	
13. Who is the second left of Rani?

(a) Ashwini	(b) Meeta
(c) Priya	(d) Sudha
(e) None of these	
14. Which of the following pairs of persons has first person sitting to the immediate left of the second person?

(a) Rani-Meeta	(b) Ashwini-Geeta
(c) Sudha-Priya	(d) Geeta-Sudha
(e) None of these	

15. Which of the following group has first person sitting between the other two?
- Meeta- Ashwini-Geeta
 - Sudha-Rani-Geeta
 - Mukta-Priya- Rani
 - Mukta-Priya-Sudha
 - None of these
16. Which of the following is the correct position of Rani with respect to Mukta?
- Third to the right
 - Third to the left
 - Fourth to the left
 - Fourth to the right.
- I Only
 - II Only
 - Both I & II
 - Both II & I
 - Both I & III
- Direction (Qs. 17–21): Study the following information carefully to answer these questions.**
- A, B, C, D, E, F, G and H are sitting along a circle. facing the centre. F sits to the immediate right of D and third to the left of A. G sits third to the left of D who does not sit next to E. B sits next of G but not next to D. C does not sit next to either D or A. [Bank of Baroda AO]
17. Who is to the immediate left of A?
- E
 - F
 - G
 - H
 - None of these
18. What is the position of H with respect to C?
- Second to the left
 - First to the right
 - Third to the right
 - Second to the right
 - None of these
19. Which of the following pairs sits between G and D?
- AC
 - DF
 - HB
 - FA
 - None of these
20. Starting from A's position, if all the eight are arranged in alphabetical order in clockwise direction, the seating position of which of the following (excluding A) would not change?
- B
 - C
 - D
 - H
 - None of these
21. Four of the following are alike based upon their seating arrangement around the circle. Which is the one that does not belong to that group?
- FH
 - GE
 - CD
 - BG
 - EF

Direction (Qs. 22–26): Study the following information and answer the question given below:

M, D, P, K, R, T and W are sitting around a circle facing the centre. D is second to the right of P, who is third to the right of K, T is third to the right of W, who is not an immediate neighbour of D. M is third to the left of R.

[Oriental Bank of Commerce PO]

22. Who is second to the right of T?
- D
 - K
 - M
 - Data inadequate
 - None of these
23. In which of the following pairs is the second person sitting to the immediate right of the First person?
- DT
 - TP
 - PR
 - KW
 - None of these
24. Who is on the immediate left of R?
- W
 - P
 - K
 - T
 - None of these
25. Who is on the immediate left of M?
- K
 - W
 - D
 - T
 - None of these
26. Who is third to the left of D?
- W
 - P
 - K
 - Data inadequate
 - None of these
- Direction (Qs. 27–31): Study the following information and answer the question given below:**
- P, Q, R, S, T, U, V and W are sitting around a circle facing the centre. P sits third to the right of W and third to the left of Q. S sits second to the right of T. V sits second to the left of R. T is not the neighbour of Q while U is neither a neighbour of T nor of W. [Punjab National Bank MT]
27. Who sits second to the left of V?
- R
 - P
 - U
 - T
 - None of these
28. Who sits between U and P?
- S
 - R
 - V
 - Q
 - None of these
29. Starting from P's position, if all the eight are arranged in alphabetical order in clockwise direction, the seating position of how many members (excluding P) would not change?

2. CONCEPT BUILDER

Direction (Qs. 1–5): Study the following information carefully to answer these questions.

A, B, C, D, E, F, G and H are eight friends sitting around a circular table facing the centre. A sits second to the left of D who is third to the left of E. C sits third to the right of G. who is not an immediate neighbour of E. H sits third to the right of B. Who sits second to the right of G.

[NABARD Bank Officer]

31. Four of the following are alike in a certain way based on their positions in the seating arrangement and so from a group. Which is the one that does not belong to that group?

- (a) W, T
- (b) P, U
- (c) S, Q
- (d) R, P
- (e) P, Q

Direction (Qs. 6–10): Study the following information carefully to answer these questions.

A, B, C, D, E, F, G and H are sitting alone a circle facing the centre. B is second to the right of H and third to the left of A. D is not an immediate neighbour of either B or H and is second to the right of F. C is fourth to the right of G.

[United Bank of India PO]

Direction (11-16): Study the following information carefully to answer these questions.

A, B, C, D, E, F, G and H are sitting around a circle facing the centre. H is fourth to the left of B and second to the

right of F. A is third to the left of C. Who is not immediate neighbour of F. G is second to the left of A. D is second to the right of E. [Andhra Bank Marketing Associate]

11. Who is on the immediate right of F?

- (a) H (b) A
- (c) G (d) Data inadequate
- (e) None of these

12. Who is third to the left of A?

- (a) C (b) F
- (c) B (d) Data inadequate
- (e) None of these

13. In which of the following pairs is the First person sitting or the immediate left of the second person?

- (a) EH (b) CE
- (c) AF (d) DB
- (e) None of these

14. Which of the following pairs represents the immediate neighbour of E?

- (a) DH (b) CH
- (c) CA (d) Data inadequate
- (e) None of these

15. Who is on the immediate right of H?

- (a) E (b) C
- (c) H (d) Data inadequate
- (e) None of these

16. Who is on the immediate right of B?

- (a) D (b) E
- (c) F (d) Data inadequate
- (e) None of these

Direction (Qs. 17-21): Study the following information carefully and answer the questions given below.

A, B, C, D, E, F, G and H are sitting around a circle facing the centre. B is third to the right of F and third to the left of H. C is fourth to the left of A. Who is not immediate neighbour of F or B. E is not immediate neighbour of B. G is second to the right of D.

[Bank of Maharashtra Agriculture officer]

17. Who is on the immediate left of B?

- (a) D (b) G
- (c) D or G (d) Data inadequate
- (e) None of these

18. Who is on the immediate right of H?

- (a) A (b) E
- (c) F (d) Data inadequate
- (e) None of these

19. Which of the following pairs represents the immediate neighbour of F?

- (a) CH (b) ED
- (c) HD (d) CE
- (e) None of these

20. In which of the following pairs is the First person sitting to the immediate right of the second person?

- (a) BG (b) GA
- (c) AH (d) HE
- (e) None of these

21. Who is third to the left of E?

- (a) A (b) C
- (c) G (d) Data inadequate
- (e) None of these

Direction (Qs. 22-26): Study the following information carefully and answer the questions given below:

A, M, D, P, R, T, B and H are sitting around a circle facing the centre. M is third to the left of A who is second to the left of T. D is second to the right of H. Who is second to the right of T. R is second to the right of B. Who is not an immediate neighbour of T. [Corporation Bank PO]

22. Which of the following combinations represents the first and the second to the left of B respectively?

- (a) MD (b) DH
- (c) AM (d) AR
- (e) DM

23. Who is third to the right of T?

- (a) D (b) B
- (c) H (d) M
- (e) None of these

24. Who is on the immediate left of H?

- (a) P (b) M
- (c) T (d) R
- (e) Data inadequate

25. Who is second to the left of B?

- (a) D (b) H
- (c) M (d) Data inadequate
- (e) None of these

26. In which of the following combinations the third person is second to the left of the second person?

- (a) BAR (b) DBM
- (c) TPH (d) PHM
- (e) None of these

Direction (Qs. 27-31): Study the following information carefully and answer the questions given below.

A, B, C, D, E, F, G H and K are sitting around a circle facing the centre. B is fourth to the left of G who is second to the right of C. F is fourth to the right of C and is second to the left of K. A is fourth to the right of K. D is not an immediate neighbour of either K or B. H is third to the right of E. [Indian Bank PO]

27. In which of the following combinations is the third person sitting between the first and the second persons?

- | | |
|-------------------|---------|
| (a) EKB | (b) CHB |
| (c) AGC | (d) FGD |
| (e) None of these | |

28. Who is fourth to the left of E?

- | | |
|-------------------|---------------------|
| (a) A | (b) C |
| (c) G | (d) Data inadequate |
| (e) None of these | |

29. Who is second to the right of k?

- | | |
|-------------------|-------|
| (a) C | (b) H |
| (c) F | (d) E |
| (e) None of these | |

30. Who is third to the right of H?

- | | |
|-------------------|-------|
| (a) A | (b) D |
| (c) G | (d) F |
| (d) None of these | |

31. Who is fourth to the right of D?

- | | |
|-------------------|-------|
| (a) K | (b) H |
| (c) E | (d) B |
| (e) None of these | |

Direction (Qs. 32-36): Study the following information carefully and answer the questions given below.

P, Q, R, S, T, V, W and Z are sitting round a circle facing the centre. T is the second to the right of R, who is third to the right of P. S is the second to the left of P and Fourth to the right of Q. Z is third to the right of V, who is not an immediate neighbour of P. [Corporation Bank PO]

32. In which of the following combinations is the first person sitting between the second and the third persons?

- | | |
|---------|---------|
| (a) VTS | (b) TZS |
| (c) QRV | (d) PWQ |
| (e) VRT | |

33. Who is second to the right of T?

- | | |
|-------------------|-------|
| (a) S | (b) Z |
| (c) P | (d) R |
| (e) None of these | |

34. What is P's position with respect to S?
 (a) Fourth to the left (b) Fourth to the right
 (c) Fifth to the left (d) Sixth to the left
 (e) Third to the right

35. Who is on the immediate left of Z?
 (a) T (b) P
 (c) S (d) V
 (e) None of these

36. Who is second to the right of W?
 (a) R (b) Q
 (c) Z (d) S
 (e) None of these

Direction (Qs. 37-41)Study the following information carefully to answer the given questions.

- (i) There are 8 friends A, B, C, D, E, F, G , H seated in a circle facing the centre
 (ii) AC, DG, HE, and FB are seated adjacent to each other. A is also seated adjacent to H.
 (iii) B is 2nd to the right of H.
 (iv) E is 3rd to the right of C.

[Central Bank of India PO]

37. Who is 2nd to the left of A?

- | | |
|-------------------|--------------------------|
| (a) D | (b) G |
| (c) F | (d) cannot be determined |
| (e) None of these | |

38. Who is 3rd to the left of C?

- | | |
|-------------------|--------------------------|
| (a) G | (b) D |
| (c) B | (d) cannot be determined |
| (e) None of these | |

39. What is C's position with reference to E?

- | | |
|----------------------------------|----------------------------------|
| (a) 5 th to the left | (b) 4 th to the left |
| (c) 4 th to the right | (d) 3 rd to the right |
| (e) Cannot be determined | |

40. Who is 2nd to the right of A?

- | | |
|-------------------|--------------------------|
| (a) B | (b) E |
| (c) F | (d) Cannot be determined |
| (e) None of these | |

41. Who among the following pairs may not be seated adjacent to each other?

- | | |
|--------------------------|--|
| (a) AH | |
| (b) DC | |
| (c) EB | |
| (d) Cannot be determined | |
| (e) None of these | |

Direction (Qs. 42–49): Study the following information carefully and answer the given questions.

Eight friends Q, R, S, T, V, W, Y and Z are sitting around a circular table, facing the centre. There are three males and five female in the group of friends. No two male are immediate neighbours of each other.

[Syndicate Bank PO]

- V sits second to the right of his wife.
 - S sits third to the right of V
 - W sits second to the right of her husband Z, Z is not immediate neighbour of V's wife.
 - T is a male and Y is not an immediate neighbour of V.
 - R sits second to the right of Q.
42. What is the position of T with respect to Z?
- Second to the left
 - Immediately to the right
 - Third to the left
 - Second to the right
 - Third to the right
43. Which of the following statements regarding S is definitely correct?
- S is one of the male members of the group
 - Both the immediate neighbours of S are females.
 - S sits third of the left of T
 - W is an immediate neighbours of S
 - S sits second to the right of Q.
44. Who amongst the following is V's wife?
- Q
 - Y
 - R
 - T
 - None of these
45. Who amongst the following has a male sitting to the immediate left and the right?
- Y
 - R
 - Q
 - S
 - None of these
46. Which of the following is not true regarding T?
- T is an immediate neighbour of Z's wife.
 - No male is an immediate neighbour of T.
 - Q sits second to the right of T
 - The one who sits third to the left of T is a male.
 - All are true.
47. Which of the following pairs represents the immediate neighbor of T?
- RQ
 - WZ
 - YV
 - WY
 - None of these

48. How many people sits between V and S when counted in anti-clockwise direction?
- None
 - One
 - Two
 - Three
 - Four
49. Who amongst the following sits exactly between V and Y?
- Q
 - W
 - R
 - T
 - Z

Direction (Qs. 50–54): Study the following information carefully and answer the questions given below.

Eight friends, A, B, C, D, E, F, G and H , are sitting around a rectangular table in a such a way that two persons sit on each of the four sides of the table facing the centre. Persons sitting on the opposite sides are exactly opposite each other. D faces North and sits exactly opp. of H. E is on the immediate left of H. A and G sits on the same side. G is exactly opposite B, who is on immediate right of C. A is next to the left of D.

[Punjab and Sind Bank PO]

50. Who is sitting opposite A?
- G
 - D
 - E
 - A
 - None of these
51. Who is next to E in clockwise direction?
- G
 - B
 - F
 - A or F
 - None of these
52. Which of the following pairs of persons has both the persons sitting on the same side with first person sitting to the right of second person?
- DF
 - CB
 - FC
 - AG
 - None of these
53. Who is sitting opposite E?
- D
 - A
 - F
 - A or D
 - None of these
54. Which of the following statements is definitely true?
- A is facing North
 - E is sitting opposite F
 - F is to the left of G
 - C is to the left of A.
 - None of these

3 CONCEPT CRACKER

Direction (Qs. 1-5): Study the following information carefully and answer the questions given questions.

Eight friends P, Q, R, S, T, V, W, and Y are sitting around a square table in such a way that four of them sit at four corners of the square while four sit in the middle of each of the four sides. The ones who sit at the four corners face the centre while those who sits in the middle of the sides face outsides.

P, who face the centre, sits third to the right of V. T who face the centre, is not an immediate neighbour of V. Only one person sits between V and W . S sits second to right of Q. Q faces the centre. R is not an immediate neighbour of P.

[Corporation Bank PO]

1. Who sits second to the left of Q?
 - (a) V (b) P
 - (c) T (d) Y
 - (e) Cannot be determined
2. What is the position of T with respect to V?
 - (a) Fourth to the left (b) Second to the left
 - (c) Third to the left (d) Third to the right
 - (e) Second to the right
3. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
 - (a) R (b) W
 - (c) V (d) S
 - (e) Y
4. Which of the following will come in place of the question mark based upon the given seating arrangement?
WP TR QW RS?
 - (a) YT (b) VY
 - (c) VQ (d) PY
 - (e) QV

5. Which of the following is true regarding R?
 - (a) R is an immediate neighbour of V.
 - (b) R faces the centre.
 - (c) R sits exactly between T and S
 - (d) Q sits third to left of R.
 - (e) None of these

Direction (Qs. 6-11): Study the following information carefully and answer the given questions.

P, Q, R, S, T, V, W and X are captain of eight different cricket teams, namely, Australia , New Zealand, India,

Pakistan, Sri lanka, England, West Indies and South Africa, but not necessarily in the same order. All of them seated around a circular table and are facing the centre.

P sits third to the left of the Sri lankan captain. Only two people sits between T and W. Neither T nor W is an immediate neighbours of P. Neither T nor W is the captain of Sri lanka. The captain of South Africa sits second to the right of S. S is not an immediate neighbours of P. S is not the Sri lankan captain and P is not the captain of South Africa. The Australian captain sits third to the left of V. The Australian and Sri lankan captain are not immediate neighbours. Only one person sits between S and the Indian captain. Captain of Pakistan and NewZealand are immediate neighbours. S is not captain of NewZealand team. Only one person sit between Q and captain of England.The captain of England is an immediate neighbour of X. W and Q are not immediate neighbours.

[Allahabad Bank]

6. How many people sit between T and the captain of England when counted in clockwise direction from T?
 - (a) None (b) One
 - (c) Two (d) Three
 - (e) Four
7. Who is the captain of the Australian team?
 - (a) P (b) V
 - (c) W (d) T
 - (e) Q
8. Which of the following would come in place of question marks based upon the given seating arrangement?
VS, XR, TV, RP,?
 - (a) SW (b) WX
 - (c) QW (d) QX
 - (e) VR
9. Which of the following is true with respect to the given seating arrangement?
 - (a) R is the captain of South Africa
 - (b) W is an immediate neighbours of V.
 - (c) The captain of Australia and England are immediate neighbours.
 - (d) Four people sits between W and Q
 - (e) X sits second to the left of S.

Direction (Qs. 12-18): Study the following information carefully and answer the given questions.

A, B, C, D, E, F, G and H are sitting around a circular table, facing the centre. Each of them has a different profession, viz, doctor, engineer, architect, pilot, banker, teacher, businessman and politician.

The politician sits third to the right of G. C is an immediate neighbour of G. The architect sits Second to the right of C. B sits third to the right of H. H is neither politician nor an architect. Only one person sits between C and the teacher. A and F are immediate neighbour of each other. Neither A nor F is a politician. The doctor sits Second to the right of A. Two people sits between D and the engineer. D is not a politician. The pilot is not an immediate neighbour of the politician. The banker sits second to the left of A.

[India Overseas Bank PO]

16. What is the profession of G?

(a) Businessman (b) Pilot
(c) Banker (d) Teacher
(e) Architect

17. Four of the following five are alike in a certain way so based on the given arrangement and thus form a group. Which is the one that does not belong to that group?

(a) G – Doctor (b) E- Architect
(c) H- Businessman (d) E- Politician
(e) D- Pilot

18. What is the profession of E?

(a) Businessman (b) Architect
(c) Banker (d) Politician
(e) Engineer

Direction (Qs. 19-22): Study the following information carefully and answer the given questions.

Eight friends- A, B, C, D, E, F, G and H - are sitting around a circular table not necessarily in the same order. Three of them facing outward while five are facing towards the centre. There are equal number of males and females in the group.

C is facing the centre. E is sitting third to the right of C. F is sitting to the left of E. Three person are sitting between F and B. The immediate neighbours of B are females. G is sitting third to the right of F. D is sitting third to the right of A. A is not an immediate neighbours of E. the immediate neighbor of E are males and are facing the centre. The immediate neighbor of D are females and face outside. The one sitting third to the left of B is a male. No female is an immediate neighbour of G.

[Corporation Bank PO]

- (c) H is a male
- (d) The immediate neighbour of H are facing outside.
- (e) None of these

22. What is D's position with respect to G?
- (a) Third to the left (b) Third to the right
 - (c) Second to the left (d) Second to the right
 - (e) None of these

4. CONCEPT DEVIATOR

Direction (Qs. 1–7): Study the following information carefully and answer the given questions.

Eight colleagues- A, B, C, D, E, F, G and H - are sitting around a circular table facing the centre but not necessarily in the same order. Each one of them holds a different post – Manager, Company – Secretary, Chairman, President, Vice- President , Group- leader, Financial Advisor and Managing Director.

A sits third to the right of Managing Director. Only two people sits between the Managing Director and H. The Vice- President and the Company Secretary are immediate neighbours. Neither A nor H is a Vice- President or a Company Secretary. The Vice- President is not an immediate neighbours of the Managing Director. The Manager sits second to the left of E. E is not an immediate neighbour of H. The Manager is an immediate neighbour of both the Group- leader and the Financial Advisor. The Financial Advisor sits third to the right of B. B is not the Vice- President. C sits on the immediate right of the Chairman. A is not the chairman. F is not an immediate neighbor of A. G is not an immediate neighbour of the Manager.

[SBI (Associates) PO]

1. Who amongst the following sits third to the left of E?
 - (a) Manager (b) G
 - (c) A (d) Financial Advisor
 - (e) B
2. Four of the following five are alike in a certain way based on the given arrangement and thus form a group. Which is the one that does not belong to that group?
 - (a) F-Chairman (b) G-President
 - (c) D-Manager (d) A-Financial Advisor
 - (e) B-Managing Director
3. Who amongst the following is a President of the company?
 - (a) A (b) C
 - (c) H (d) G
 - (e) D

4. Which of the following is true with respect to the given seating arrangement?
 - (a) The Group Leader of the Company is an immediate neighbor of the Vice President.
 - (b) G sits second to the right of D.
 - (c) The Group Leader and the Company Secretary are immediate neighbours.
 - (d) The Chairman of the company sits to the immediate left of Managing Director.
 - (e) The Group Leader sits second to the left of D
5. Which of the following posts does B hold in the company?
 - (a) Chairman (b) Manager
 - (c) Company Secretary (d) Vice President
 - (e) Financial Advisor
6. Who among the following sits exactly between Managing Director and H?
 - (a) H and the Chairman
 - (b) B and G
 - (c) The Chairman and C
 - (d) F and C
 - (e) E and the Group Leader
7. Who among the following is the Group Leader?
 - (a) C (b) F
 - (c) G (d) H
 - (e) A

Direction (Qs. 8–12): Study the following information carefully and answer the given questions.

Representatives of eight different banks, viz A, B, C, D, E, F, G and H are sitting around a circular table, facing the centre, but not necessarily in the same order. Each one of them is from a different bank, viz UCO Bank, Oriental Bank of Commerce, Bank of Maharashtra, Canara Bank, Syndicate Bank, Punjab National Bank, Bank of India and Dena Bank.

F sits second to the right of the representative of Bank of India is an immediate neighbour of the representative of Canara Bank. Two person sit between the representative of Bank of India and B. C and E are immediate neighbours.

Neither C nor E is an immediate neighbour of either B or the representative of Canara Bank. The representative of Bank of Maharashtra sits second to the right of D. D is the representative of neither Canara Bank nor Bank of India G and the representative of UCO Bank are immediate neighbours. B is not the representative of UCO Bank. Only one person sits between C and the representative of Oriental Bank of Commerce.

H sits third to the left of the representative of Dena Bank. The representative of Punjab National Bank sits second to the left of the representative of Syndicate Bank.

[IBPS Common Written Exam PO (PO/MT)]

8. Four of the following five are alike in a certain way based on the given arrangement and thus form a group. Which is the one that does not belong to that group?
 - (a) H- UCO Bank
 - (b) A- Central Bank
 - (c) D- Bank of Maharashtra
 - (d) E- Syndicate Bank
 - (e) F- Punjab Nation Bank
 9. Which of the following is true with respect to the given seating arrangement?
 - (a) B is the representative of Bank of Maharashtra
 - (b) C sits second to the right of H.
 - (c) The representative of Dena Bank sits on 2 the immediate left of the representative of UCO Bank
 - (d) A sits second to the right of the representative of Bank of India
 - (e) The Group Leader sits second to the left of D
 10. Who among the following sits exactly between B and the representative of Bank of India?
 - (a) A and the representative of UCO Bank
 - (b) F and G
 - (c) H and the representative of Bank of Maharashtra
 - (d) H and G
 - (e) Representative of Syndicate Bank and Oriental Bank of Commerce
 11. Who among the following is the representative of Oriental Bank of Commerce?
 - (a) A
 - (b) C
 - (c) H
 - (d) G
 - (e) D
 12. Who among the following sits second to the Left of B?
 - (a) C
 - (b) H
 13. The representative of Canara Bank
 - (c) The representative of Canara Bank
 - (d) The representative of Punjab National Bank
 - (e) G
- Direction (Qs. 13-20): Study the following information carefully and answer the given questions.**
- Eight family members, viz A, B, C, D, E, F, G and H - are sitting around a circular table, facing the centre but not necessarily in the same order.
- [RBI Grade 'B' Officer Exam]
- F, the wife of D, is sitting third to the right of C.
 - A is the son of H. A sitting second to the left of D. D is a immediate neighbours neither F nor C. No male is an immediate neighbours of D.
 - G sits second to the left of D's son. Only two person sits between H and A's brother. Neither C nor D is the brother of A.
 - D's son and the wife of D's son are immediate neighbours of each other.
 - F is the mother of H and is an immediate neighbours of neither B nor G.
 13. Who among the following is D's son?
 - (a) E
 - (b) G
 - (c) A
 - (d) B
 - (e) Cannot be determined
 14. Who is second to the Left of G?
 - (a) A's brother
 - (b) G's mother
 - (c) D
 - (d) B's father
 - (e) A's aunt
 15. How many people sit between A and his brother?
 - (a) None
 - (b) One
 - (c) Two
 - (d) Three
 - (e) Four
 16. Who among the following sits exactly between H and F?
 - (a) D's wife
 - (b) D's son
 - (c) C
 - (d) B
 - (e) A
 17. Who among the following is the brother of A?
 - (a) E
 - (b) G
 - (c) A
 - (d) B
 - (e) Cannot be determined
 18. Based on the given arrangement, how is A related to D?
 - (a) Grandfather
 - (b) Son
 - (c) Grandson
 - (d) Daughter-in-law
 - (e) Cannot be determined

Circular Arrangement

19. Four of the following five are alike in a certain way based on the given arrangement and so form a group. Which is the one that does not belong to that group?

- | | |
|-------|-------|
| (a) B | (b) C |
| (c) H | (d) G |
| (e) F | |

20. Which of the following statements regarding H is definitely correct?

 - (a) H is a male
 - (b) H is the cousin of C
 - (c) Both the immediate neighbour of H are males
 - (d) H is the Daughter-in-law of D
 - (e) H is the father of A

Direction (Qs. 21-25): Study the following information carefully and answer the given questions.

Eight Childhood friends A, B, C, DE, F, G and H are sitting around a circular table facing the centre, but not necessarily in the same order. Each of them have completed their respected courses viz MBA, MCA, B.Tech, CA, CS, B.Com, Finance and M.Tech.

23. Who among the following sits third to the right of F?

24. Which of the following statements is/are true about E?

- (a) E is sitting opposite H.
 - (b) E studies M.Tech
 - (c) E is not an immediate neighbour of B
 - (d) All are true
 - (e) none of these

25. Which of the following courses is studied by C?

 - (a) CA
 - (b) B.Tech
 - (c) CS
 - (d) MBA
 - (e) none of these

Directions (Qs. 26–28): Study the following information carefully and answer the given questions.

Everyday Miss Yadav, Miss Sharma, Miss Toppo and Miss Hussain go to a park for morning walk. One day, they reach the gate of the park at the same time and immediately start walking on the only circular track adjacent to the gate. Miss Yadav, Miss Toppo and Miss Hussain go on a clockwise direction while Miss Sharma goes anti-clockwise. Miss Hussain who is asthmatic is the slowest among the four and soon others move away from her. Like every day she could walk only one round taking almost the same time as others to complete their morning walk. After her walk Miss Hussain read the following instruction written at the gate while others joined her one after another. "Walkers are requested to use only the 500 m walking track. Plucking of flowers and leaves are strictly prohibited. The park will remain closed from 6 pm to 5 am." While walking Miss Yadav overtakes Miss Hussain twice; once near the fountain and other time at the signature rock. Miss Toppo and Miss Sharma cross her three times.

28. How many times Miss Toppo would overtake Miss Yadav?
- Never
 - Once
 - Twice
 - Three times
 - Four times

Directions (Qs. 29-33): Study the following information carefully and answer the given questions.

Twelve people Abhishek, Binit, Chand, Dhiraj, Eshita, Fatima, Garima, Hena, Ishan, Jatin, Kamal and Lalit are sitting around a rectangular table. The following information is known-

- The table has 12 chairs numbered from 1 to 12.
- 6 seats on one side of the table and 6 on the opposite side.
- The chairs are arranged in such a way that chair number 1 is just opposite to 12, 6 is opposite to 7 and so on.
- Abhishek is sitting opposite Kamal who is the only person sitting between Chand and Jatin
- Eshita is sitting opposite Ishan who is the only person sitting between Binit and Lalit
- Fatima, sitting at chair number 1, is diagonally opposite Chand who is sitting opposite Dhiraj

29. If Garima is sitting opposite to Fatima the who is sitting opposite to Hena?

- Lalit
- Binit
- Ishan
- Uniquely not determined.
-

30. If Lalit is sitting opposite to Hena the how is sitting opposite to Garima

- Eshita or Fatima
- Jatin or Fatima
- Jatin or Eshita
- None of these
-

31. How many persons are sitting between Binit and Dhiraj, if they are on the same side of the table?

- 2 or 3
- 1 or 2
- 1 or 3
- None of these
-

32. Which one of the following is correct?

- Lalit is sitting at seat number 12
- Lalit is sitting at seat number 10
- Kamal is sitting at seat number 8
- None of these
-

33. Which one of the following is incorrect?

- Lalit is opposite to Jatin
- Jatin is opposite to Hena
- Lalit is adjacent to Chand
- None of these
-

Direction (34-35): Read the following direction and answer the questions:

Eight friends P, Q, R, S, T, V, W and Y are sitting around a circular table for dinner and order eight different dishes Momos, Fish Fry, Biryani, Paneer Do Piyaza, Chicken 65, Mutton Kurma, Egg curry and Thai Lamb not necessary in the same order. Four of them facing the centre and four outside in an alternate manner.

S sits third to the right of the person, who ordered egg curry, who faces the centre. Y who Ordered Mutton kurma is not an immediate neighbor of the person who ordered egg curry or S. T sits third to the right of R, who likes Biryani. R is not among those who faces outside neither immediate neighbor of Y. The Fish fry lover is immediate neighbor of R. only one person sits between egg curry lover and V, who does not like lamb or Paneer do Piyaza. Q the paneer lover is not an immediate neighbor of V. W is between momos and egg curry lover, and does not like lamb.

34. Who ordered Thai Lamb dish?

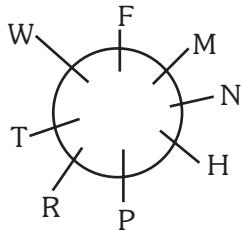
- T
- R
- P
- S
- W

35. Who is second right of S ?

- T
- R
- P
- S
- W

Answer with Solution

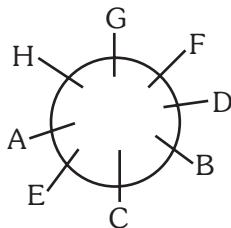
Concept Applicator

Solution for (1-6):


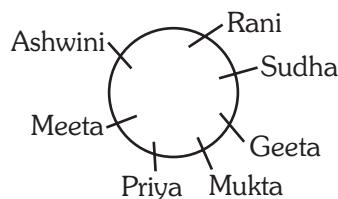
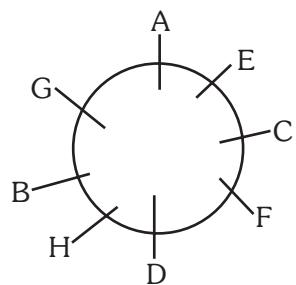
1. (a)
2. (e); N
3. (d)
4. (d)
5. (c)
6. (a)

Solution for (7-11):

7. (c)
8. (d)
9. (a)
10. (e)
11. (b)


Solution for (12- 16):

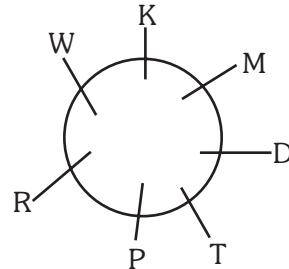
12. (c)
13. (e); Geeta
14. (d)
15. (b)
16. (e)


Solution for (17-21):


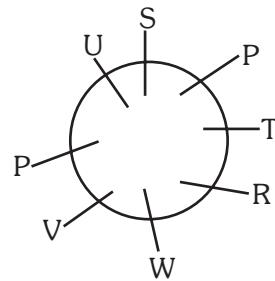
17. (a)

18. (e); Third to the left

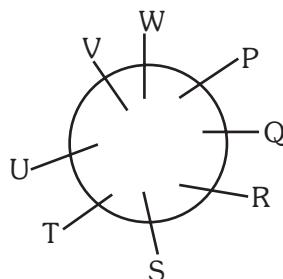
19. (c)
20. (b)
21. (d)

Solution for (22-26):


22. (c)
23. (d)
24. (a)
25. (c)
26. (e); R

Solution for (27-31):


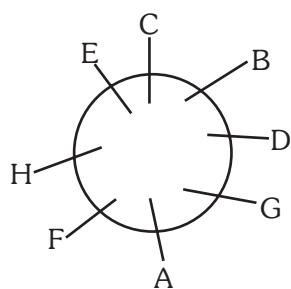
27. (c)
28. (a)
29. (b); Thus only R's position does not change



30. (d)

31. (e); In all other first person is second to the left of the second person.

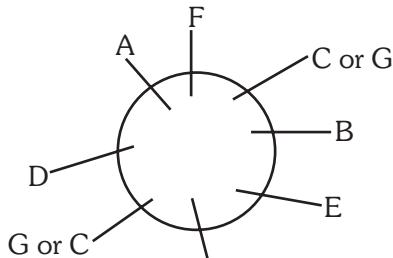
Concept Builder

Solution for (1-5):


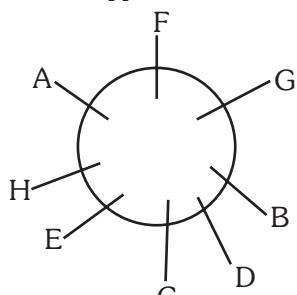
1. (a)
2. (b)
3. (d)
4. (c), In all others the second person is second to the right of the First
5. (e)

Solution for (6-10):

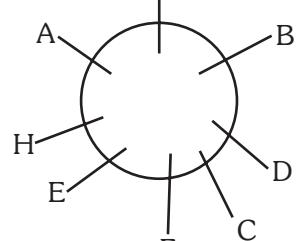
6. (d); C or G
7. (b)
8. (e)
9. (c)
10. (e); E


Solution for (11-16):

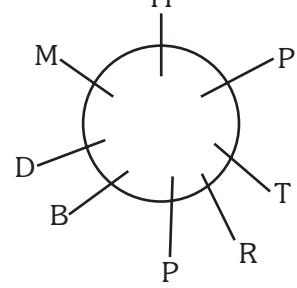
11. (b)
12. (c)
13. (b)
14. (b)
15. (a)
16. (e); G


Solution for (17-21):

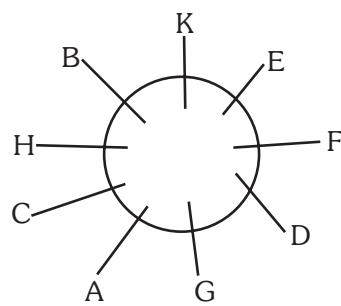
17. (a)
18. (b)
19. (d)
20. (e)
21. (c)


Solution for (22-26):

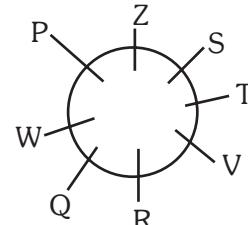
22. (e)
23. (d)
24. (a)
25. (c)
26. (b)


Solution for (27-31):

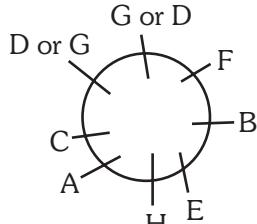
27. (d)
28. (a)
29. (b)
30. (c)
31. (d)


Solution for (32-36):

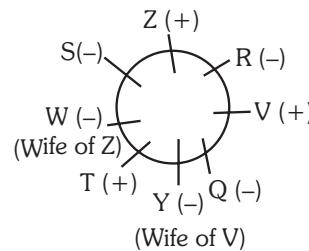
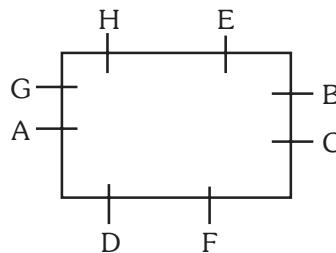
32. (e)
33. (b)
34. (d)
35. (c)
36. (a)


Solution for (37-41):

37. (d); D or G
38. (e); F
39. (a)
40. (b)
41. (b)

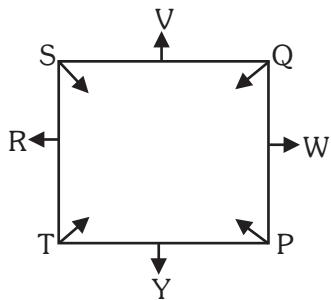

Solution for (42-49):

42. (e)
43. (d)
44. (b)
45. (b)
46. (e)
47. (d)
48. (c)
49. (a)

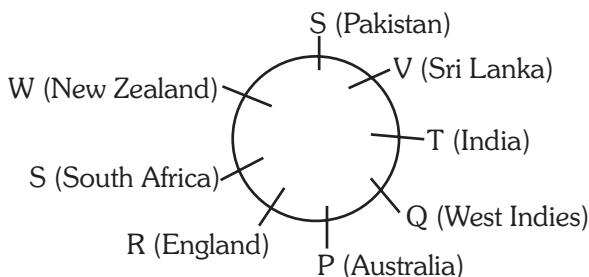

Solution for (50-54):


50. (e); C
51. (b)
52. (d)
53. (c)
54. (b)

Concept Cracker

Solution for (1-5):

1. (a)
2. (c)
3. (d); Other sits in the middle of the sides
4. (a); Move $1\frac{1}{2}$, $2\frac{1}{2}$, $3\frac{1}{2}$ sides clockwise on the square
5. (c)

Solution for (6-11):

6. (c)
7. (a)
8. (b); There is pattern of going from the second member of a pair to the first member of the next pair, $+2, +3, +4 \dots$ CW.

9. (c)

10. (d)

11. (d)

(12-18)

12. (a)

13. (c)

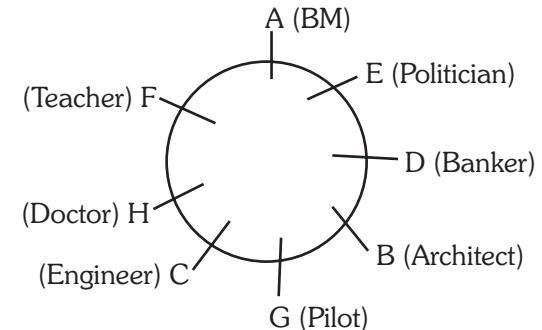
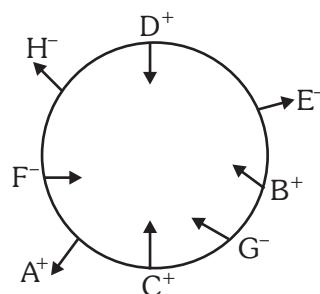
14. (c)

15. (e)

16. (b)

17. (d)

18. (d)

**(19-25)**

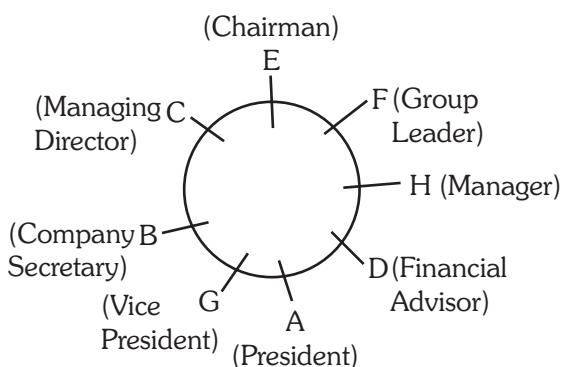
19. (a)

20. (b) F and A

21. (a)

22. (b)

Concept Deviator

Solution for (1 – 7):

1. (d)

2. (e)

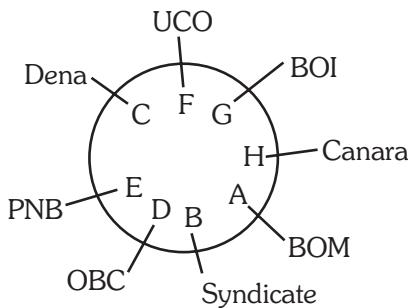
3. (a)

4. (d)

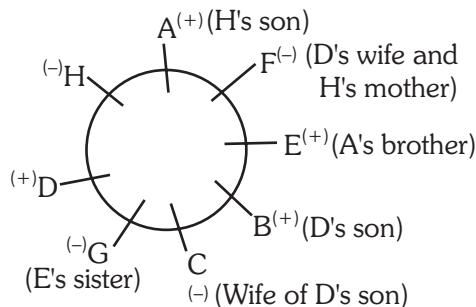
5. (c)

6. (e)

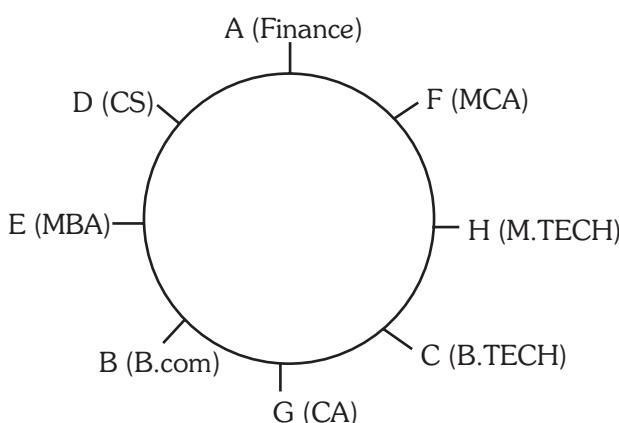
7. (b)

Solution for (8 – 12):

8. (b)
9. (e)
10. (c)
11. (e)
12. (d)

Solution for (13 – 20):

13. (d)
14. (b); H is the mother of G
15. (b)
16. (e)
17. (a)
18. (c); A is the son of H and H is daughter of D. So A is grandson of D.
19. (a); B is the male while the rest are females
20. (c)

Solution for (21 to 25):

21. (c)
22. (a)
23. (a)
24. (a)
25. (b)

Solutions for (26–28):

It is given that walking track is 500 m and Miss Hussain takes only one round. The given information is as follows-

- (i) Miss Yadav overtakes Miss Hussain twice and both are running in the clockwise direction, so Miss Yadav must have walked three times on the same track.
- (ii) Miss Toppo crosses Miss Hussain three times and both are running in the same direction, so Miss Toppo must have walked four times on the same track.
- (iii) Miss Sharma crosses Miss Hussain three times, so she must have walked three times on the same track, as both are running in the opposite directions.

Hence from this we can conclude that the distance covered are as follows:

Miss Hussain- 500m

Miss Yadav- 1500m

Miss Toppo- 2000m

Miss Sharma- 1500m

26. (a) From the above result Total distance covered by Miss Sharma and Miss Toppo = $1500 + 2000 = 3500$ m.

27. (d) From the above result as Miss Yadav and Miss Sharma both covered 1500 meter, but in opposite directions, so both will meet five times on the track.

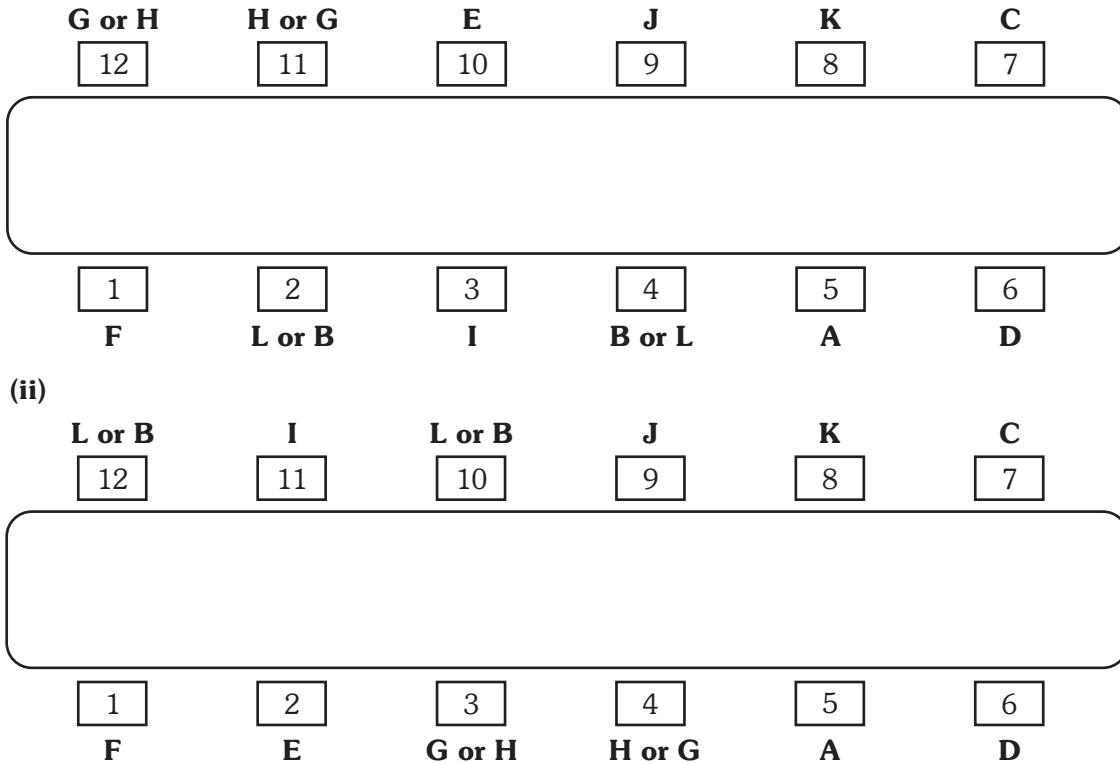
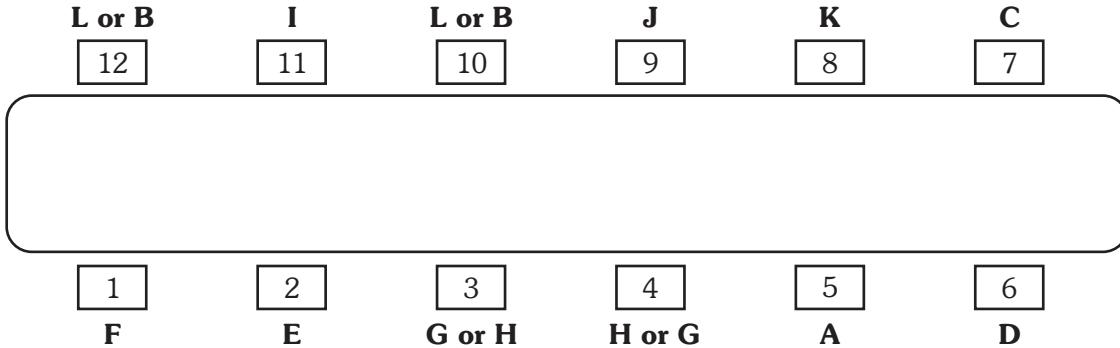
28. (c) From the above result Miss Toppo and Miss Yadav covered 2000 meter and 1500 meter respectively in the same direction. So, Miss Toppo will overtake twice Miss Yadav.

Solution for (29–33):

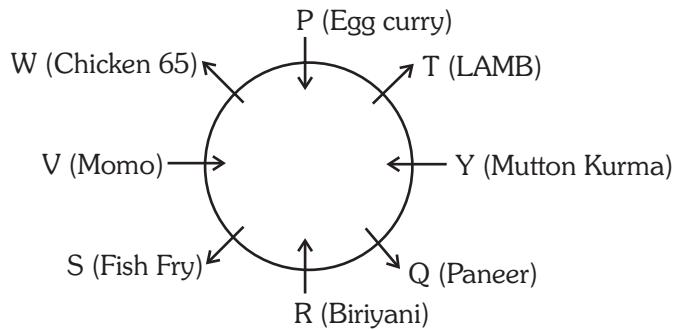
Lets denote these 12 students by their 1st letter of name, like Abhishek is A and so on.

From the given information we can conclude that (C) and (D) are at seat number 7 and 6 respectively. And (K) is the only person between (C) and (J) while (A) is opposite to (K). Hence, (A), (K) and (J) must be at seat number 5, 8 and 9 respectively.

Then we have following two cases:

Case (i)**Case (ii)**

29. (d) From the above 2 cases, it follows case (i) and opposite to Fatima is either Lalit, and Binit.
30. (b) From the above 2 cases,
In case (i) if Lalit is sitting opposite to Hena then Fatima is sitting opposite to Garima
In case (ii) if Lalit is sitting opposite to Hena then Jatin is sitting opposite to Garima
31. (c) From the above 2 cases, it follows case (i) and number of persons are sitting between Binit and Dhiraj is either 1 or 3
32. (c) From the given options only option (c) is correct.
33. (c) From the given options option (c) is correct.

Solution for (34–35):

34. (a)

35. (e)

Chapter

6

Blood Relation

Section	Level	No. Of questions
Concept applicator	Very easy	20
Concept builder	Easy	20
Concept cracker	Moderate	20
Concept deviator	Difficult	13

THEORY

To solve this type of questions, one should put all the information in a family tree diagram and must have clear idea on his /her knowledge on BLOOD RELATION.

Symbols to represent relationship:

Relationship	Symbol
Men	A
Women	B
Husband and wife	+
Brother – sister or cousins	↔
Generation (father and son)	↓

Relationship TABLE:

Father's Son	Brother	Mother's Son	Brother
FATHER's BROTHER's Son or Daughter	COUSIN	MATERNAL UNCLE's son or daughter	Cousin
Father's Father	Grandfather	Mother's father	Grandfather
Father's Mother	Grandmother	Mother's Mother	Grandmother
Father's sister	Aunt	Mother's sister	Aunt
Son's wife	Daughter-in-law	Sister's Husband	Brother-in-law
Brother's wife	Sister-in-law	Sister's husband's sister	Sister-in-law
Brother's son	Nephew	Wife's brother	Brother-in-law
Brother's daughter	Niece	Grandson's Son	Great grandson

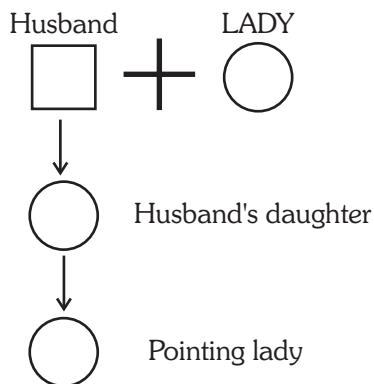
Ex. 1:

Pointing to a woman, a lady said, "she is the daughter of my husband's daughter". How is the woman related to this lady?

- (a) Granddaughter (b) son (c) Daughter
 (d) Mother (e) None of these

Solution:

Option (a): Grand daughter

**Ex. 2:** Study the following information carefully:

" $P \times Q$ " means "P is wife of Q"

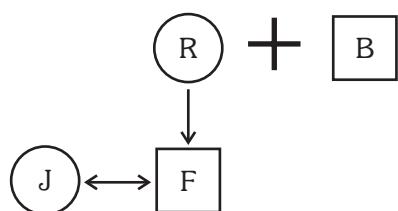
$P \div Q$ means " P is father of Q"

$P + Q$ means " P is son of Q"

$P - Q$ means " P is sister of Q"

In $J - F + R \times B$, how is R related to J?

- (a) Father (b) mother (c) Paternal Aunt
 (d) Cannot be determined (e) none of these

Solution:

Option (b): Mother

1. CONCEPT APPLICATOR

2. CONCEPT BUILDER

- Anu's father is the only son of Vimal's mother how is Anu related to Vimal's son?
(a) Sister-in-law (b) Sister
(c) Cousin (d) Aunt
(e) None of these
 - Ronit's son Rohit, says to a girl, "your father is the only brother of my mother who is the only child of Mr. Rakesh". how is rohit related to girl?
(a) sister (b) Cousin
(c) brother (d) brother-in-law
(e) None of these
 - Pointing to a man, a lady said, "he is the son of my husband's daughter". How is the man related to this lady?
(a) Grand Son (b) son
(c) Daughter (d) none of these
(e) None of these
 - A lady meets a person in the market who is the wife of the brother of her husband. How is the lady related to the person?
(a) cousin (b) sister
(c) sister-in-law (d) nephew
(e) None of these
 - Pointing out to a photograph, Swati said, " he is the uncle of my brother's sister". How is the person in photograph related to Swati?
(a) uncle (b) father-in-law
(c) brother (d) Grand father
(e) None of these
 - Pointing to a lady, Vimal said, "she is the wife of my Grandfather's son". How is the lady related to Vimal?
(a) aunty (b) mother
(c) grandmother (d) sister
(e) None of these
 - A boy meets a girl in the party who introduces herself as the daughter of his grandfather's daughter's brother. How is the boy related to the girl?
(a) brother-in-law (b) uncle
(c) brother (d) sister
(e) None of these
 - When Rani saw Vinit, she recollected, "He is the brother of my grandfather's son". How is rani related to Vinit?
(a) Nephew (b) aunt
(c) Daughter (d) sister
(e) None of these

9. Pointing to Sneha in the photograph, Lily said, "his mother has a grandchild whose father is my brother". How is Sneha related to Lily?
 (a) sister (b) sister-in-law
 (c) daughter (d) mother
 (e) None of these
10. Pointing to a photograph, a lady said, "This woman's daughter's brother is my husband". How is this woman related to the lady?
 (a) mother (b) sister
 (c) mother-in-law (d) niece
 (e) None of these
11. A man introduced himself to a lady as the grandson of his mother's brother's sister. How is the man related to the lady?
 (a) sister (b) daughter
 (c) niece (d) cousin
 (e) None of these
12. Pointing to a photograph, a lady said, "he is the brother of my husband's father's son". How is the man related to the lady?
 (a) brother-in-law (b) brother
 (c) uncle (d) nephew
 (e) None of these
13. A + B means A is the brother of B; A – B means A is the wife of B; and A * B means A is the mother of B. which of the following means M is the brother-in-law of P?
 (a) M – N + P (b) M + N – P
 (c) M * N + P (d) M – P * N
 (e) None of these
14. A, B and C are sisters. D is the brother of E and E is the daughter of B. How is A related to D?
 (S.S.C)
- (a) Sister (b) cousin
 (c) Niece (d) Aunt
 (e) None of these
15. A and B are married couple. X and Y are brothers. X is the brother of A. How is Y related to B?
- (a) Brother-in-law (b) brother
 (c) cousin (d) uncle
 (e) None of these (R.R.B)
16. In a joint family, there are father, mother, 3 married sons and one unmarried daughter. Of the sons two have 2 daughters each and one has a son. How many female members are there in the family?
 (a) 2 (b) 3
 (c) 6 (d) 7
 (e) 9
17. P's father Q is B's paternal uncle and A's husband M is P's paternal uncle. How is A related to B?
 (BANK PO)
- (a) Cousin (b) Aunt
 (c) Mother (d) data inadequate
 (e) None of these
18. Shobha is the niece of Ashish. Ashish's mother is priya. Kamla. Is priya's mother. Kamla's husband is hari. Krishna is the mother-in-law of hari. How is shobha related to hari?
 (C.P.O)
- (a) Daughter
 (b) great grand daughter
 (c) grand niece
 (d) great grand son's daughter
 (e) None of these.
19. Kalyani is mother-in-law of veena who is sister-in-law of ashok. Dheeraj is father of sudeep the only brother of Ashok. How is kalyani related to ashok?
 (a) Cousin (b) wife
 (c) mother-in-law (d) Anut
 (e) None of these
20. A is father of X, B is mother of Y. the sister of X and Z is Y. which of the following statement is definitely true
 (a) B is the mother of Z
 (c) X is the sister of Z
 (b) Y is the son of A
 (d) B has one daughter
 (e) B is the wife of A

3 CONCEPT CRACKER

Direction (Qs. 1-2): Study the following information carefully to answer these question:

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P X Q means "P is wife of Q"

P ÷ Q means "P is father of Q"

P + Q means "P is son of Q"

P – Q means "P is sister of Q"

1. In $H + I \div L$, how is L related to H?
 - (a) Brother
 - (b) Sister
 - (c) Cousin
 - (d) brother or sister
 - (e) None of these
2. Which of the following represents "S is mother of T"?
 - (a) $S \times M \div H - T$
 - (b) $S \times M + H - T$
 - (c) $M \times S \div H - T$
 - (d) can't be determine
 - (e) None of these

Directions (Qs. 3-6): Study the following information carefully to answer this question:

$A \times B$ means "A is father of B"

$A \div B$ means "A is daughter of B"

$A + B$ means "A is sister of B"

$A - B$ means "A is Husband of B"

3. In $F \div R \times H - L$, how is H related to F?
 - (a) Father
 - (b) Brother
 - (c) Sister
 - (d) cannot be determined
 - (e) None of these
4. Which of the following indicates "N is mother of K"?
 - (a) $K + L \div N \times F$
 - (b) $K + L \div N - M$
 - (c) $H \times k \div N$
 - (d) $N \times F + K$
 - (e) None of these
5. In $F - R + H \div T$, how is F related to T?
 - (a) Son-in-law
 - (b) Daughter-in-law
 - (c) Son
 - (d) Daughter
 - (e) None of these
6. In $G \times T + Q \div M$, how is M related to G?
 - (a) Brother
 - (b) Sister
 - (c) Sister -in-law
 - (d) Cannot be determine
 - (e) None of these

Directions (Qs. 7-10): Read the following information carefully to answer the question:

$P \times Q$ means "P is sister of Q"

$P \div Q$ means "P is mother of Q"

$P + Q$ means "P is brother of Q"

$P - Q$ means "P is father of Q"

7. Which of the following represent W is grandfather of H?
 - (a) $W + T - H$
 - (b) $W \div T - H$
 - (c) $W \times T + H$
 - (d) $W \div T + H$
 - (e) None of these
8. Which of the following represent "M is nephew of R"?
 - (a) $M \div T - R$
 - (b) $R \div T - M$
 - (c) $R \times T \div M \times J$
 - (d) $R \div T - M + J$
 - (e) None of these
9. How T is related to S " $W \div T - H + V - S$ "?

- (a) Sister
 - (b) mother
 - (c) aunt
 - (d) uncle
 - (e) None of these
10. The expression means " $S \div T - H \times V - N$ "?
 - (a) S is grandmother of N
 - (b) S is great grandmother of N
 - (c) S is mother of V
 - (d) N is grand son of S
 - (e) None of these

Directions (Qs. 11-15): Study the following information to answer the given questions:

[CENTRAL BANK OF INDIA PO]

- (i) In a family of 6 persons, there are two couples.
- (ii) The lawyer is the head of the family and has only two sons – Mukesh and Rakesh – both teachers.
- (iii) Mrs. Reena and her mother-in-law both are lawyers
- (iv) Mukesh's wife is a doctor and they have a son, Ajay.
11. Which of the following is definitely a couple?
 - (a) Lawyer – teacher
 - (b) doctor – lawyer
 - (c) teacher – teacher
 - (d) cannot be determined
 - (e) None of these
12. What is the profession of Rakesh's wife?
 - (a) Teacher
 - (b) Doctor
 - (c) lawyer
 - (d) cannot be determine
 - (e) None of these
13. How many male members are there in the family?
 - (a) Two
 - (b) three
 - (c) Four
 - (d) cannot be determine
 - (e) None of these
14. What is /was Ajay's Grandfather's occupation?
 - (a) Teacher
 - (b) lawyer
 - (c) doctor
 - (d) cannot be determine
 - (e) None of these
15. What is the profession of Ajay?
 - (a) Teacher
 - (b) lawyer
 - (c) doctor
 - (d) cannot be determine
 - (e) None of these

Directions (Qs. 16-20): Study the following information carefully and answer the questions given below it.

There are six persons A, B, C, D, E and F. C is the sister of F. B is the brother of E's Husband. D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group.

16. Who is the mother?
 - (a) A
 - (b) B
 - (c) C
 - (d) D
 - (e) E

17. Who is E's husband?

- (a) A
- (b) B
- (c) C
- (d) E
- (e) F

18. How many male members are there in the group?

- (a) one
- (b) two
- (c) three
- (d) four
- (e) five

19. How is F related to E?

- (a) Uncle
- (b) Husband
- (c) son
- (d) daughter
- (e) mother

20. Which of the following is a group of the brothers?

- (a) ABF
- (b) ABD
- (c) BFC
- (d) BDF
- (e) BED

4. CONCEPT DEVIATOR

Directions (Qs. 1-4): Study the following information carefully and answer the questions given below it.

In a family of six persons A, B, C, D, E and F there are two married couples. D is grandmother of A and mother of B. C is wife of B and mother of F. F is the granddaughter of E.

1. What is C to A?

- (a) Daughter
- (b) grandmother
- (c) mother
- (d) cannot be determine
- (e) None of these

2. How many male members are there in the family?

- (a) one
- (b) two
- (c) three
- (d) cannot be determine
- (e) None of these

3. Who among the following is one of the couples?

- (a) CD
- (b) DE
- (c) EB
- (d) cannot be determine
- (e) None of these

4. Which of the following is true?

- (a) A is brother of F
- (b) A is sister of F
- (c) D has two grand sons
- (d) B has two daughters
- (e) None of these

Directions (Qs. 5 to 8): Study the following information carefully and answer the questions given below it.

A is the father of two children B and D, who are different sexes. C is B's spouse. E is of the same sex as D. B and C have two childrens-F who is of the same sex as B and G who is of the same sex as C. E's mother H who is married to L, is the sister of D's mother M. E and E's Spouse I, have two children J and K, who are of the same sex as I. No person has married more than once and no children have been born out of wetlock. The only restrictions

on marriage are that marriage to a sibling, to a direct descendant or to more than one person at the same time are forbidden.

5. According to the rules, D can marry?

- (a) F only
- (b) G only
- (c) j only
- (d) K only
- (e) F, J or K

6. If the generation of F and K's parents and their siblings contains more females than males, then which of the following must be true?

- (a) K and G are of the same sex.
- (b) A is of the same sex as D
- (c) J is a male
- (d) there are more females than males in F and K's generation.
- (e) None of these

7. F is

- (a) G's Sister
- (b) D's niece or nephew
- (c) G's brother
- (d) B's daughter
- (e) none of these

8. If L and H divorced, then H could marry

- | | |
|-------------------|-----------------------------|
| I. D only | II. F |
| III. D or G | |
| (a) I only | (b) II only |
| (c) III only | (d) II or III, but not both |
| (e) None of these | |

Directions (Qs. 9 to 10): Study the following information carefully and answer the questions given below it.

In a village of Bastar district in Madhya Pradesh, only two types of people live who belong to tribal class. The first type is known as class A, while the other is known as class B. In that village, there is no other type of person except these two. The activities of both types of people are governed by perfectly patterned norms of social behaviour. Each

person of the tribe has to obey the norms. They are rigid about this.

As far as marriage is concerned, the following norms are to be following.

- (a) The people of class A cannot marry any other member of their own class, through they can marry members of class B.
 - (b) After being married each male member ceases to be a member of that class in which he was born but automatically, he becomes the member of the other class to which his wife belongs.
 - (c) As far as females are concerned, they remain the members of their own class after being married.
 - (d) On his birth, the child automatically becomes the member of his mother's class.
 - (e) When any male member becomes widower or divorcee then he again belongs to the group in which he was born.
 - (F) Nobody can marry more than one person according to social laws.
9. Any class B female can have
- I) Grandfather born in class A
 - II) Grandmother born in class A
 - (a) only I can be true
 - (b) only II can be true
 - (c) either I or II can be true
 - (d) neither I or II can be true
 - (e) both I and II can be true
10. One boy , who was born in class B (boy and his wife both can have married and unmarried brother)
- (a) can have his daughter in class B
 - (b) can have a son –in-law in class A

- (c) can have his uncler from any class
- (d) can havea divorced son in class B
- (e) can have a daughter –in-law born in class A

Directions (Qs. 11-13): Study the following information carefully and answer the questions given below it.

Seven members of a family, P, Q, R, S, T, U and V. Each of them has taken different sports as profession – Cricketer, Base ball player, Archer, Lawn tennis player, Swimmer, Table Tennis player and Badminton player. There are three couples in the family, one in first and other two in second generations.

- The Table tennis player married to V, whose father is the Cricketer.
 - The Tennis Player is the nephew of R, who is the daughter of Archery player.
 - The Archery player U, is Q's parental Grandmother.
 - P and Q are of the same Gender
 - S, the brother –in-law of the base ball player, is married to Badminton Player.
11. What which game S is associated with?
- (a) Cricket
 - (b) Badminton
 - (c) Swimming
 - (d) cannot be determine
 - (e) None of these
12. How is R related to S?
- (a) Sister-in-law
 - (b) wife
 - (c) Mother
 - (d) cannot be determine
 - (e) None of these
13. How is S related to V?
- (a) Sister-in-law
 - (b) wife
 - (c) Mother
 - (d) cannot be determine
 - (e) None of these

Answer with Solution

Concept Applicator

1. (e) Sunita is Mother – in – law
2. (e) N is Uncle of M
3. (d) either Madan's daughter or Daughter of madan's daughter i.e Niece
4. (c) either son or daughter
5. (c) either Son or daughter
6. (a) maternal Uncle
7. (d) D 's gender is not known
8. (b) sister
9. (a) wife.
10. (b) Nephew
11. (d)
12. (e) the boy is brother of Sunita
13. (d) J may have two son one daughter or one son two daughter.
14. (e) brother
15. (c) sister
16. (d) it may be Nidhi or her sister or cousin
17. (b) Nephew
18. (d) Uncle
19. (d) father-in-law
20. (e) maternal uncle

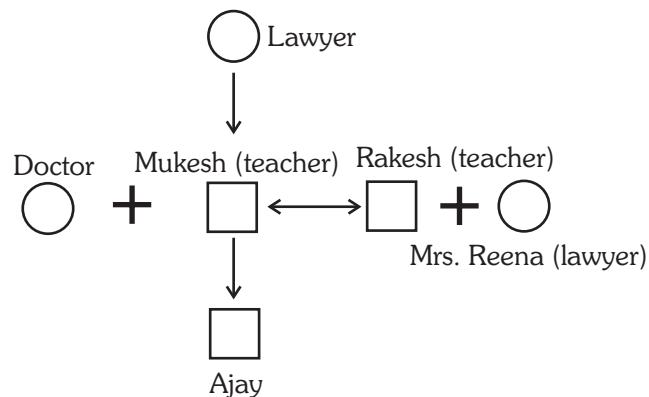
Concept Builder

1. (c) Cousin
2. (b) Cousin
3. (a) Grandson
4. (c) Sister –in-law
5. (a) uncle
6. (b) Mother
7. (c) Brother
8. (a) Nephew
9. (b) Sister-in-law
10. (c) mother –in –law
11. (d) cousin
12. (a) brother –in-law
13. (b)
14. (d) Aunt
15. (a) brother –in –law
16. (e) 9
17. (c) mother
18. (b) Great Grand Daughter
19. (e) kalyani is mother of ashok
20. (e) B is the wife of A

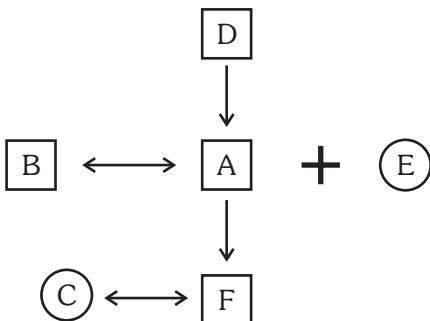
Concept Cracker

1. (d) as we don't know the gender of L.
2. (a) only option a says that S is mother of T.
3. (b) Brother
4. (c) H as be the father of K than definitely N should be the mother.
5. (a) Son –in-law
6. (e) as M is wife of G
7. (e)
8. (e)
9. (e) T is Grand father
10. (b) S is Great Grandmother of N

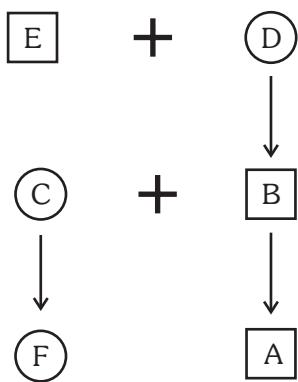
Solution for 11 – 15.



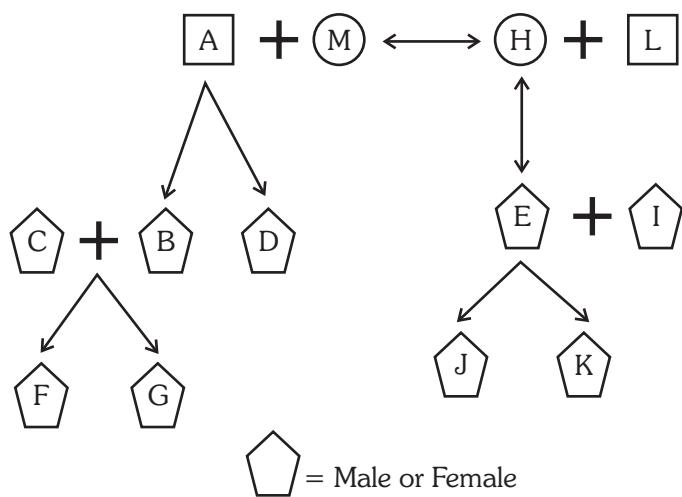
11. (a) 12. (c), 13. (b), 14. (d), 15. (d)

Solution for 16 -20:

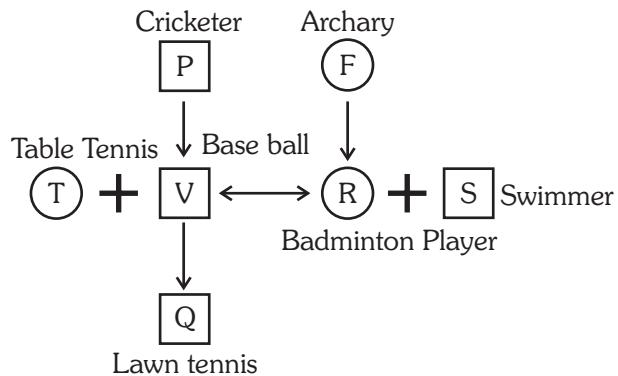
16. (e) E is mother
17. (a) A is husband
18. (d) four
19. (c) F is son
20. (a) all are brothers of someone.

Concept Deviator**Solution for 1-4 :**

1. (c) C is mother of A
2. (c) three
3. (b) DE
4. (a)

Solution for 5-8:

5. (c) According to the rule D can marry only J or K.
6. (c) As for more female, the gender of D and E must be female as both are of the same gender. B shall be male and C is female and I shall be Male. So F, J and K are males and G must be Female.
7. (b) As F's gender is not known so F may be nephew or niece.
8. (d) As H cannot be able to marry E, I, J and K. H can marry G or D or F.
9. (b)
10. (c)
11. (a)

Solution for 12-13:

12. (c)
13. (b) R is wife of S
14. (e) none of these

Chapter

7

Input Output

Section	Level	No. of Questions
Concept applicator	Very easy	24
Concept builder	Easy	27
Concept cracker	Moderate	23
Concept deviator	Difficult	15

THEORY

To solved Input / Output question we have to observe the pattern looking at output and input. There is no general rule of pattern but in general we have following patterns.

- Arrangement of words in ascending or descending order based on the number of letters in each of the words.
- Arrangement of words alphabetically in ascending or descending order.
- Arrangement of words in ascending or descending order based on the number of vowels in the words.
- Check for position of the word in the input for clues on the pattern.
- Check for forward and backward number position of the alphabets in the given input.
- Check if a certain alphabet is being replaced or position of a particular alphabet in the given set of words.
- Check for common series such as squares, cube root, common ratio, common difference etc.
- Check for position of the number in the input for clues on the pattern.
- Check for arrangement (ascending or descending) based on the sum of the digits of each number.

1. CONCEPT APPLICATOR

Directions (Qs. 1-6): Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement.

[United Bank of India (PO)]

Input : shop 17 table 20 53 oven desk 39

Step I : 17 shop table 20 53 oven desk 39

Step II : 17 table shop 20 53 oven desk 39

Step III : 17 table 20 shop 53 oven desk 39

Step IV : 17 table 20 shop 39 53 oven desk

Step V : 17 table 20 shop 39 oven 53 desk
and step V is the last step of the rearrangement.

As per the rule followed in the above steps, find out in each of the following questions the appropriate step for the given input.

Directions (Qs. 7-11): Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement.

[Andhra Bank (PO)]

Input : base 35 or gone 62 49 87 ahead

Step I : 87 base 35 or gone 62 49 ahead

Step II : 87 ahead base 35 or gone 62 49

Step III : 87 ahead 62 base 35 or gone 49

Step IV : 87 ahead 62 base 49 35 or gone

Step V : 87 ahead 62 base 49 gone 35 or

and Step V is the last step of the rearrangement.

As per the rule followed in the above steps, find out in each of the following questions the appropriate step for the given input.

7. Input: how was your stay 56 25 36 64
Which of the following will be step VI?
(a) 64 how 56 was your stay 25 36
(b) 64 how 56 stay 36 was 25 your
(c) 64 how 56 stay 36 was your 25
(d) There will be no such step
(e) None of these

Directions (Qs. 12-17): A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input : but 32 71 glory fair south 65 84
 Step I : south but 32 71 glory fair 65 84
 Step II : south 84 but 32 71 glory fair 65
 Step III : south 84 glory but 32 71 fair 65
 Step IV : south 84 glory 71 but 32 fair 65
 Step V : south 84 glory 71 fair but 32 65
 Step VI : south 84 glory 71 fair 65 but 32
 and Step VI is the last step of the rearrangement

As per the rule followed in the above steps, find out in each of the following questions the appropriate step for the given input. [RBI Grade B Officer]

Directions (Qs. 18-24): A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input	:	joy	far	35	27	16	96	height	star
Step I	:	96	joy	far	35	27	16	height	star
Step II	:	96	far	joy	35	27	16	height	star
Step III	:	96	far	35	joy	27	16	height	star
Step IV	:	96	far	35	height	joy	27	16	star

And Step V is the last step of the rearrangement.

As per the rule followed in the above steps, find out in each of the following questions the appropriate step for the given input. [Corporation Bank (PO)]

2. CONCEPT BUILDER

Directions (Qs. 1-5) Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input : day 74 night 36 25 68 all for

Step I : all day 74 night 36 25 68 for

Step II : all 74 day night 36 25 68 for

Step III : all 74 day 68 night 36 25 for

Step IV : all 74 day 68 for night 36 25

Step V : all 74 day 68 for 36 night 25

And Step V is the last step of the rearrangement.

As per the rule followed in the above steps, find out in

each of the following questions the appropriate step for the given input. [Indian Bank (PO)]

[Indian Bank (PO)]

1. Step III of an input: bond 86 goal 12 33 like high 46
Which of the following will be step VII?
 - (a) bond 86 goal 46 like 12 33 high
 - (b) bond 86 goal 46 high like 12 33
 - (c) bond 86 goal 46 high 33 like 12
 - (d) There will be no such step
 - (e) None of these
 2. Input: mind new 27 35 19 59 own tower
Which of the following steps will be the last but one?
 - (a) VI
 - (b) IV
 - (c) V
 - (d) VII
 - (e) None of these
 3. Step IV of an input: dear 63 few 51 16 29 yes now
How many more step will be required to complete the arrangement?
 - (a) Four
 - (b) Five
 - (c) Three
 - (d) Two
 - (e) None of these

following a particular rule in each step. The following is an illustration of input and rearrangement.

[Central Bank of India (PO)- 2010]

Input : why is 25 bigger than 14 but smaller than 32
 Step I : than 14 why is 25 bigger but smaller than 32
 Step II : than 14 is 25 why bigger but smaller than 32
 Step III : than 14 is 25 than 32 why bigger but smaller
 Step IV : than 14 is 25 than 32 why smaller bigger but
 Step V : than 14 is 25 than 32 why smaller but bigger
 And Step V is the last step of the rearrangement of the above input.

As per the rule followed in the above steps, indicate the answer in each of the following questions with respect to the appropriate step for the given input.

Input for the questions

Any number less than 30 and more than 20 does not equal 40

23. Which step number would be the following output?

Than 20 any number less than 30 and more does not equal 40

- | | |
|-------------------|--------|
| (a) III | (b) IV |
| (c) V | (d) VI |
| (e) None of these | |

24. How many steps would be needed to complete the arrangement?

- | | |
|-------|----------|
| (a) X | (b) VIII |
|-------|----------|

- (c) IX (d) VII
 (e) None of these
25. Which of the following would be steps IV?
 (a) than 20 than 30 equal 40 any number less and more does not
 (b) than 20 any number less than 30 and more does not equal 40
 (c) 20 30 40 than equal number any less and more does not
 (d) 20 than 30 than 40 equal number any less and more does not
 (e) None of these
26. Which of the following would be steps II?
 (a) 20 than 30 than any number less and more does not 40 equal
 (b) than 20 than 30 equal 40 any number less and more does not
 (c) than 20 than 30 any number less and more does not equal 40
 (d) than 20 than 30 any number less and more does not 40 equal
 (e) None of these
27. Which word number would be on the 8th position from left side in steps V?
 (a) any (b) not
 (c) 40 (d) number
 (e) None of these

3 CONCEPT CRACKER

Directions (Qs. 1-5): Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement.

[Allahabad Bank (PO)]

Input : sum 28 have 19 96 48 luck nice rope
 Step I : have sum 28 19 48 luck nice 78 rope 96
 Step II : luck have sum 28 19 48 nice rope 96 78
 Step III : nice luck have sum 28 19 rope 96 78 48
 Step IV : rope nice luck have sum 19 96 78 48 28
 Step V : sum rope nice luck have 96 78 48 28 19
 And Step V is the last step of the rearrangement.

As per the rule followed in the above steps, find out in each of the following questions the appropriate step for the input given below.

Input: 49 last zen 16 82 yet can vast 33 aim 87 54

1. How many steps will be needed to complete the arrangement?
 (a) IV (b) V
 (c) VI (d) VII
 (e) None of these
2. Vast last can aim zen 16 yet 33 87 82 54 49
 (a) III (b) II
 (c) VII (d) IV
 (e) None of these
3. Which of the following would be steps I?
 (a) aim 49 can zen 16 yet vast 33 54 87 82 last
 (b) vast last can aim zen 16 yet 33 87 82 54 49
 (c) zen 49 last 16 82 yet can vast 33 aim 54 87
 (d) aim 49 last zen 82 yet can vast 33 87 54 16
 (e) None of these

Directions (Qs. 6-10): Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement.

[Andhra Bank (PO)]

Input : say dry 42 96 get 39 kite 67

Step I : 96 say dry 42 get 39 kite 67

Step II : 96 dry say 42 get 39 kite 67

Step III : 96 dry 39 say 42 get kite 67

Step IV : 96 dry 39 say 67 42 get kite

Step V : 96 dry 39 say 67 get 42 kite

And Step V is the last step of the rearrangement.

You have to answer the questions by following the same rules as illustrated above.

9. If the third step of an input is “ 65 daily 12 tie 42 23 foreign urgent”, what will definitely be the input?

- (a) foreign 65 tie urgent 12 42 23 daily
- (b) foreign 65 urgent tie 42 daily 23 12
- (c) foreign 65 12 urgent tie 42 daily 23
- (d) Cannot be determined
- (e) None of these

10. If the second step of an input is “52 at deep follow 41 16 road 32”, what will be the fifth step?

- (a) 52 at 16 road 32 deep follow 41
- (b) 52 at 16 road 41 deep follow 32
- (c) 52 at 16 road 32 follow deep 41
- (d) There will be no such step
- (e) None of these

Direction (Qs. 11-13): Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement. (All the numbers are two-digit numbers and are arranged as per some logic based on the value of the number.)

[SBI (Associates) (PO)]

Input : win 56 32 93 bat for 46 him 28 11 give chance

Step I : 93 56 32 bat for 46 him 28 11 give chance win

Step II : 11 93 56 32 bat for 46 28 give chance win him

Step III : 56 11 93 32 bat for 46 28 chance win him give

Step IV : 28 56 11 93 32 bat 46 chance win him give for

Step V : 46 28 56 11 93 32 bat win him give for chance

Step VI : 32 46 28 56 11 93 win him give for chance bat

Step VI is the last step of the arrangement the above

As per the rule followed in the above steps, find out in each of the following questions the appropriate step for the input given below.

Input for the questions

Input: fun 89 at the 28 16 base camp 35 53 here 68

(All the numbers given in the arrangement are two-digit numbers)

11. Which of the following would be steps II?

 - (a) 89 fun at 28 16 base camp 35 53 here 68 the
 - (b) 35 53 28 68 16 89 the here fun base camp at
 - (c) 16 89 at fun 28 base camp 35 53 68 the here
 - (d) 53 28 68 16 89 35 the here fun base camp
 - (e) None of these

Directions (Qs. 14-18): Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement. (All the numbers are two-digit numbers)

[IBPS Common Written Exam PO (PO/MT)]

Input : Sine 88 71 cos theta 14 56 gamma delta 26

Step I : cos sine 71 theta 14 56 gamma delta 26 88

Step II : delta cos sine theta 14 56 gamma 26 88 71

Step III : gamma delta cos sine theta 14 26 88 71 56

Step IV : sine gamma delta cos theta 14 88 71 56 26

Step V : theta sine gamma delta cos 88 71 56 26 14

Steps V is the last step of the arrangement the above input.

As per the rule followed in the above steps, find out in each of the following questions the appropriate steps for

the given input.

Input for the questions

Input: for 52 all 96 25 jam road 15 hut 73 bus stop 38 46
(All the numbers given in the arrangement are two-digit)

Directions (Qs. 19-23): Study the following information carefully and answer the given question:

A word and number arrangement machine when given an input line of words and numbers rearrange them following a particular rule in each step. The following is an illustration of input and rearrangement. (All the numbers are two-digit numbers). [RBI Grade B Officer]

[RBI Grade B Officer]

Input : gate 20 86 just not 71 for 67 38 bake sun 55

Step I : bake gate 20 just not 71 for 67 38 sun 55 86

Step II : for bake gate 20 just not 67 38 sun 55 86 71

Step III : gate for bake 20 just not 38 sun 55 86 71 67

Step IV : just gate for bake 20 not 38 sun 55 86 71 67

Step V : not just gate for bake 20 sun 86 71 67 55 38

Step VI : sun not just gate for bake 86 71 67 55 38 20
Steps VI is the last step of the arrangement the above

As per the rule followed in the above steps, find out in each of the following questions the appropriate step for the given input.

Input: 31 rise gem 15 92 47 aim big 25 does 56 not 85
63 with moon

19. How many steps will be required to complete the rearrangement?

 - (a) Eight
 - (b) Six
 - (c) Seven
 - (d) Five
 - (e) None of these

20. Which words numbers would be at 7th position from the left in step IV?
- rise
 - aim
 - big
 - 15
 - 47
21. Which step number is the following output?
rise not moon gem does big aim 15 with 92 85 63 56
47 31 25
- Step V
 - Step VII
 - Step IV
 - Step VIII
 - There is no such step
22. Which of the following represents the position of '92' in step IV?
- Ninth from the left
 - Fifth from the right
 - Sixth from the right
 - Ninth from the right
 - Seventh from the left
23. Which words numbers would be at 5th position from the right in the last step?
- gem
 - 63
 - 56
 - 85
 - does

4. CONCEPT DEVIATOR

Directions (Qs. 1 to 3): A word arrangement machine, when given a particular input, rearranges if following a particular rule.

The following is the illustration of the input and the steps of arrangement :

Input : Put pocket hand watch he for them.

Step I : Put for he watch hand pocket them.

Step II : Put he for watch pocked hand them.

Step III : Put hand pocked watch for he them.

Step IV : Put pocked hand watch for he them.

And so on goes the machine. Study the logic and answer the questions that follow:

- If step III of a given input be 'fly sky birds my su fur say' What is the seventh step of the input ?
 - fly sky birds my su fur say
 - fly birds sky my fur su say
 - fly fur su my birds sky say
 - fly su fur my sky birds say
- If step VII of an input is 'slow ran dhurwa pat hak dig vi' what is step V of that input ?
 - slow dig hak pat dhurwa ran vi
 - slow hak dig pat ran dhurwa vi
 - slow dhurwa ran pat dig hak vi
 - slow ran dhurwa pat hak dig vi
- Given the following :
Input : Ana dhir raj ran san aji What step will be the following arrangement ?
Arrangement : Ana san ran dhir raj aji
 - IV
 - V
 - VI
 - VII

Directions for the (Qs. 4-7): Answer the questions based on the following information.

A number arrangement machine, when given a particular input, rearranges it following a particular rule. Illustrations of the input and the steps of arrangement is given below.

Input: 245, 316, 436, 519, 868, 710, 689

Step 1: 710, 316, 436, 519, 868, 245, 689

Step 2: 710, 316, 245, 519, 868, 436, 689

Step 3: 710, 316, 245, 436, 868, 519, 689

Step 4: 710, 316, 245, 436, 519, 868, 689

Step 4 is the last step for the given input

- If the input is given as – 655, 436, 764, 799, 977, 572, 333, which of the following step will be – 333, 436, 572, 655, 977, 764, 799 ?
 - Step Third
 - Step Second
 - Step Fourth
 - None of the above
- How many steps will be required to get the final output from the following input? Input: 544, 653, 325, 688, 461, 231, 857
 - 6
 - 5
 - 4
 - None of the above
- Step third for an input is – 432, 433, 542, 666, 734, 355, 574 What will be the first step for the input?
 - 666, 542, 432, 734, 433, 574, 355
 - 542, 666, 734, 432, 433, 574, 355
 - 355, 574, 433, 432, 734, 666, 542
 - Cannot be determined
- What will be the third step for the following input?
Input: 653, 963, 754, 345, 364, 861, 541
 - 541, 345, 754, 963, 364, 816, 653

- (b) 541, 345, 364, 653, 963, 754, 861
 (c) 541, 345, 364, 963, 754, 861, 653
 (d) 541, 345, 364, 653, 861, 754, 963

Directions for the (Qs. 8-10): Answer the questions based on the following information.

A wood arrangement machine, when given a particular input, rearranges it following a particular rule. Following is the illustration of the input and the steps of arrangement:

Input: She was interested in doing art film

Step 1: art she was interested in doing film

Step 2: art was she interested in doing film

Step 3: art was in she interested doing film

Step 4: art was in film she interested doing

Step 5: art was in film doing she interested

Step 5 is the last step of the given input. Now study the logic and rules followed in the above steps, find out appropriate step for the question given below for the given input.

Directions for (Qs. 11-13): Study the information given below and answer the questions.

A word arrangement machine, when given a particular input, rearranges it using a particular rule. The following is the illustration and the steps of the arrangement

Input:	Smile	Nile	Style	Mile	Shine	Wine	Mine	Swine	Bovine	Feline
Step 1:	Smile	Nile	Style	Mile	Shine	Wine	Bovine	Feline	Mine	Swine
Step 2:	Style	Mile	Smile	Nile	Shine	Wine	Bovine	Feline	Mine	Swine
Step 3:	Style	Mile	Smile	Nile	Wine	Shine	Bovine	Feline	Mine	Swine
Step 4:	Mile	Style	Nile	Smile	Wine	Shine	Feline	Bovine	Swine	Mine
Step 5:	Nile	Smile	Mile	Style	Wine	Shine	Swine	Mine	Feline	Bovine
Step 6:	Nile	Smile	Mile	Style	Wine	Shine	Feline	Bovine	Swine	Mine
Step 7:	Mile	Style	Nile	Smile	Wine	Shine	Feline	Bovine	Swine	Mine

11. Which of the following will be step 14 for the given input:

- (a) Style Mile Smile Nile Wine Shine Bovine Feline Mine Swine
 (b) Smile Nile Style Mile Shine Wine Mine Swine Bovine Feline
 (c) Mile Style Nile Smile Shine Wine Feline Bovine Swine Mine
 (d) Style Mile Smile Nile Shine Wine Bovine Feline Mine Swine

12. Mark the arrangement that does not fall between step numbers 12 and 14.

- (a) Style Mile Smile Nile Wine Shine Bovine Feline Mine Swine
 (b) Mile Style Nile Smile Wine Shine Feline Bovine Swine Mine
 (c) Style Mile Smile Nile Shine Wine Bovine Feline Mine Swine
 (d) Smile Nile Style Mile Shine Wine Bovine Feline Mine Swine

13. If the arrangement is repeated which of the steps given below is same as the INPUT row?

- (a) Step 9 (b) Step 11 (c) Step 20 (d) Step 14

8. Which of the following will be the last step for the input given below? Input: he is going out to search air
 (a) out is air to going search he
 (b) out is air to search going he
 (c) search he out is air to going
 (d) None of the above
9. If step 2 of an input is not —not is the casino considering legal action, which step is: —not is casino action legal the considering ?
 (a) Step: 3 (b) Step: 6
 (c) Step: 4 (d) None of the above
10. How many steps will be required to get the final output from the following input? Input: Father needs to check on the boy
 (a) Four (b) Five
 (c) Six (d) None of the above

Directions for (Q. 14-15)

Some information is provided in the paragraph below. Answer the question based on this information.

A number arrangement machine, when given a particular input, rearranges it using a particular rule. The following is the illustration and steps of the arrangement.

Input	105	241	67	347	150	742	292	589
Step I	67	105	241	347	150	742	292	589
Step II	67	742	105	241	347	150	292	589
Step III	67	742	105	589	241	347	150	292
Step IV	67	742	105	589	150	241	347	292
Step V	67	742	105	589	150	347	241	292

Arrangement at Step V is the last for the given input.

14. What should be the fourth step of the following input?

64 326 187 87 118 432 219 348

- (a) 64 432 87 326 118 187 219 348
- (b) 64 432 87 348 326 187 118 219
- (c) 64 432 87 348 118 326 187 219
- (d) None of the above.

15. How many steps will be required to get the final output from the following input?

319 318 746 123 15 320 78 426

- (a) Four
- (b) Five
- (c) Six
- (d) Seven

Answer with Solution

Concept Applicator

Solution for 1-6:

In the first step, the smallest number comes to the leftmost position and the remaining line shift rightward. In the next step the word that comes last in the alphabetical order occupies the second position from the left and the remaining line shift rightward. This goes alternately till all the numbers are ranged in ascending order and all the words in reverse alphabetical order at alternate positions.

1. (c)

Input : 89 bind 32 goal house 61 12 joy

Step I : 12 89 bind 32 goal house 61 joy

Step II : 12 joy 89 bind 32 goal house 61

Step III : 12 joy 32 89 bind goal house 61

Step IV : 12 joy 32 house 89 bind goal 61

Step V : 12 joy 32 house 61 89 bind goal

Step VI : 12 joy 32 house 61 goal 89 bind

2. (c)

Step II : 15 yes 62 51 48 talk now gone

Step III : 15 yes 48 62 51 talk now gone

Step IV : 15 yes 48 talk 62 51 now gone

Step V : 15 yes 48 talk 51 62 now gone

Step VI : 15 yes 48 talk 51 now 62 gone

3. (e)

Step III : 21 victory 30 joint 64 47 all gone

Step IV : 21 victory 30 joint 47 64 all gone

Step V : 21 victory 30 joint 47 gone 64 all

$5 - 3 = 2$ more steps will be required.

4. (e)

Input : win 92 task 73 59 house range 34

Step I : 34 win 92 task 73 59 house range

Step II : 34 win 59 92 task 73 house range

Step III : 34 win 59 task 92 73 house range

Step IV : 34 win 59 task 73 92 house range

5. (e)

Input : save 21 43 78 them early 36 for

Step I : 21 save 43 78 them early 36 for

Step II : 21 them save 43 78 early 36 for

Step III : 21 them 36 save 43 78 early for

Step IV : 21 them 36 save 43 for 78 early

Hence step III will be the last but one.

6. (b)

Input: desire 59 63 all few 38 46 zone

Step I : 38 desire 59 63 all few 46 zone

Step II : 38 zone desire 59 63 all few 46

Step III : 38 zone 46 desire 59 63 all few

Step IV : 38 zone 46 few desire 59 63 all

Step V : 38 zone 46 few 59 desire 63 all

Solution for 7 -11:

In the first step, the largest number comes to the first position and the remaining line shift rightward. In the next step the word that comes first in the alphabetical order goes on to occupy the second position pushing the rest of the shift rightward. This goes alternately till all the numbers are arranged in a descending order and all the words in alphabetical at alternate positions.

7. (d)

Input : how was your stay 56 25 36 64

Step I : 64 how was your stay 56 25 36

Step II : 64 how 56 was your stay 25 36

Step III : 64 how 56 stay was your 25 36

Step IV : 64 how 56 stay 36 was your 25

Step V : 64 how 56 stay 36 was 25 your

Since the line gets fully arranged in step V there will be no step VI

8. (c)

Input: power fail now 52 24 75 gate 34

Step I : 75 power fail now 52 24 gate 34

Step II : 75 fail power now 52 24 gate 34

Step III : 75 fail 52 power now 24 gate 34

Step IV : 75 fail 52 gate power now 24 34

Step V : 75 fail 52 gate 34 power now 24

Step VI : 75 fail 52 gate 34 now power 24

Step VII : 75 fail 52 gate 34 now 24 power

Hence step VI will be the last but one.

Input Output

9. (d) we can't proceed backward.

10. (a)

Step II : 75 down 16 24 farm eager 62 sky

Step III : 75 down 62 16 24 farm eager sky

Step IV : 75 down 62 eager 16 24 farm sky

Step V : 75 down 62 eager 24 16 farm sky

Step VI : 75 down 62 eager 24 farm 16 sky

Hence $6 - 2 = 4$ more steps will be required.

11. (c)

Input: 14 35 when they came 61 48 home

Step I : 61 14 35 when they came 48 home

Step II : 61 came 14 35 when they 48 home

Step III : 61 came 48 14 35 when they home

Step IV : 61 came 48 home 14 35 when they

Step V : 61 came 48 home 35 14 when they

Step VI : 61 came 48 home 35 they 14 when

Solution for 12-17:

In the first step, the word that comes first in the alphabetical order comes to the first and the rest of the shift rightward. In the next step largest number occupies the next place and the rest of the shift rightward. This goes on alternately till the words get arranged in the reverse alphabetical order and number in a descending order.

12. (b)

Step III : years 92 ultra 15 23 strive house 39

Step IV : years 92 ultra 39 15 23 strive house

Step V : years 92 ultra 39 strive 15 23 house

Step VI : years 92 ultra 39 strive 23 15 house

Step VII : years 92 ultra 39 strive 23 house 15

Hence $7 - 3 = 4$ more steps will be required.

13. (c)

Input: any how 49 24 far wide 34 69

Step I : wide any how 49 24 far 34 69

Step II : wide 69 any how 49 24 far 34

Step III : wide 69 any how 49 24 far 34

Step IV : wide 69 any 49 how 24 far 34

Step V : wide 69 how 49 far 24 any 34

Step VI : wide 69 how 49 far 34 any 24

Step V be 2nd last step.

14. (d) we can't proceed backward.

15. (d)

Input: play over 49 37 12 match now 81

Step I : play 81 over 49 37 12 match now

Step II : play 81 over 49 now 37 12 match

Step III : play 81 over 49 now 37 match 12

Since the line is already arranged, there will be no step

16. (b)

Step II : war 58 box cart 33 49 star 24

Step III : war 58 star box cart 33 49 24

Step IV : war 58 star 49 box cart 33 24

Step V : war 58 star 49 cart box 33 24

Step VI : war 58 star 49 cart 33 box 24

17. (d)

Input: shower fall water 34 51 67 98 goal

Step I : water shower fall 34 51 67 98 goal

Step II : water 98 shower fall 34 51 67 goal

Step III : water 98 shower 67 fall 34 51 goal

Step IV : water 98 shower 67 goal fall 34 51

Step V : water 98 shower 67 goal 51 fall 34

Solution for 18-24:

In the first step, the largest number goes on the leftmost position pushing the rest line rightward. In the next step the word that comes last in the alphabetical order occupies the second position from the left pushing the rest line rightward. Thus the number and words get arranged alternately till the numbers are placed in the descending order and the words in the alphabetical order.

18. (d)

Input: organize 19 12 stable room 35 72 house

Step I : 72 organize 19 12 stable room 35 house

Step II : 72 house organize 19 12 stable room 35

Step III : 72 house 35 organize 19 12 stable room

Step IV : 72 house 35 organize 19 room 12 stable

19. (a)

Input: bake never store 51 26 33 age 49

Step I : 51 bake never store 26 33 age 49

Step II : 51 age bake never store 26 33 49

Step III : 51 age 49 bake never store 33 26

Step IV : 51 age 49 bake 33 never store 26

Step V : 51 age 49 bake 33 never 26 store

20. (e)

Input: always go there 39 62 47 time 24

Step I : 62 always go there 39 47 time 24

Step II : 62 always 47 go there 39 time 24

Step III : 62 always 47 go 39 there time 24

Step IV : 62 always 47 go 39 there 24 time

Hence steps III will be the last but one.

21. (d) We can't proceed backward.

22. (d)

Step III : 84 for 56 29 17 won loss game

Step IV : 84 for 56 game 29 17 won loss

Step V : 84 for 56 game 29 loss 17 won.

23. (a)

Step III : 86 box 63 18 gear card 51 new

Step IV : 86 box 63 card 18 gear 51 new

Step V : 86 box 63 card 51 18 gear new.

Step VI : 86 box 63 card 51 gear 18 new.

Hence $6 - 3 = 3$ more steps will be required.

24. (e)

Step IV : 59 bend 46 card 14 27 win now

Step V : 59 bend 46 card 27 14 win now

Step VI : 59 bend 46 card 27 now 14 win

Since the line is already arranged, there will be no step VII

Concept Builder

Solution for 1-5: In the first step, the word that comes first in the alphabetical order shifts to the left most position. While the remaining line shifts rightward. In the next step, the largest number shifts to the second position from left, pushing the remaining line shifts rightward. This goes on alternately till the words get arranged in an alphabetical order and the number in a descending order at alternately position.

1. (c)

Step III : bond 86 goal 12 33 like high 46

Step IV : bond 86 goal 46 12 33 like high

Step V : bond 86 goal 46 high 12 33 like.

Step VI : bond 86 goal 46 high 33 12 like.

Step VII : bond 86 goal 46 high 33 like 12

2. (e)

Input: mind new 27 35 19 59 own tower

Step I : mind 59 new 27 35 19 own tower

Step II : mind 59 new 35 27 19 own tower

Step III : mind 59 new 35 own 27 19 tower

Step IV : mind 59 new 35 own 27 tower 19

Hence steps III will be the last but one.

3. (c)

Step IV : dear 63 few 51 16 29 yes now.

Step V : dear 63 few 51 now 16 29 yes.

Step VI : dear 63 few 51 now 29 16 yes.

Step VII : dear 63 few 51 now 29 yes 16

4. (d) we can't proceed backward.

5. (c)

Input: war 52 and peace 43 16 now 24

Step I : and war 52 peace 43 16 now 24

Step II : and 52 war peace 43 16 now 24

Step III : and 52 now war peace 43 16 24

Step IV : and 52 now 43 war peace 16 24

Step V : and 52 now 43 peace war 16 24

Step VI : and 52 now 43 peace 24 war 16

Solution for 6-11: In the first step, the smallest number comes to the left most position. Pushing the rest of the line rightward. In the next step, the word that comes last in the alphabetical order comes to second left, pushing the rest of the line rightward. Thus the number and words get arranged alternately till the numbers are in ascending order and the words in reverse alphabetical order.

6. (a)

Step III : 15 window 29 93 86 sail tower buy

Step IV : 15 window 29 tower 93 86 sail buy

Step V : 15 window 29 tower 86 93 sail buy

Step VI : 15 window 29 tower 86 sail 93 buy

7. (b)

Input: station hurry 39 67 all men 86 59

Step I : 39 station hurry 67 all men 86 59

Step II : 39 station 59 hurry 67 all men 86

Step III : 39 station 59 men hurry 67 all 86

Step IV : 39 station 59 men 67 hurry all 86

Step V : 39 station 59 men 67 hurry 86 all

8. (d) we can't proceed backward.

9. (b)

Input: 79 53 glory for 46 29 task

Step I : 29 news 79 53 glory for 46 task

Step II : 29 task news 79 53 glory for 46

Step III : 29 task 46 news 79 53 glory for

Step IV : 29 task 46 news 53 79 glory for

10. (d)

Step III : 27 tube 34 gas chamber row 74 53

Step IV : 27 tube 34 row gas chamber 74 53

Step V : 27 tube 34 row 53 gas chamber 74

Step VI : 27 tube 34 row 53 gas 74 chamber

Hence steps V will be the last but one.

11. (b)

Step II : 19 years 85 74 near gone 26 store

Step III : 19 years 26 85 74 near gone store

Step IV : 19 years 26 store 85 74 near gone

Step V : 19 years 26 store 74 85 near gone

Step VI : 19 years 26 store 74 near 85 gone

Hence $6 - 2 = 4$ more steps will be required

Solution for 12 -16: In step I the word that comes first in the alphabetical order comes to the leftmost position. Pushing the rest of the line rightward. In step II the smallest number comes to the second position, pushing the rest of the line rightward. Thus the words and the number arranged alternately until the former make an alphabetical order and the latter an ascending one.

Punjab & Sind Bank (PO)

12. (b)

Input: train 59 47 25 over burden 63 sky

Step I : burden train 59 47 25 over 63 sky

Step II : burden 25 train 59 47 over 63 sky

Step III : burden 25 over train 59 47 63 sky

Step IV : burden 25 over 47 train 59 63 sky

Step V : burden 25 over 47 train sky 59 63

Step VI : burden 25 over 47 sky 59 train 63

Hence step V is the last but one.

13. (e) Input: service 46 58 96 over there desk 15

Step I : desk service 46 58 96 over there 15

Step II : desk 15 service 46 58 96 over there

Step III : desk 15 over service 46 58 96 there

Step IV : desk 15 over 46 service 58 96 there

Step V : desk 15 over 46 service 58 there 96

Since the input is already arranged, there will be no step VI.

14. (d) we can't proceed backward.

15. (d) Step III: art 24 day 83 71 54 star power

Step IV : art 24 day 54 83 71 star power

Step V : art 24 day 54 power 83 71 star

Step VI : art 24 day 54 power 71 83 star

Step VII: art 24 day 54 power 71 star 83

16. (c) Step II: cold 17 wave 69 never desk 52 43

Step III : cold 17 desk wave 69 never 52 43

Step IV : cold 17 desk 43 wave 69 never 52

Step V : cold 17 desk 43 never wave 69 52

Step VI : cold 17 desk 43 never 52 wave 69 s

Solution for 17-22: In step I the word that comes first in the alphabetical order comes to the first position, pushing the rest of the line rightward. In the next step the largest numbers comes to the second position pushing the rest of the line rightward. This goes on alternately till the words get arranged in an alphabetical order and the number in a descending order at alternately position.

17. (b)

Input: year 39 stake 47 house full 94 55

Step I : full year 39 stake 47 house 94 55

Step II : full 94 year 39 stake 47 house 55

Step III : full 94 house year 39 stake 47 55

Step IV : full 94 house 55 year 39 stake 47

Step V : full 94 house 55 stake year 39 47

Step VI : full 94 house 55 stake 47 year 39

18. (b) Step II: car 83 lost ever 32 46 74 now

Step III : car 83 ever lost 32 46 74 now

Step IV : car 83 ever 74 lost 32 46 now

Step V : car 83 ever 74 lost 46 32 now

Step VI : car 83 ever 74 lost 46 now 32

Hence $6 - 2 = 4$ more step will be required.

19. (d) we can't proceed backward.

20. (a)

Input: water full never 35 78 16 height 28

Step I : full water never 35 78 16 height 28

Step II : full 78 water never 35 16 height 28

Step III : full 78 height water never 35 16 28

Step IV : full 78 height 35 water never 16 28

Step V : full 78 height 35 never water 16 28

Step VI : full 78 height 35 never 28 water 16

21. (d)

Step II : high 69 store pay 36 43 15 there

Step III : high 69 pay store 36 43 15 there

Step IV : high 69 pay 43 store 36 15 there

Step V : high 69 pay 43 store 36 there 15

Since the input is already arranged, there will be no further steps

22. (e)

Input: train more 29 53 fast gear 37 84

Step I : fast train more 29 53 gear 37 84

Step II : fast 84 train more 29 53 gear 37

Step III : fast 84 gear train more 29 53 37

Step IV : fast 84 gear 53 train more 29 37

Step V : fast 84 gear 53 more train 29 37

Step VI : fast 84 gear 53 more 37 train 29

Hence step V will be the last but one.

Solution for 23-27: After a long time, some fresh air in the fresh air in the input output question! Look at what is happening here. The numbers not independent but have a word attached with them. Thus the entities are (is 25) (than 14) and (than 32). now, first the numbers (along with their word attachment) get arranged, one at a time, in the ascending order. The remaining words than get arranged in reverse alphabetical order

Input: any number less (than 30) and more (than 20) does not (equal 40)

Step I : (than 20) any number less (than 30) and more does not (equal 40)

Step II : (than 20) (than 30) any number less and more does not (equal 40)

Step III : (than 20) (than 30) (equal 40) any number less and more does not

Input Output

Step IV : (than 20) (than 30) (equal 40) number any less and more does not

Step V : (than 20) (than 30) (equal 40) number not any less and more does

Step VI : (than 20) (than 30) (equal 40) number not more any less and does

Step VII : (than 20) (than 30) (equal 40) number not more less any and does

Step VIII : (than 20) (than 30) (equal 40) number not more less does any and

23. (e)

24. (b)

25. (e) than 20 than 30 equal 40 number any less and does and more does not

26. (c)

27. (b)

Concept Cracker

Solution for 1-5: In the given word and number arrangement machine. In step I the word coming first alphabetical is shifted at the 1st place and the greater numbers is shifted to the end. In step II the word coming second alphabetical is shifted at the first place and the greatest number is shifted to the end some pattern is followed in the next steps till all the words and numbers are arranged as in step V.

Input: 49 last Zen 16 82 yet can vast 33 aim 87 54

Step I : aim 49 last Zen 16 82 yet can vast 33 54 87

Step II : can aim 49 last Zen 16 yet vast 33 54 87 82

Step III : last can aim 49 Zen 16 yet vast 33 87 82 54

Step IV : vast last can aim Zen 16 yet 33 87 82 54 49

Step V : yet vast last can aim Zen 16 87 82 54 49 33

Step VI : Zen yet vast last can aim 87 82 54 49 3316

1. (c)

2. (d)

3. (e) aim 49 last Zen 16 82 yet can vast 33 54 87

4. (b)

5. (d)

Solution for 6-10: In the given word and number arrangement machine. numbers are arranged alternately with words. Among numbers, first the largest number is taken to the leftmost side, than the smallest and so on.

Among word, the first word as per the alphabetical order is taken to the leftmost side, then the word coming last as per the alphabetical order and so on.

6. (c)

Step II : 76 from 48 super itself 56 18 went

Step III : 76 from 18 48 super itself 56 went

Step IV : 76 from 18 went 48 super itself 56

Step V : 76 from 18 went 56 48 super itself

Step VI : 76 from 18 went 56 itself 48 super

Step VI is the last step so four more steps are required to the complete arrangement.

7. (b)

Step III : 91 go 28 mock per 43 lead 37

Step IV : 91 go 28 per mock 43 lead 37

Step V : 91 go 28 per 43 mock lead 37

Step VI : 91 go 28 per 43 lead mock 37

Step VII : 91 go 28 per 43 lead 37 mock

8. (c)

Input: thirty days from now 32 56 87 24

Step I : 87 thirty days from now 32 56 24

Step II : 87 days thirty from now 32 56 24

Step III : 87 days 24 thirty from now 32 56

9. (d)
 10. (b)
 Step II : 52 at deep follow 41 16 road 32
 Step III : 52 at 16 deep follow 41 road 32
 Step IV : 52 at 16 road deep follow 41 32
 Step V : 52 at 16 road 41 deep follow 32

Solution for 11-13: In the given word and number arrangement machine rearranges the input with the logic that in step I, it shifts the largest number to the left most place and the last word coming in English alphabetical series to the right most place. In step II, it shifts the smallest number to the left most place and the next word (in reverse alphabetical order) to the right most. In step III 2nd largest number it shifts to the left most place and so on.

Input: fun 89 at the 28 16 base camp 35 53 here 68

- Step I : 89 fun at 28 16 base camp 35 53 here 68 the
 Step II : 16 89 at fun 28 base camp 35 53 68 the here
 Step III : 68 16 89 at 28 base camp 35 53 the here fun
 Step IV : 28 68 16 89 at base 35 53 the here fun camp
 Step V : 53 28 68 16 89 at 35 the here fun camp base
 Step VI : 35 53 28 68 16 89 the here fun camp base at
 11. (e)
 12. (c)
 13. (d)

Solution for 14-18:

- Input: for 52 all 96 25 jam road 15 hut 73 bus stop 38 46
 Step I : all for 52 25 jam road 15 hut 73 bus stop 38 46 96
 Step II : bus all for 52 25 jam road 15 hut stop 38 46 96 73
 Step III : for bus all 25 jam road 15 hut stop 38 46 96 73 52
 Step IV : hut for bus all 25 jam road 15 stop 38 96 73 52 46
 Step V : jam hut for bus all 25 road 15 stop 96 73 52 46 38
 Step VI : road jam hut for bus all 15 stop 96 73 52 46 38 25
 Step VII : stop road jam hut for bus all 96 73 52 46 38 25 15

14. (b) Step IV : hut for bus all 25 jam road 15 stop 38 96 73 52 46
 Eight from the right (road.)
 15. (c)

16. (c)
 17. (a) Step V Jam hut for bus all 25 road 15 stop 96 73 52 46 38
 Sixth from the left is 25
 18. (d).

Solution for 19-23: After careful analysis of the given input and various steps of rearrangement it is evident that in each step one word and one number are rearranged. The words are rearranged from left in alphabetical order and the numbers are rearranged from the right in descending order but in the final step the words get rearranged in alphabetical order in reserves manner and numbers appear in descending order.

Input: 31 rise gem 15 92 47 aim big 25 does 56 not 85 63 with moon

- Step I : aim 31 rise gem 15 47 big 25 does 56 not 85 63 with moon 92
 Step II : big aim 31 rise gem 15 47 25 does 56 not 63 with moon 92 85
 Step III : does big aim 31 rise gem 15 47 25 56 not with moon 92 85 63
 Step IV : gem does big aim 31 rise 15 47 25 not with moon 92 85 63 56
 Step V : moon gem does big aim 31 rise 15 25 not with 92 85 63 56 47
 Step VI : not moon gem does big aim rise 15 25 with 92 85 63 56 47 31
 Step VII : rise not moon gem does big aim 15 with 92 85 63 56 47 31 25
 Step VIII : with rise not moon gem does big aim 92 85 63 56 47 31 25 15

19. (a)
 20. (d)
 21. (b)
 22. (c)
 23. (c)

Concept Deviator

1. (d) any two of the statement given sufficient to answer the questions.
2. (a)
3. (b)

Solution for 4 to 7

4. (a) This type of question we should solve by observing the pattern in which steps are changing, after a close look we can observe that it is the sum of the digits that plays main role here rather than the number itself. The given input and steps we can describe as:

Input	245(11)	316(10)	436(13)	519(15)	868(22)	710(8)	689(23)
Step 1	710(8)	316(10)	436(13)	519(15)	868(22)	245(11)	689(23)
Step 2	710(8)	316(10)	245(11)	519(15)	868(22)	436(13)	689(23)
Step 3	710(8)	316(10)	245(11)	436(13)	868(22)	519(15)	689(23)
Step 4	710(8)	316(10)	245(11)	436(13)	519(15)	868(22)	689(23)

From this given data we can observe the pattern that the number that has lowest sum of digits shifts its position towards left and this process continues.

Now in this case the table will be as follows:

Input	655(16)	436(13)	764(17)	799(23)	977(23)	572(14)	333(9)
Step 1	333(9)	436(13)	764(17)	799(23)	977(23)	572(14)	655(16)
Step 2	333(9)	436(13)	572(14)	799(23)	977(23)	764(17)	655(16)
Step 3	333(9)	436(13)	572(14)	655(16)	977(23)	764(17)	799(23)

So the given sequence is the 3rd step.

5. (b) Following the similar logic as above we will find that it takes 5 steps.
6. (d) In this type of question backward progress is not a right approach as the number whose sum is smallest interchange its position, and there is only one shift per step hence given any step we can not determine the input.
7. (c)

Solution for 8-10

Observe the given pattern closely and we will find that neither the number of alphabets nor the 1st letter plays the main role but it is the last letter that plays the important role, and we can observe that last letter is in reversing order,

8. (b) The last step can be written directly following the pattern discussed above. So for the input “He is going out to search air”, the last step would be “out is air to search going he”.
9. (d) As we have discussed in question number 26, we can't calculate previous steps
10. (d) Here the steps will be-

Input: Father needs to check on the boy

Step I: Boy father needs to check on the

Step II: Boy needs father to check on the

Step III: boy needs father to on the check.

Step III will be the final output of the given input. Hence machine will need three steps to make it.

Solution for 11 to 13

Continuation of the given information is as follows:

Step	(9)	→	3	4	1	2	5	6	9	10	7	3
Step	(10)	→	1	2	3	4	5	6	7	8	9	10
Step	(11)	→	1	2	3	4	5	6	9	10	7	8

We observed that step 5 is repeated

11.

12. (d) is not between step 12 and 14.

13. (c) As step 10 is same as input then step 20 will be same.

Solution for 14 to 15:

In this the numbers are arranged as follows. The least number followed by the highest number followed by the second least number followed by the second highest number and so on. This is done through the process of shifting the number. The given input is hence subsequent output is:

Input	:	64	326	187	87	118	432	219	348
Step I	:	64	432	326	187	87	118	219	348
Step II	:	64	432	87	326	187	118	219	348
Step III	:	64	432	87	348	326	187	118	219
Step IV	:	64	432	87	348	118	326	187	219

14. (c)

15. (d) Similar to the previous question.

Input	319	318	746	123	15	320	78	426
Step I	15	319	318	746	123	320	78	429
Step II	15	746	319	318	123	320	78	426
Step III	15	746	78	319	318	123	320	426
Step IV	15	746	78	426	319	318	123	320
Step V	15	746	78	426	123	319	318	320
Step VI	15	746	78	426	123	320	319	318
Step VII	15	746	78	426	123	320	318	319

Hence, in this case we require total VII steps to get the final output.

Chapter

8

Eligibility Test

Section	Level	No. of Questions
Concept Applicator	Very Easy	20
Concept Builder	Easy	23
Concept Cracker	Moderate	30
Concept Deviator	Difficult	40

It is also known as Recruitment Process or Decision making process. It is expected that a recruiter must have a proper idea or knowledge about the process of an organisation. Lets have an example.

Directions (Qs. 1-5): Following are the criteria for selection of management trainee in an organization.

The candidate must

- (i) have passed HSC examination in first class with at least 60% marks.
- (ii) Have passed graduation degree in any discipline with at least 55% marks.
- (iii) Have completed a certificate/diploma/degree course in Computer Science.
- (iv) Be not less than 21 years and not more than 28 years of age as on 1. 6. 2015

If a candidate satisfies all the above mentioned criteria except

- (a) at (ii) below but is a postgraduate, the case may be referred to the Executive Director (ED).
- (b) at (iii) not diploma or any certificate holder but has studied Computer Science as one of subjects of curriculum, the case may be referred to the Vice President (VP).

In each of the questions below, information of one candidate is given. You have to take one of the following five decisions based on the information provided and the criteria and conditions given above. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 01. 06. 2015. You have to indicate your decision by marking answers to each question as follows:

Mark answer (1) if the case is to be referred to ED.

Mark answer (2) if the case is referred to VP.

Mark answer (3) if the candidate is to be selected.

Mark answer (4) If the information is inadequate to take a decision.

Mark answer (5) if the candidate is not to be selected.

1. Amit, a commerce graduate, passed in the first class with 57% marks. He had secured 73% marks in HSC. He has studied computer Science as one of the subjects at HSC. His date of birth is 22.9.1988.
2. Rani has passed BMS degree examination in second with 58% marks and HSC in the first class 65% marks. She completed a diploma in computer science. She completed 25 years of age in November 2010
3. Rajesh Grover has passed HSC exam in the first class with 89% marks. Thereafter he did a 6-month certificate course in computer science and presently in pursuing final year of engineering degree examination. His date of birth is 28.12.1989.

4. Sapan Gupta is a Science graduate passed in 2009 with 47% at the age of 27 years. he had scored 64% marks in HSC. he has also passed M.Sc with 58% marks he has done a certification course in computer.
5. Jotshna is a postgraduate in Computer Science passed in the first class with 62% marks. She had scored 81% marks in HSC. Her date of birth is 17.6.1987.

Solution:

	HSC 60%	Grad. 55% (a)	C.S (b)	Age	Final Result
Amit	yes	yes	No (b)	yes	2
Rani	yes	yes	yes	yes	3
Rajesh	yes	NO(not grad.)	yes	yes	5
Sapan	yes	No (a)	yes	yes	1
Jotshna	yes	yes	yes	no	5

1. CONCEPT APPLICATOR

Directions (Qs. 1-10): Following are the criteria for selection of officers in an organization.

[Bank of Baroda PO]

The candidate must

- i. have passed HSC examination in first class with at least 60% marks.
- ii. Have passed graduation degree in any discipline with at least 55% marks.
- iii. Have completed a certificate/diploma/degree course in Computer Science.
- iv. Be not less than 21 years and not more than 30 years of age as on 1. 7. 2008

If a candidate satisfies all the above mentioned criteria except

- (a) at (ii) above but is a postgraduate, the case may be referred to the Executive Director (ED).
- (b) at (iii) above but has studied Computer Science as one of subjects of curriculum, the case may be referred to the Vice President (VP).

In each of the questions below, information of one candidate is given. You have to take one of the following five decisions based on the information provided and the criteria and conditions given above. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 01. 07. 2008. You have to indicate your decision by marking answers to each question as follows:

Mark answer (1) if the case is to be referred to ED.

Mark answer (2) if the case is referred to VP.

Mark answer (3) if the candidate is to be selected.

Mark answer (4) if the information is inadequate to take a decision.

Mark answer (5) if the candidate is not to be selected.

1. Ashutosh, a commerce graduate, passed in the first class with 67% marks. He had secured 73% marks in HSC. He has studied computer Science as one of the subjects at HSC. His date of birth is 22.9.1982.

2. Rajni has passed BMS degree examination in second with 58% marks and HSC in the first class 65% marks. She completed a diploma in computer science. She completed 25 years of age in November 2007
3. Raj Grover has passed HSC exam in the first class with 89% marks. Thereafter he did a 6-month certificate course in computer science and presently in pursuing final year of engineering degree examination. His date of birth is 28.12.1980.
4. Shamika Gupta is a Science graduate passed in 2006 with 47% at the age of 22 years. She had scored 64% marks in HSC. She has also passed M.Sc with 58% marks she has done a certification course in computer.
5. Jasmine is a postgraduate in Computer Science passed in the first class with 62% marks. She had scored 81% marks in HSC. Her date of birth is 17.6.1979.
6. Shyamala is a BA passed in the first class with 63% marks. She had passed HSC examination in the first class with 69% marks. She has also completed a certification course in computer science with 'A' grade. Her date of birth is 23.9.1984.
7. Anubhav Gokhale is a B.Sc with Computer Science passed in second class with 58% marks. He had passed HSC in the first class with 76% marks. He completed 25 years of age in December 2007
8. Manish Chaudhary passed HSC examination in first class with 83% marks and B.Com in second class with 57% marks. He has completed a computer certification course very recently. His date of birth is 26.4.1982.
9. Harish Vora passed HSC examination in 2003 with 85% marks and B.Sc Degree examination in 2006 with 69% marks. He has studied Computer Science as one of the subjects at B.Sc His date of birth is 17.9.84.
10. Vandana Bhave is B com graduate passed in second class with 56% marks. She had passed HSC in second

Eligibility Test

class with 59% marks. She has also completed a computer diploma with 56% marks. Her date of birth is 5.11.1982.

Directions (Qs. 11 - 20): Study the following information carefully and answer the given questions.

[Bank of Baroda (Agriculture Office)]

For a recruitment process in an organization, the candidates need to possess the following qualifications criteria:

- (i) A graduate in science with at least 60% marks.
- (ii) An age of at least 25 years and not more than 40 years as on 1. 7. 2008
- (iii) Have a post-qualification work experience of at least 2 years
- (iv) Should have secured 55% marks in the selection process.

However, if the candidate fulfils the above-mentioned criteria except

(A) at (i) and if the candidate is not a graduate in Science but has a post graduation degree with minimum of 60% marks, he/she should be referred to the HR – Manager of the organization.

(B) at (ii) and if the candidate fulfils all the eligibility criteria but of post – qualification work experience but has secured 75% marks in the selection process, he/she may be referred to the Director of the organization.

Based on the above information study carefully whether following candidates are eligible for the recruitment process and mark your answer as follows. You are not to assume anything other than the information provided in each question. All the cases are given to you as on 1. 7. 2008

Mark answer (1) if the candidate is to be selected.

Mark answer (2) if the candidate is not to be selected.

Mark answer (3) if the candidate may be referred to the HR-Manager

Mark answer (4) if the candidate may be referred to the Director.

Mark answer (5) if the data provided is inadequate to take the decision.

11. Shruti Walia has 4 years of post-qualification work experience in a top organization. She has secured 59% marks in the selection process. Born on 5.10.1981, she had completed her Bachelor's degree in Physics in 2004 and secured 66% marks in it.

- 12. Pradeep Kumar has 6 years of post-qualification work experience. His date of birth is 12.4.1972. he has secured 58% marks in the selection process. He has completed graduation in Science and scored 76% in it.
- 13. Zaheer Ahmed has completed graduation and post graduation Economics from Bhopal in 1999 and has secured 51% and 68% mark respectively. His date of birth is 26.11.1976. He has been working as an executive in a reputed firm since 2003 till date. He secured 56% marks in the selection process.
- 14. Harpeet Kaur has done graduation in physics and is a post graduation in Science and has and has secured 57% and 65% marks respectively. She has secured 59% marks in the selection process, and has a post-qualification work experience of 3 years.
- 15. Deepak Aggarwal has completed graduation and post-graduation in Geography with 68% and has secured 57% marks in the selection process. His date of birth is 11.11.1979.
- 16. Varun Arora has secured 79% marks in the selection process. He has completed his degree in BSc securing 67% marks is it. His date of birth is 9.3.1975, and has a post- qualification work experience of one years.
- 17. Varsha Nath's date of birth is 6.2.1979. she has done her graduation and post-graduation in Commerce and secured 59% and 62% marks respectively. She has a post- qualification work experience as a senior executive of 3 years. And has secured 59% marks in the selection process.
- 18. Asha Walia has 4 years of post- qualification work experience in a reputed firm. She has done graduation Botany, Scoring 71% marks in it. Born on 22.1.1973. She has secured 53% marks in the selection process.
- 19. Nitesh Burman has done Graduation in Chemistry and has secured 69% in it. His date of birth is 9.12.1981. He has ranked first in the selection process and has secured 82% mark in it. He has four month of post-qualification work experience.
- 20. Tanya Shetty has been working in a leading organization since the completion of post-graduation in 1990. She was born on 1.5.1968. she is a graduate and a post-graduate in science and has secured more than 60% at both graduate as well as post-graduate level. She has secured 71% marks in the selection process.

2 CONCEPT BUILDER

Directions (Qs. 1–8): An organization wants to recruit Trainee Officers. Following are the criteria.

[Canara Bank (PO)]

The candidate must

- (i) be not less than 21 years of age and not more than 28 years of age as on 1. 2. 2009
- (ii) be a graduate in any discipline with at least 55% marks
- (iii) have secured at least 50% marks in selection test
- (iv) have secured at least 45% marks in interview
- (v) be willing to work anywhere in India.

However, if the candidate satisfies all the above-mentioned criteria except

(a) at (ii) above but is a postgraduate, the case is to be referred to the Executive Director.

(b) at (i) above but has a working experience of at least one year the case is to be referred to the Vice – President

In each of the questions below, information of one candidate is given. You have to take one of the following five decisions based on the information provided and the criteria and conditions given above. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 1. 2. 2009. You have to indicate your decision by marking answers to each question as follows:

Mark answer (1) if the case is to be referred to Executive Director.

Mark answer (2) if the case is to be referred to Vice President.

Mark answer (3) if the data in the statement is not adequate to take a decision.

Mark answer (4) if the candidate is to be selected.

Mark answer (5) if the candidate is not to be selected.

1. Avinash is a Science graduate passed in first class with 63% marks. He has secured 53% and 51% marks in selection test and interview respectively. He is willing to work anywhere in India. He has been working in the Marketing department of a private organization since July 2007. He was born on 11. 6. 1980.

2. Nisha Sharma has passed B.Com with 57% marks in July 2008. She has secured 48% marks in interview and 58% marks in selection test. She is willing to work anywhere in India. She completed 25 years of age in November 2008.

- 3. Vandana is BA with Economics passed with 68% marks. Her date of birth is 23.8.1983. She is willing to work anywhere in India. She has secured 56% marks in interview.
- 4. Bhavesh Shah is a postgraduate in chemistry and is working in a chemical company for the past one year. He had scored 53% marks in graduation. He has secured 58% marks in selection test and 52% marks in interview. He is 26 years old at present. He is willing to work anywhere in India.
- 5. Shamika is a 23 years old Science Graduate who passed in August 2008 with 52% marks. She is willing to work anywhere in India. She has cleared the selection test with 66% marks and interview with 56% marks.
- 6. Vijay Kumar is a Commerce graduate passed in 2007 at the age of 22 years with 58% marks. He is willing to work anywhere in India. He has secured 48% marks in selection test and 52% marks in interview.
- 7. Sunil Makwana is a graduate in Science passed with 72% marks. His date of birth is 13.10.1978. He is working for the past two years as a clerk. He has secured 58% marks in selection test as well as in interview. He is willing to work anywhere in India.
- 8. Rajan Vaze is a graduate with 45% marks and a post-graduate with 52% marks. His date of birth is 17.6.1982. He is willing to work anywhere in India. He has secured 56% marks in interview and 63% mark in selection test.

Directions (Qs. 9 – 13): Study the following information carefully and answer the questions given below:

[United Bank of India (PO)]

Following are the conditions for selecting Marketing Manager in an Organization:

The candidate must

- (i) be at least 30 years old as on 1. 3. 2009.
- (ii) have secured at least 55% marks in graduation.
- (iii) have secured at least 60% marks in Post – Graduate Degree/Diploma in Marketing.
- (iv) have post qualification work experience of at least five years in the Marketing Division of an organization.
- (v) have secured at least 45% marks in the selection process.

In the case of a candidate who satisfies all other conditions except

- (a) at (iv) above, but has post – qualification work experience of at least two years as Deputy Marketing Manager, the case is to be referred to GM – Marketing.
- (b) at (ii) above, but has secured at least 65% marks in Post- Graduate Degree/Diploma in Marketing management, the case is to be referred to Vice President – Marketing.

In each question below are given details of one candidate. You have to take one of the following courses of action based on the information provided and the conditions and sub-conditions given above and mark your answer accordingly. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 1. 3. 2009.

Mark Answer (1) if the candidate is not to be selected

Mark Answer (2) if the candidate is to be selected

Mark Answer (3) If the data are inadequate to take a decision

Mark Answer (4) if the case is to be referred to Vice – President Marketing

Mark Answer (5) if the case is to be referred to GM – Marketing

9. Navin Marathe was born on 8th April 1975. He has secured 60% mark in both graduation and post- Graduate Degree in Marketing. He has been working for the past six years in the Marketing Division of an organization after completing his PG Degree in Marketing. He has secured 20% marks in the selection process.

10. Divya Kohali has been working for the past five years in Marketing Division of an organization after completing her Post- Graduate Diploma in Marketing with 65% marks .She has secured 55 % marks in graduation and 50% marks in the selection process. She was born on 2nd April 1979.

11. Suresh Mehta has secured 58 % marks in graduation. He was born on 19th May 1975. He has secured and 50% marks in the selection process. He has been working for the past seven years in the Marketing Division of an organization after completing his Post Graduation with 62% marks.

12. Varun Malhotra was born on 3rd July 1976. He has been working as Deputy Marketing Manager in an organization for the past three years after completing her Post- Graduate Degree in Marketing with 65% marks. He has secured 55% marks in both graduation and selection process.

13. Sudha Gopalan has secured 50% marks in both selection process and graduation. She has been working for the past six years in the Marketing Division of an organization after completing her Post- Graduate Diploma in Marketing with% marks. She was born on 14th October 1978.

Directions (Qs. 14-23): Study the following information carefully and answer the questions given below:

[Andhra Bank (PO)]

Following are the conditions for selecting personnel Manager in an organization:

The candidate must

- (i) be a graduate with at least 50% marks.
- (ii) have a postgraduate degree/diploma in Personnel Management/HR with at least 60% marks.
- (iii) not be more than 35 years as on 1. 6. 2009
- (iv) have post qualification work experience of at least five years in the Personnel/HR division of an organization.
- (v) have secured at least 45% marks in the selection process.

In the case of a candidate who satisfies all the conditions EXCEPT

(a) at (iii) above, but has post-qualification work experience of at least ten years, the case is to be referred to the Director – Personnel.

(b) at (iv) above, but has post – qualification work experience as Deputy Personnel Manager of at least three years, the case is to be referred to President – Personnel.

In each question below are given details of one candidate. You have to take one of the following courses of action based on the information provided and the conditions and sub-conditions given above and mark the number of that course of action as your answer. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 1. 6. 2009

Mark answer (1) if the candidate is to be selected

Mark answer (2) if the candidate is not to be selected

Mark answer (3) if the information provided is inadequate to take a decision

Mark answer (4) if the case is to be referred to the Director – Personnel

Mark answer (5) if the case is to be referred to the President - Personnel

14. Meena Srivastava was born on 6th March 1978. She has been working as Deputy Personnel Manager

- in an organization for the past four years after completing her post-graduating diploma in HR with 68% marks. She has secured 50% in both graduation and selection process.
15. Ketan Desai was born on 5th January 1976. He has been working for the past five years in the personnel deptt of an organization after completing his post-graduate diploma in personnel management with 64% marks. He has secured 44% marks in a selection process and 52% marks in graduation.
 16. Anant Joshi has been working in the personnel department of an organization for the past six years. He was born on 7th November 1977. He has secured 60% marks in post-graduate degree in personnel management. He has also secured 55% marks in both graduation and selection process.
 17. Mohan Bajpai was born on 10th April 1975. He has secured 55% marks in graduation and 65% marks in post- graduate diploma in personnel management. He has been working in the HR Deptt, of an organization for the past six years after completing his post-graduate diploma.
 18. Gopal Sharma has been working for the past five years in the HR Deptt, of an organization after completing his post-graduate diploma in HR with 62% marks. He has secured 50% marks in both graduation selection process. He was born on 29th May 1974.
 19. Arun Vohra has secured 55% marks in graduation.

He has been working in the personnel deptt. Of an organization for the past eleven years after completing his post- graduate degree in personnel management with 65% marks. He has secured 50% marks in selection process. He was born on 12th August 1972.

20. Asha Dhar has secured 20% marks in graduation and 62% marks in post-graduate degree in personnel management. She has also secured 48% mark in the selection process. She has been working for the past seven years in the personnel deptt of an organization after completing her post-graduate degree. She was born on 8th June 1974.
21. Sudha Ghosal was born on 20th October 1976. She has been working as Deputy Personal Manager for the past four years in an organization after completing her post-graduate degree in HR with 67% marks. She has secured 60% mark in graduation and 45% marks in the selection process.
22. Amit Saxena was born on 25th July 1973. He has been working in the personnel deptt. Of an organization for the past eleven years after completing his post-graduate diploma in HR with 70% marks. He has secured 60% marks in both graduation selection process.
23. Navin Das was born on 14th April 1978. He has been working in the personnel deptt. Of an organization for the past six years after completing his postgraduate diploma in HR with 65% marks. He has secured 45% marks in both graduation selection process.

3 CONCEPT CRACKER

Directions (Qs. 1 – 10): Study the following information carefully and answer the questions given below:

Andhra Bank (Marketing Associate)

Following are the conditions for selecting Chief Manager Sales in an organization. The candidate must

- (i) be graduate in any discipline with at least 60% marks.
- (ii) have secured at least 55% marks in the selection process.
- (iii) be at least 30 years and not more than 40 years as on 1. 5. 2009
- (iv) be a postgraduate degree/diploma holder in Marketing/Sales Management
- (v) have post – qualification work experience of at least eight years in the Sales/Marketing division of an organization.

In the case of a candidate who satisfies all the conditions EXCEPT

- A) at (ii) above, but has secured more than 65% marks in graduation, the case is to be referred to GM – sales.
- (B) at (v) above, but has post – qualification work experience of at least five years as Manager – Sales in an organization, the case is to be referred to VP Sales.

In each question below details of one candidate are given. You are to take one of the following courses of action based on the information and the conditions and sub-conditions given above and mark the number of that course of action as the answer. You are not to assume anything other than the information provided in each case. All these cases are given to you as on 01. 05. 2009

Mark answer (1) if the candidate is to be selected

Mark answer (2) if the candidate is not to be selected

Mark answer (3) if the data provided are inadequate to take a decision

Mark answer (4) if the case is to be referred to the GM – Sales

Mark answer (5) If the case is to be referred to the VP - Sales

1. Joseph D' Souza was born on 18th February 1979. He has secured 60% marks in both graduation and 55% marks in the selection process. He has been working for the past six years as Manager-Sales in an organization after completing his post- graduate diploma in Sales Management.
2. Mohan Das was born on 25th March 1976. He has secured 60% marks in both graduation and 55% marks in the selection process. He is a first-class post graduate degree holder in Management. He has been working for the last eight years in the sales division of an organization.
3. Kalpesh Mehta was born on 16th February 1970. He has secured 68% marks in graduation and 58% marks in the selection process. He has been working for the past six years as Manager-sales in an organization after completing his post- graduate diploma in Sales.
4. Abhinav Shukla has secured 62% mark in the graduation and 58% marks in the selection process. He has been working in the Marketing Division of a company for the past nine years after completing his post- graduate diploma in Marketing with 55% marks. He was born on 5th Aug. 1974.
5. Akash Malhotra Vohra was born on 6th April 1975. He has working in the sales division of a Company for the past ten years after completing his post- graduate diploma. In Marketing Management. He has secured 65% marks in graduation and 56% marks in the selection process.
6. Pravin Vohra was born on 2nd July 1972. He has working in the sales division of an organization for the past ten years after completing his post- graduate degree in Sales Management with 50% marks. He has secured 68% marks in graduation and 50% marks in the selection process.
7. Meena Srivastava has been working in the Sales Division of an organization for the past twelve years after completing her post- graduate degree Sales Management with 65% marks. She has secured 58% marks in graduation and 57% marks in the selection process. She was born on 12th May 1976.
8. Mita Keshwani has been working in the Marketing Division of an organization for the past eleven years after completing her post- graduation. She has secured 62% marks in the selection process and 70% marks in graduation. She was born on 2nd November 1978.
9. Jayant Sahu has secured 52% marks in the selection process and 72% marks in graduation. He has been working for the past twelve years in the Marketing division of a company after completing his post- graduation in Marketing Management. He was born on 19th March 1972.
10. Seema Mahajan was born on 12th July 1973. She has secured 56% marks in the selection process. She has been working in the Sales Division of an organization for the past thirteen years after completing her post- graduate degree Sales Management. She has secured 59% marks in graduation.

Directions (Qs. 11-15): Study the following information carefully and answer the questions given below: Following are the conditions for selecting System Manager in an organization:

[RBI Grade B Officer]

The candidate must

- (i) be a graduate engineer in IT, Computer Science or Electronics with at least 60% marks.
- (ii) be at least 30 years and not more than 40 years as on 1. 9. 2009.
- (iii) have secured at least 40% marks in the written examination
- (iv) have secured at least 50% marks in the selection interview
- (v) have post – qualification work experience of at least 10 years in systems department of an organization

In the case of a candidate who satisfies all the conditions EXCEPT

- (a) at (i) above, but has secured at least 60% marks in ME – IT or Computer Science, the case is to be referred to DGM – Systems
- (b) at (v) above, but has post – qualification experience of at least five years as Deputy Systems Manager, the case is to be referred to the GM – Systems.

In each question below details of one candidate are given. You are to take one of the following courses of action based on the information and the conditions and sub-conditions given above and mark the number of that course of action as the answer. You are not to assume anything other than the information provided in each case. All these cases are given to you as on 01. 09. 2009

Mark answer (1) if the candidate is to be selected

Mark answer (2) if the candidate is not to be selected

Mark answer (3) if the candidate is to be referred to DGM – Systems

Mark answer (4) if the case is to be referred to the GM – Systems

Mark answer (5) If the data provided are not adequate to take a decision.

11. Samir Ghosh was born on 25th May 1978. He has secured 65% mark in BE-IT in the years 1999. Since then, he has been working in the system department of an organization. He has secured 50% mark in both written examination and selection interview.
12. Navin Prakash has secured 62% mark in BE-Computer Science. He has been working in the system department of an organization since July 1999 after completion of BE. He was born on 4th April 1974. He has secured 55% mark in selection interview and 45% mark in the written examination.
13. Neeta Pathak has been working as Deputy Systems Manager in an organization for the past seven years after completing her BE in IT with 70% marks. She has secured 45% marks in selection interview and 55% mark in the written examination. She was born on 12th November 1978.
14. Ashok Malhotra was born on 19th March 1978. He has secured 56% mark in both selection interview and 45% mark in the written examination. He has secured 58% marks in BE-IT and 72% marks ME-IT. He has been working in the systems department of an organization for the past 11 years after completing her ME-IT.
15. Gemma D'Souza was born on 15th December 1972. She has secured 60% marks in both written examination and selection interview. She has been working as Deputy Systems Manager for the past six years in an organization after completing her BE – Electronics with 75% marks.

Directions (Qs. 16–25): Study the following information carefully and answer the questions given below:

[Corporation Bank (PO)]

Following are the conditions for selecting Manager – Finance in an organization:

The candidate must

- (i) be at least 30 years and not more than 35 years as on 1. 11. 2009
- (ii) be a graduate in any discipline with at least 55% marks

(iii) be a post graduate degree/diploma holder in Management with Finance specialization with at least 60% marks.

(iv) have post – qualification work experience of at least six years in the finance department of an organization

(v) have secured at least 50% marks in the preliminary interview

(vi) have secured at least 40% marks in the final interview.

In the case of a candidate who satisfies all the above conditions EXCEPT

- (a) at (iv) above, but has post-qualification work experience of at least three years as Deputy Finance Manager in an organization, his/her case is to be referred to VP – Finance
- (b) at (vi) above, but has obtained at least 60% marks in the preliminary interview, his/her candidature is to be considered under ‘wait list’ .

In each question below, details of one candidate are given. You have to take one of the following courses of action based on the information provided and the conditions and sub – conditions given above and mark the number of that course of action as your answer. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 1. 1. 2009.

Mark answer (1) if the candidate is to be selected

Mark answer (2) if the candidate is not to be selected

Mark answer (3) if the candidate is to be kept on waiting list

Mark answer (4) if the case is to be referred to VP - Finance

Mark answer (5) If the data provided are not adequate to take a decision.

16. Neelam Johri has secured 38% marks in the final interview. She has also secured 65% marks in both B.Com and postgraduate degree in Finance department of an organization for the past six years after completing her postgraduate degree. She was born on 16th August 1978. She has secured 63% marks in the preliminary interview.
17. Anirban Chowdhury was born on 8th March 1978. He has secured 65% marks in B.Sc and 62% marks in postgraduate degree in Finance Management. He has been working in the Finance department of a company for the past seven years after completing her post-graduation. He has secured 50% marks in the final interview and 40% marks in the preliminary interview.
18. Vaibhav Joshi has secured 60% marks in both graduation and postgraduate diploma in Finance

- Management. He has working as Deputy Finance Manager in an organization for the past four years after completing his post-graduate diploma. He has secured 53% marks in the preliminary interview and 43% marks in the final interview. He was born on 3rd July 1977.
19. Sudha Motwani was born on 24th March 1977. She has secured 58% marks in B.A. and 68% marks postgraduate diploma in Finance Management. She has been working in the Finance department of an organization for the past eight years after completing her post-graduate diploma. She has secured 50% marks in both preliminary and final interview .
20. Ashok Chandra has been working in the Finance department of an organization for the past seven years after completing his post-graduate diploma in management with Finance specialization with 65% marks. He has secured 55% marks in the preliminary interview and 45% marks in the final interview. He was born on 12th April 1976.
21. Suparna Desai has secured 58% marks in graduation and 68% marks in postgraduate diploma in Finance Management. She has been working as Deputy Finance Manager in an organization for the past four years after completing her post-graduate diploma. She has secured 50% marks in the preliminary interview and 45 in the final interview. She was born on 26th August 1977.
22. Balwant Singh was born on 18th November 1979. He has secured 60% marks in B.Com and 55% marks in post graduate in Finance Management. He has been working as Deputy Finance Manager in an organization for the past five years after completing his post-graduate degree. He has secured 54% marks in the preliminary interview and 44 in the final interview.
23. Abhishek Saha was born on 8th October 1978. He has been working in the Finance department of an organization for the past six years after completing his post-graduate diploma in management with 68% marks. He has secured 63% marks in B.Sc. He has also secured 60% marks in both preliminary and final interview.
24. Shikha Rastogi was born on 11th April 1976. She has secured 68% marks in graduation and 62% marks in postgraduate degree in Finance Management.. She has secured 65% marks in the preliminary interview and 35% marks in final interview. She has been working in Finance department in an organization for the past seven years after completing her post-graduate degree.
25. Navin Shukla has secured 60% marks in graduation and 64% marks in postgraduate diploma in Finance Management. He has been working in the Finance department of a company for the past six years after completing her post-graduate diploma. He has secured 56% marks in the preliminary interview and 45% in the final interview. He was born on 28th May 1976.
- Directions (Q. 26–30) :** Study the following information carefully and answer the questions given below:
- Following are the conditions for selecting Management Trainee in an organization: [Indian Bank (PO) 2010]
- The candidate must**
- (i) be a graduate with at least 60% marks.
 - (ii) be not less than 21 years and not more than 28 years as on 1. 1. 2010
 - (iii) be ready to pay ₹ 50,000 as security deposit
 - (iv) have secured at least 40% marks in the selection examination
 - (v) have secured at least 50% marks in personal interview.
- In the case of a candidate who has satisfied all the above conditions except
- (a) at (i) above, but has secured at least 65% marks in post graduation, the case is to be referred to GM – Personnel
 - (b) at (iii) above, but is ready to sign a bond for one year, the case is to be referred to ED – Personnel
- In each question below, details of one candidate are given. You have to take one of the following courses of action based on the information provided and the conditions and sub – conditions given above and mark the number of that course of action as your answer. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 1. 1. 2010.
26. Sohan Awasthi was born on 8th June 1987. He has secured 55% marks in both selection examination and personal interview. He can pay the security deposit of ₹50,000. He has secured 68% marks in post-graduation and 59% marks in graduation.
27. Anuj Soren was born on 25th March 1984. He has secured 58% marks in post - graduation. He has secured 50% marks in both selection examination and personal interview. He is ready to pay the security deposit of ₹50,000.
28. Seema Biswas was born on 15th May 1985. She has secured 65% marks in graduation and 70% marks

- in post-graduation. She is ready to pay ₹50,000 as security deposit. She has also secured 45% marks in the selection examination.
29. Abhinav Ghosal has secured 52% marks in the personal interview and 40% marks in the selection examination. He can pay the security deposit of ₹25,000. Security deposit. Alternatively, he can sign a bond of one year. He was born on 3rd December 1984. He has secured 63% marks in graduation.
30. Namita Jaiswal has secured 62% marks in the graduation and 52% marks in the personal interview. She was born on 12th July 1983. She is ready to pay the security deposit of ₹50,000. She has secured 46% marks in the selection examination.

4. CONCEPT DEVIATOR

Directions (Qs. 1-5): Study the following information carefully and answer the questions given below:

Following are the conditions for selecting Senior Manager – Credit in a bank. [SBI (PO)]

The candidate must

- (i) be a graduate in any discipline with at least 60% marks.
- (ii) have post – qualification work experience of at least ten years in the Advance section of a bank.
- (iii) be at least 30 years and not more than 40 years as on 1. 4. 2010
- (iv) have secured at least 40% marks in the Group Discussion
- (v) have secured at least 50% marks in the Interview

In the case of a candidate who satisfies all the conditions EXCEPT

- (a) at (i) above, but has secured at least 50% marks in graduation and at least 60% marks in post-graduation in any discipline, the case is to be referred to the General Manager – Advances
- (b) at (ii) above, but has total post qualification work experience of at least seven years, out of which at least three years as Manager – Credit in a bank, the case is to be referred to the Executive Director.

In each question below, details of one candidate are given. You have to take one of the following courses of action based on the information provided and the conditions and sub – conditions given above and mark the number of that course of action as your answer. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 01. 04. 2010.

Give answer 1) if the case is to be referred to the Executive Director

Give answer 2) if the case is to be referred to the General Manager – Advances

Give answer 3) if the data are inadequate to take a decision.

Give answer 4) if the candidate is not to be selected

Give answer 5) if the candidate is to be selected

1. Shobha Gupta has secured 50% marks in the interview and 40% marks in the Group Discussion. She has been working for past eight years out of which four years as Manager-Credit in a bank, after completing her B.A. degree with 60% marks. She was born on 12th September 1978.
2. Rohan Maskare was born on 8th March 1974. He has been working in a bank for the past twelve years after completing B.com Degree with 70% marks. He has secured 50% marks in the Group Discussion and the interview.
3. Prakash Gokhale was born on 4th August 1977. He has secured 65% marks in post-graduation and 58% marks in graduation. He has been working for the past ten years in the Advances Department of a bank after completing his post-graduation. He has secured 45% marks in the Group Discussion and 50% marks in interview.
4. Sudha Mehrotra has been working in the Advances Department of a bank for the past twelve years after completing her B.com Degree with 60% marks. She has secured 50% marks in the Group Discussion and 40% marks in interview. She was born on 15th February 1972.
5. Amit Narayan was born on 28th May 1974. He has been working in the Advances Department of a bank for the past eleven years after completing B.Sc. Degree with 65% marks. He has secured 55% marks in the Group Discussion and 50% marks in the interview.

Directions (Qs. 6 – 15) : Study the following information carefully and answer these questions given below:

Following are the conditions for selecting Chief Manager – Marketing in an organization: [Allahabad Bank (PO)]

The candidate must

- (i) be at least 35 years old as on 1-2-2010
- (ii) have secured at least 55% marks in graduation
- (iii) have secured at least 60% marks in post – graduate degree/diploma in Marketing Management.
- (iv) have post – qualification work experience of at least 10 years in the marketing Division of an organization
- (v) have secured at least 50% marks in the selection process.

In the case of a candidate who satisfies all the above conditions EXCEPT

- (a) at (iv) above, but has post – qualification work experience of at least six years as Manager – Marketing, the case is to be referred to Head – Marketing Division
- (b) at (ii) above, but has secured at least 65% marks in post graduate degree/diploma in Marketing Management, the case is to be referred to GM – Marketing.

In each question below, details of one candidate are given. You have to take one of the following courses of action based on the information provided and the conditions and sub – conditions given above and mark the number of that course of action as your answer. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 01. 04. 2010.

Mark answer (1) if the case is to be selected.

Mark answer (2) if the case is to be referred to the Head – Marketing Division

Mark answer (3) if case is to be referred to GM – Marketing

Mark answer (4) if the candidate is not to be selected

Mark answer (5) if the data provided are inadequate to take a decision.

6. Arnab Behera has secured 65% marks in PG degree in Marketing Management and 58% marks in graduation. He has been working in the Marketing Division of an Organization for the past eleven years after completing his post graduate degree. He has secured 55% marks in the selection process. He was born on 8th July 1970.
7. Neeta Ghosal was born on 4th May 1970. She has been working in the Marketing Division of an Organization for the past twelve years after completing her post

graduate diploma in Management with 70% marks. She has obtained 60% marks in the graduation and 50% marks in the selection process.

8. Sudesh Sarkar was born on 15th June 1974. He has secured 55% marks in the selection process and 50% marks in the graduation. He has been working in the Marketing Division of an Organization for the past twelve years after completing her post graduate degree in Marketing Management with 75% marks.
9. Sudha Naik was born on 14th April 1973. She has been working in the Marketing Division of an Organization for the past fourteen years after completing her post graduate diploma in Marketing Management with 70% marks. She has secured 50% marks in the selection process and 52% marks in graduation.
10. Sunita Jaiswal was born on 5th July 1976. She has secured 55% marks in graduation and 58% marks in selection process. She has been working in the Marketing Division of an Organization for the past ten years after completing her post graduate degree in Marketing Management with 57% marks.
11. Nayan Dastur was born on 8th October 1968. He has secured 55% marks in graduation and the selection process. He has been working in the Marketing Division of an Organization for the past ten years after completing her post graduate diploma in Marketing Management with 65% marks.
12. Sunil Kamath has secured 58% marks in graduation. He was born on 24th May 1974. He has been working in the Marketing Division of an Organization for the past seven years after completing her post graduate degree in Marketing Management with 65% marks. He has secured 50% marks in the selection process.
13. Md. Yusuf was born on 29th January 1975. He has secured 55% marks in graduation and 52% marks in the selection process. He has also secured 68% marks in post graduate diploma Marketing Management. He has been working for the Marketing Division of an Organization.
14. Navind Ghosh was born on 12th December 1973. He has been working in the Marketing Division of an Organization for the past ten years after completing his post graduate degree in Marketing Management with 63% marks. He has secured 54% marks in the graduation and 45% marks in the selection process.
15. Avinash Sargota has been working for the past eight years out of which for six years as Marketing Manager after in an Organization completing his post graduate degree in Marketing Management with 62% marks.

He has secured 58% marks in the graduation and 52% marks in the selection process. He was born on 14th February 1972.

Directions (Qs. 16- 25): Study the following information carefully and answer the questions which follow:

A research institute is recruiting librarian to digitize its information resources among other duties. Candidates must possess the following criteria. The candidate must

[Punjab and Sind Bank (PO)]

- (i) be not less than 35 years and not exceed 40 years as on 01. 11. 2009
- (ii) have a Bachelor's Degree in Library and Information Science with 65% marks
- (iii) have a Ph.D in Library Science
- (iv) have a post qualification experience of at least 4 years in a University Library.

However, if the candidate fulfills the above mentioned criteria except

(a) (ii), but has a UGC NET certification with all the other above criteria fulfilled, he/she may be referred to the Dean.

(b) (iv), but all the eligibility criteria are met and the candidate has at least one year's experience in a research institute, he/she may be offered contractual appointment for a year.

Based on the above criteria, study carefully whether the following candidates are eligible for the recruitment process and mark your answer as follows. You are not to assume anything other than the information provided in each question. All cases given to you as on 1. 11. 2009.

Mark Answer 1) if he/she is to be shortlisted

Mark answer 2) if he/she is not to be shortlisted

Mark answer 3) if he/she should be referred to the Dean

Mark answer 4) if she/ he may be offered contractual appointment, if required

Mark answer 5) if the data provided is inadequate to take a decision

16. Anil Rath has a doctorate in Library Science from Karnataka University in 2003. Born on July 21, 1969, he graduated in Library and information Science from Karnataka University, where he was Assistant Librarian for four Years since 2005.

17. Dr Samir Bali has a Ph.D Library Science and has been with the Institute of Fundamental Research as Assistant Librarian since October 2008. He graduated with a degree in Library and Information Science in 1994 at the age of 22. He obtained 70% in his graduation.

- 18. Vaishali Shetty has been a librarian at STS University since 2007 when she qualified in the UGC NET examination. She has a degree in Library and Information Science with 60%. Her first job was as junior librarian at TRP Institute of Development Research from October 2000 to December 2001.
- 19. Vivek Jha has a Ph.D in Library and Information Science. He graduated in Library and Information Science in 1992 with 65%. He was born on 1.10.1974. Since July 2005, he has been working as Deputy Librarian at a deemed University.
- 20. A graduated in Library Science with 69 per cent, Dr M.Puri has been working at Ranchi University for a 4 years as Deputy Librarian. She earned her doctorate while working for the Labour Research Institute for 5 years as Assistant Librarian. She is 38 years old as on the required date.
- 21. Megha Vaidya has a graduate degree in Library Science from Punjab University where she has been a librarian for past 5 years. In 2002 she has obtained UGC NET qualification at the age of 29. She obtained 72% in graduation.
- 22. Anup Gupta is obtaining his Ph.D from YCM University, where he has been Junior Librarian since 2004. He qualified in the UGC NET exam in June 2000. He has a degree in Library and Information Science with 62%. His date of birth 17. 10. 1973
- 23. Kirit Shukla obtained her doctorate and Bachelor's degree from Patna University. She obtained 63% in graduation. She obtained her UGC NET qualification in 1998 when she was 26
- 24. Prakash Sinha has been a librarian for a government institute for three years. Prior to this. He was a University Librarian for 7 years after completing his Ph.D in Library Science. He graduated in 1991 with 68% in Library Science. He is exactly 40 years of age on the specified date.
- 25. Rohan Sachdev obtained his UGC NET qualification after his graduation in 1998 when he began working. He has been Assistant Librarian for the past two years with a research institute. He obtained 65% in his graduation in Library Science. He earned his Ph.D in Library Science in 2007. His date of birth is 22. 10. 1974.

Directions (Qs. 26-30): Study the following information carefully and answer the questions given below.

Following are the conditions for selecting Manager – HR in an organization: [IBPS (CWE) Specialist Officers]

The candidate must

Eligibility Test

- (i) be at least 30 years and not more than 35 years as on 1. 3. 2012
- (ii) have scored at least 60% marks in graduation in any discipline
- (iii) have scored at least 65% marks in the Postgraduate Degree/Diploma in Personnel Management/HR
- (iv) have post-qualification experience of at least five years in the Personnel/HR Department of an organization.
- (v) have scored at least 50% marks in the selection process.

In the case of a candidate who satisfies all the above conditions except

(a) (ii), but has scored at least 55% marks in graduation in any discipline and at least 70% marks in post graduate degree/Diploma in Personnel Management/HR, the case is to be referred to GM – HR

(b) (iv), but has post – qualification work experience of at least four years, out of which at least two years as Deputy Manager – HR, the case is to be referred to President – HR.

In each question below, details of one candidate are given. You have to take one of the following courses of action based on the information provided and the conditions and sub – conditions given above and mark the number of that course of action as your answer. You are not to assume anything other than the information provided in each question. All these cases are given to you as on 1. 3. 2012.

Mark Answer (1) if the candidate is not to be selected

Mark Answer (2) if the data provided are not adequate to take a decision

Mark Answer (3) if the case is to be referred to President – HR

Mark Answer (4) If the case is to be referred to GM – HR

Mark Answer (5) If the candidate is to be selected.

26. Rita Bhatta was born on 25th July 1978. She has scored 62% marks in graduation and 65% marks in Postgraduate Diploma in Management. She has been working for the past six years in the Personal Department of an organization after completing her post-graduation. She has scored 55% marks in the selection process.

27. Ashok Pradhan was born on 8th August 1980. He has been working in the Personal Department of an organization for the past four years after completing his post-graduation Degree in Personal Management with 67%. Out of his entire experience, he has been working for the past two years as Deputy Manager-

HR. He has scored 62% marks in graduation and 58% marks in the selection process.

- 28. Alok Verma was born on 4th March 1976. He has been working in the Personal Department of an organization for the past six years after completing his post-graduation Diploma in Personal Management with 66% marks. He has scored 57% marks in the selection process and 63% marks in graduation.
- 29. Swapan Ghosh has been working in the Personal Department of an organization for the past five years after completing his post-graduation degree in HR with 72% marks. He has scored 56% marks in graduation. He was born on 12th May 1977. He has scored 58% marks in the selection process.
- 30. Seema Behl has been working in the Personal Department of an organization for the past seven years after completing her post-graduation Diploma in Personal Management with 70% marks. She was born on 5th July 1979. She has scored 65% marks in graduation and 50% marks in the selection process.

Directions (Qs. 31-40): Study the following information carefully and answer the questions which follow:

A research institute is recruiting a librarian to digitize its information resources, among other duties. Candidates must possess, the following criteria. The candidate must

[Oriental Bank of Commerce (PO)]

- (i) Be not less than 35 years and not exceed 40 years as on 01. 11. 2009
- (ii) Have a Bachelor's Degree in Library and Information Science with 65% marks
- (iii) Have a Ph.D in Library Science
- (iv) Have post qualification experience of at least 4 years in a University Library

However, if the candidate fulfills the above mentioned criteria except

- (a) at (II) above, but has a UGC NET certification with all the other above criteria fulfilled, he/she may be referred to the Dean.
- (b) at (IV) above but all the eligibility criteria are met and the candidate has at least one year's experience in a research institute, he/she may be offered contractual appointment for a year.

Based on the above criteria, study carefully whether the following candidates are eligible for the recruitment process and mark your answer as follows. You are not to assume anything other than the information provided in each question.

All cases are given to you as on 1. 11. 2009

Mark answer (1) if he/she is to be short listed

Mark answer (2) if he/she is not to be shortlisted

Mark answer (3) if he/she should be referred to the Dean.

Mark answer (4) if he/she may be offered contractual appointment if required

Mark answer (5) if the data provided are inadequate to take a decision.

31. Anup Gupta is obtaining his Ph.D from YCM University, where he has been Junior Librarian since 2004. He qualified in the UGC NET exam in June 2000. He has a degree in Library and Information Science with 62%. His date of birth 17. 10. 1973

32. Anil Rath has a doctorate in Library Science from Karnataka University in 2003. Born on July 21, 1969, he graduated in Library and Information Science from Karnataka University, where he was Assistant Librarian for four Years since 2005.

33. Prakash Sinha has been a librarian for a government institute for three years. Prior to this. He was a University Librarian for 7 years after completing his Ph.D in Library Science. He graduated in 1991 with 68% in Library Science. He is exactly 40 years of age on the specified date.

34. Vaishali Shetty has been a librarian at STS University since 2007 when she qualified in the UGC NET examination. She has a degree in Library and Information Science with 60%. Her first job was as junior librarian at TRP Institute of Development Research from October 2000 to December 2001.

35. Rohan Sachdev obtained his UGC NET qualification after his graduation in 1998 when he began working. He has been Assistant Librarian for the past two years with a research institute. He obtained 65% in his graduation in Library Science. He earned his Ph.D in Library Science in 2007. His date of birth is 22. 10. 1974.
36. Kirit Shukla obtained her doctorate and Bachelor's degree from Patna University. She obtained 63% in graduation. She obtained her UGC NET qualification in 1998 when she was 26.
37. Vivek Jha has a Ph.D in Library and Information Science. He graduated in Library and Information Science in 1992 with 65%. He was born on 1.10.1974. Since July 2005, he has been working as Deputy Librarian at a deemed University.
38. Megha Vaidya has a graduate degree in Library Science from Punjab University where she has been a librarian for past 5 years. In 2002 she has obtained UGC NET qualification at the age of 29. She obtained 72% in graduation.
39. Dr. Samir Bali has a Ph.D Library Science and has been with the Institute of Fundamental Research as Assistant Librarian since October 2008. He graduated with a degree in Library and Information Science in 1994 at the age of 22. He obtained 70% in his graduation.
40. A. graduated in Library Science with 69 per cent, Dr. M. Puri has been working at Ranchi University for a 4 years as Deputy Librarian. She earned her doctorate while working for the Labour Research Institute for 5 years as Assistant Librarian. She is 38 years old as on the required date.

Answer with Solution

Concept Applicator

Solution for 1-10

Q. No.	Candidate	(i)	(ii) (a)	(iii) (b)	(iv)	Ans.
1	Ashutosh	✓	✓	(✓)	✓	2
2	Rajni	✓	✓	✓	✓	3
3	Raj Grover	✓	✗	✓	✓	5
4	Shamika	✓	(✓)	✓	✓	1
5	Jasmine	✓	–	✓	✓	4
6	Shyamala	✓	✓	✓	✓	3
7	Anubhav	✓	✓	✓	✓	3
8	Manish	✓	✓	✓	✓	3
9	Harish	✓	✓	(✓)	✓	2
10	Vandana	✗	✓	✓	✓	5

Solution for 11-20

Q. No.	Candidate	i/(a)	ii	iii/(b)	iv	Ans.
11	Shruti	✓	✓	✓	✓	1
12	Pradeep	✓	✓	✓	✓	1
13	Zaheer	(✓)	✓	✓	✓	3
14	Harpeet	(✓)	–	✓	✓	5
15	Deepak	(✓)	✓	–	✓	5
16	Varun	✓	✓	–	✓	4
17	Varsha	(✓)	✓	✓	✓	3
18	Asha	✓	✓	✓	✗	2
19	Nitesh	✓	✓	(✓)	✓	4
20	Tanya	✓	✗	✓	✓	2

Concept Builder

Solution for 1-8:

Q .No.	Candidate	(i)/(b)	(ii)/(a)	(iii)	(iv)	(v)	Ans.
1	Avinash	(✓)	✓	✓	✓	✓	2
2	Nisha	✓	✓	✓	✓	✓	4
3	Vandana	✓	✓	-	✓	✓	3
4	Bhavesh	✓	(✓)	✓	✓	✓	1
5	Shamika	✓	x	✓	✓	✓	5
6	Vijay	✓	✓	x	✓	✓	5
7	Sunil	(✓)	✓	✓	✓	✓	2
8	Rajan	✓	(✓)	✓	✓	✓	1

Solution for 9-13:

Q .No.	Candidate	(i)	(ii)/(b)	(iii)	(iv)/(a)	(v)	Ans.
9	Navin	✓	✓	✓	✓	✓	2
10	Divya	x	✓	✓	✓	✓	1
11	Suresh	✓	✓	✓	✓	✓	2
12	Varun	✓	✓	✓	(✓)	✓	5
13	Sudha	✓	(✓)	✓	✓	✓	4

Solution for 14-23:

Q .No.	i	ii	iii/(a)	iv/(b)	v	Ans.
14	✓	✓	✓	(✓)	✓	5
15	✓	✓	✓	✓	x	2
16	✓	✓	✓	-	✓	3
17	✓	✓	✓	✓	-	3
18	✓	✓	x	✓	✓	2
19	✓	✓	(✓)	✓	✓	4
20	✓	✓	✓	✓	✓	1
21	✓	✓	✓	(✓)	✓	5
22	✓	✓	(✓)	✓	✓	4
23	x	✓	✓	✓	✓	2

Concept Cracker

Solution for 1-10:

Q .No.	i	ii/(a)	iii	iv	v/(b)	Ans.
1	✓	✓	✓	✓	✓	5
2	✓	✓	✓	✓	✓	3
3	✓	✓	✓	✓	✓	5
4	✓	✓	✓	✓	✓	1
5	✓	✓	✓	✓	✓	1
6	✓	✓	✓	✓	✓	4
7	x	✓	✓	✓	✓	2
8	✓	✓	✓	✓	✓	3
9	✓	✓	✓	✓	✓	4
10	x	✓	✓	✓	✓	2

Solution for 11-15:

Q .No.	Candidate	(i)/(a)	(ii)	(iii)	(iv)		Ans.
11	Samir	✓	✓	✓	✓	✓	5
12	Navin	✓	✓	✓	✓	✓	1
13	Neeta	✓	✓	✓	x	(✓)	2
14	Ashok	(✓)	✓	✓	✓	✓	3
15	Gemma	✓	✓	✓	✓	(✓)	4

Solution for 16-25:

Q. No.	Candidate	(i)	(ii)	(iii)	(iv)/(a)	(v)	(vi)/(b)	Ans.
16	Neelam	✓	✓	✓	✓	✓	(✓)	3
17	Anirban	✓	✓	✓	✓	x	✓	2
18	Vaibhav	✓	✓	✓	(✓)	✓	✓	4
19	Sudha	✓	✓	✓	✓	✓	✓	1
20	Ashok	✓	✓	✓	✓	✓	✓	5
21	Suparna	✓	✓	✓	(✓)	✓	✓	4
22	Balwant	x	✓	x	(✓)	✓	✓	2
23	Abhishek	✓	✓	✓	✓	✓	✓	5
24	Shikha	✓	✓	✓	✓	(✓)	(✓)	3
25	Navin	✓	✓	✓	✓	✓	✓	1

Solution for 26-30 :

Q. No.	Candidate	(i)/(a)	(ii)	(iii)/(b)	(iv)	(v)	Ans.
26	S Awasthi	(√)	√	√	√	√	4
27	A Soren	x	√	√	√	√	3
28	S Biswas	√	√	√	√	-	1
29	A Ghosal	√	√	(√)	√	√	5
30	N Jaiswal	√	√	√	√	(√)	2

Concept Deviator**Solution for 1-5 :**

Q. No.	Candidate	(i)/(A)	(ii)/(B)	(iii)	(iv)	(V)	Ans.
1	Shobha	√	(√)	√	√	√	1
2	Rohan	√	√	√	√	√	3
3	Prakash	(√)	√	√	√	√	2
4	Sudha	√	√	√	√	x	4
5	Amit	√	√	√	√	√	5

Solution for 6-15 :

Q. No.	Name	(i)	(ii)/b	(iii)	(iv)/(a)	(v)	Ans.
6	Arnab	√	√	√	√	√	1
7	Neeta	√	√	-	√	√	5
8	Sudesh	√	(√)	√	√	√	3
9	Sudha	√	(√)	√	√	√	3
10	Sunita	x	√	x	√	√	4
11	Nayan	√	√	√	√	√	1
12	Sunil	√	√	√	√	(√)	2
13	Yusuf	√	√	√	√	-	5
14	Navind	√	x	√	√	x	4
15	Avinash	√	√	√	√	(√)	2

Solution for 16-25 :

Q. No.	Candidate	i	ii/(a)	iii	iv/(b)	Ans.
16	Anil	x	✓	✓	✓	2
17	Samir	✓	✓	✓	(✓)	4
18	Vaishali	-	✓	-	x	2
19	Vivek	✓	✓	✓	-	5
20	M Puri	✓	✓	✓	-	5
21	Megha	✓	✓	✓	-	5
22	Anup	✓	✓	x	-	2
23	Kirit	✓	✓	✓	-	5
24	Prakash	✓	✓	✓	-	1
25	Rohan	✓	✓	✓	-	4

Solution for 26-30 :

Q. No.	Candidate	i	ii/(a)	iii	iv/(b)	v	Ans.
26	Rita	✓	✓	✓	✓	✓	5
27	Ashok	✓	✓	✓	(✓)	✓	3
28	Alok	x	✓	✓	✓	✓	1
29	Swapan	✓	(✓)	✓	✓	✓	4
30	Seema	✓	✓	✓	✓	✓	5

Solution for 31-40 :

Q. No.	i	ii/(a)	iii	iv/(b)	Ans.
31	✓	(✓)	x	✓	2
32	x	-	✓	✓	2
33	✓	✓	✓	✓	1
34	-	(✓)	-	(✓)	2
35	✓	✓	✓	(✓)	4
36	✓	-	-	-	5
37	✓	✓	✓	✓	1
38	✓	✓	-	✓	5
39	✓	✓	✓	(✓)	4
40	✓	✓	-	✓	5

Chapter

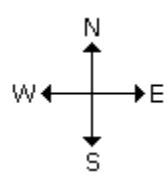
9

Distance and Direction

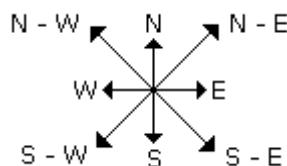
Section	Level	No. of Questions
Concept Applicator	Very Easy	15
Concept Builder	Easy	13
Concept Cracker	Moderate	7
Concept Deviator	Difficult	8

THEORY

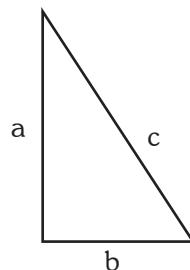
Introduction: There are four main directions - East, West, North and South, as per the convention we generally take upward direction of a paper as north direction and remaining directions as shown below:-



Other than 4 main direction there are four cardinal directions - North-East (N-E the direction exactly between North and East), North-West (N-W the direction exactly between North and West), South-East (S-E the direction exactly between South and East), and South-West (S-W the direction exactly between South and West) as shown below:



The main formula for Direction questions is Pythagoras Theorem.



As per the Pythagoras theorem $a^2 + b^2 = c^2$

Some Pythagorean triplets are:

3, 4, 5 and its multiples,

- 5, 12, 13 and its multiples.
 7, 24, 25, and its multiples.
 8, 15, 17 and its multiples.
 9, 40, 41 and its multiples.
 11, 60, 61 and its multiples.
 12, 35, 37 and its multiples.

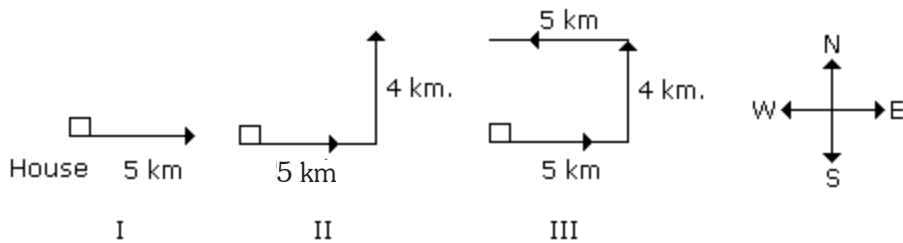
Ex. 1: Rajesh while doing morning walk, goes 5 km in the East, then he turns to his left and goes 4 km. Finally he turns to his left and goes 5 km. Now how far is he from his house and in what direction?

Solution: the picture below represents each action-

Here I is: moving 5 km east

II is: After travelling in east direction turning left means in north direction (4km)

III is: After travelling in north direction turning left means in west direction (5km)



From third position it is clear he is 4 km from his house and is in North direction.

1. CONCEPT APPLICATOR

1. A man is facing towards west and turns through 45° clockwise, again 180° clockwise and then turns through 270° anti-clockwise. In which direction is he facing now?
 - West
 - North-west
 - South
 - South-west
 - None of these
2. I am facing east. I turn 100° in the clockwise direction and then 145° in the anti clockwise direction. Which direction am I facing now?
 - East
 - North-east
 - North
 - South-west
 - None of these
3. A river flows from west to east and on the way turns left and goes in a semi-circle round a hillock, and then turns left at right angle. In which direction is the river finally flowing?
 - West
 - East
 - North
 - South
 - None of these
4. You go north, turn right, then right again and then go to the left. In which direction are you now?
 - North
 - South
 - East
 - West
 - None of these
5. Kunal walks 10 kilometres towards North. From there, he walks 6 kilometres towards south. Then, he walks 3 kilometres towards east. How far and in which direction is he with reference to his starting point?
 - 5 kilometres West
 - 5 kilometres North-east
 - 7 kilometres East
 - 7 kilometres West
 - None of these
6. Rohan walks a distance of 3 km towards North, then turns to his left and walks for 2 km. He again turns left and walks for 3 km. At this point he turns to his left and walks for 3 km. How many kilometres is he from the starting point?
 - 1km
 - 2km
 - 3km
 - 5 km
 - None of these
7. Namita walks 14 metres towards west, then turns to her right and walks 14 metres and then turns to her left and walks 10 metres. Again turning to her left she walks 14 metres. What is the shortest distance (in metres) between her starting point and the present position?
 - 10
 - 24
 - 28
 - 38
 - None of these
8. A man leaves for his office from his house. He walks towards East. After moving a distance of 20 m, he turns South and walks 10 m. Then he walks 35m towards the West and further 5m towards the North. He then turns towards East and walks 15 m. What is the straight distance (in metres) between his initial and final position?
 - 0
 - 5
 - Cannot be determined
 - None of these
9. Amit walked 30 metres towards East, took a right turn and walked 40 metres. Then he took a left turn and walked 30 metres. In which direction is he now from the starting point?
 - North-east
 - East
 - South-east
 - South
 - None of these
10. Maya starts at point T, Walks straight to point U which is 4 ft away. She turns left at 90° and walks to W which is 4 ft away, turns 90° right and goes 3 ft to P, turns 90° right and walks 1 ft to Q, turns left at 90° and goes to V, which is 1 ft away and once again turns 90° right and goes to R, 3 ft away. What is the distance between T and R ?
 - 4 ft
 - 5 ft
 - 7 ft
 - 8 ft
 - None of these
11. A person starts from a point A and travels 3 km eastwards to B and then turns left and travels thrice that distance to reach C. He again turns left and travels five times the distance he covered between A and B and reaches his destination D. The shortest distance between the starting point and the destination is ?
 - 12 km
 - 15 km
 - 16 km
 - 18 km
 - None of these

12. Sanjeev walks 10 metres towards the south. Turning to the left, he walks 20 metres and then moves to his right. And moving a distance of 20 metres, he turns to the right and walks 20 metres. Finally, he turns to the right and moves a distance of 10 metres. How far and in which direction is he from the starting point?
- 10 metres North
 - 20 metres South
 - 20 metres North
 - 10 metres South
 - None of these
13. A man walks 1 km towards East and then he turns to his south and walks 5 km. Again he turns to East and walks 2 km, after this he turns to North and walks 9 km. Now, how far is he from his starting point ?
- 3 km
 - 4 km
 - 5 km
 - 7 km
 - None of these

2 CONCEPT BUILDER

1. Town D is 13 Km. towards the East of town A. A bus starts from town A travels 8 Km. towards West and takes a right turn. After taking the right turn, it travels 5 Km. and reaches town B. From town B the bus takes a right turn again, travels 21 Km. and stops. How far and towards which direction must the travel to reach town D? [Syndicate bank –PO]
- 13 Km. towards South
 - 5 Km. towards West
 - 21 Km. towards South
 - 5 Km. towards South
 - None of these

Directions (Qs. 2-3): Study the following information to answer the given questions:

Point P is 9m towards the East of Point Q. point R is 5m towards the South of point P. point S is 3m towards the West of point R. point T is 5m towards the north of point S. Point V is 7m towards the South of Point S.

[Corporation bank PO]

2. If a person walks in a straight line for 8m towards west from point R, which of the following points would he cross first?
- V
 - Q
 - T
 - S
 - Cannot be determined

14. Going 50 m to the south of her house, Radhika turns left and goes another 20 m. Then, turning to the North, she goes 30 m and then starts walking to her house. In which direction is she walking now?
- North-west
 - North
 - South-east
 - East
 - Bone of these
15. A walks 10 metres in front and 10 metres to the right. Then every time turning to his left, he walks 5, 15 and 15 metres respectively. How far is he now from his starting point ?
- 5 metres
 - 10 metres
 - 20 metres
 - 23 metres
 - None of these

3. Which of the following points are in a straight line?
- P, R, V
 - S, T, Q
 - P, T, V
 - V, T, R
 - S, V, T

Directions (Qs. 4-5): Study the following information and answer the questions given:

Sam walked 5m towards north from point A and reached point B. He took a right turn from point B and walked 7m and reached point C. He took a right turn from point and walked 10m to reach point D. He took another right turn from point D and walked 6m to reach point E. Sam took a right turn from point E and walked 5m to reach point F.

[Corporation bank]

4. How far and in which direction is point F from point A?
- 1m towards east
 - 1m towards south
 - 1m towards north
 - 1m towards west
 - Point A coincides with point F
5. What was the total distance that Sam walked ?
- 35m
 - 38m
 - 32m
 - 31m
 - None of these

6. A school bus driver starts from the school, drives 2 km. towards North, takes a left turn and drives for 5 km. he then takes a left turn and drives for 8 km. before taking a left turn again and driving for further 5 km. The driver finally takes a left turn and drives 1 km. before stopping. How far and towards which direction should the driver drive to reach the school again? [IBPS – PO/MT]
- (a) 3 km. towards North (b) 7 km. towards east
 (c) 6 km. towards south (d) 6 km. towards west
 (e) 5 km. towards north
7. Rajesh starting from his house, goes 4 km. in the East, then he turns to his right and goes 3 km. What is his final distance from his house?
- (a) 4 km. (b) 5 km.
 (c) 5.5 km. (d) 4.5 km.
 (e) None of these
8. Ricky after travelling for 5 km. took right turn and travelled 6 km. before taking left turn and then travelled for 3 km. find his final distance from home.
- (a) 10 km (b) 12 km
 (c) 9 km (d) 11 km
 (e) None of these
9. In a game “Pass the ball” position of some players are as follows:
 ‘A’ is 20 meters to the north of ‘B’ who is 18 meters to the east of ‘C’ who is 12 meters to the west of ‘A’. If ball was initially with ‘B’ and is passed to ‘C’ in which direction is it from his starting point?
- (a) North - East (b) North - West
 (c) South - East (d) North
 (e) East
10. Rimpy on the way to her school starts walking from her home towards south. After walking 15 meters she turns towards north. After walking 20 meters, she turns towards east and walks 10 meters. She then turns towards south and walks 5 meters. How far is she from his original position and in which direction?
- (a) 10 meters, East (b) 10 meters, South- East
 (c) 10 meters, West (d) 10 meters, North-East
 (e) None of these
11. An ant moves 10 cm towards east and turns to the right hand moves 3 cm. Then it moves to its right and moved 3 cm. It then turns to his left and moves 2 cm. Finally it turns to his right and travel's 7 cm. how far and in which direction it is now from the starting point?
- (a) 10 cm, East (b) 9 cm, North
 (c) 8 cm, West (d) 5 cm, West
 (e) None of these
12. Rimpy, on her morning walk, starting from home she walks to the North for 250 m, then she turns to her right and travels 20 m and then she again turns to the right and drives straight another 250 m. How much distance has she now to cover to go back to her home?
- (a) 25 m (b) 20 m
 (c) 4 m (d) 40 m
 (e) 30 m
13. Amar on his new car 1st drives towards North 4 Kms and turns right and drives 5 Kms. Then he turns towards South and drives 2 Kms, then he takes a right turn and drives 6 Kms. What is the distance of Amar from his starting point?
- (a) 16 Kms (b) 12 Kms
 (c) 2 Kms (d) 4 Kms
 (e) $\sqrt{5}$ kms

3 CONCEPT CRACKER

Directions (Qs. 1-4): Study the following information carefully and answer the given questions.

1. Ram walks 10 m South his house, turns left and walks 25 m, again turns left and walks 40 m, then turn right and walks 5 m to reach his school. In which direction is the school from his house ?
- (a) South-west (b) North-east
 (c) East (d) North
 (e) none of these
2. I am facing West. I turn 45° in the clockwise direction and then 180° in the same direction and then 270° anti-clockwise. which direction am facing now ?
- (a) south-west (b) south
 (c) West (d) North-west
 (e) East
3. Two buses start from the opposite points of a main road, 150 km. apart. The first bus runs for 25 km. takes a right turn and then runs for 15 km. It then turns left, runs for another 25 km. and takes the direction

back to reach the main road. In the meantime, due to a minor breakdown, the other bus has run only 35 km. along the main road. What would be the distance between the two buses at this point?

Directions (Qs. 5-7): Seven poles A, B, C, D, E, F and G are put in such a way that the distance between the next two decreases by 1 metre. The distance between the first two poles, A and B, is 10 metres. Now answer the following questions.

4. CONCEPT DEVIATOR

Directions (Q. 1-4):

A country has the following types of traffic signals.

3 red lights = stop;

2 red lights = turn left;

3 green lights = go at 100 kmph speed;

1 red light = turn right;

1 green light = go at 20 kmph speed

2 green lights = go at 40 kmph speed

A motorist starts at a point on a road and follows all traffic signals literally. His car is heading towards the north. He encounters the following signals (the time mentioned in each case below is applicable after crossing the previous signal).

Starting Point – 1 green light;

After half an hour, 1st signal – 2 red & 2 green lights;

After 15 minutes, 2nd signal – 1 red light;

After half an hour, 3rd signal – 1 red & 3 green lights;

After 24 minutes, 4th signal – 2 red & 2 green lights;

After 15 minutes, 5th signal – 3 red lights

1. The total distance traveled by the motorist from the starting point till the last signal is:

- (a) 90 km. (b) 100 km.
(c) 120 km. (d) None of these.

What is the position radial distance of the motorist when he reaches the last signal:

(a) 45 km. directly north of Starting Point.
(b) 30 km. directly to the east of the Starting Point.
(c) 50 km. away to the northeast of the Starting Point.
(d) 45 km. away to the northwest of the Starting Point.

After the starting point if the 1st signal were 1 red and 2 green lights, what would be the final position of the motorist:

(a) 30 km. to the west and 20 km. to the south.
(b) 30 km. to the west and 40 km. to the north.
(c) 50 km. to the east and 40 km. to the north.
(d) Directly 30 km. to the east.

If at the starting point, the car was heading towards south, what would be the final position motorist:

(a) 30 km. to the east and 40 km. to the south.
(b) 50 km. to the east and 40 km. to the south.
(c) 30 km. to the west and 40 km. to the south.
(d) 50 km. to the west and 20 km. to the north.

Directions (Q. 5-7):

In a motor race competition certain rules are given for the participants to follow. To control direction and speed of the motorists, guards are placed at different signal points with caps of different colour.

Guard with red cap indicates the direction of participant's movement and guards with green cap indicates the speed of the participant's movement. At any signal point presence of three guards, two guards and one guard with red cap means the participant must stop, turn left and turn right respectively. Signal points with three guards, two guards and one guard with green cap means the participants must move at 10, 4 and 2 km/hour respectively.

Kartikay, one of the participants, starts at a point where his car was heading towards north and he encountered signals as follows: at start point one guard with green cap; after half an hour two guards with red cap and two guards with green cap at first signal; after fifteen minutes one guard with red cap at second signal; after half an hour one guard with red cap and three guards with green caps at third signal; after 24 minutes two guard with red cap and two guards with green cap at fourth signal; after 15 minutes three guard with red cap at fifth signal. (Time mentioned in each case is applicable after crossing the previous signal).

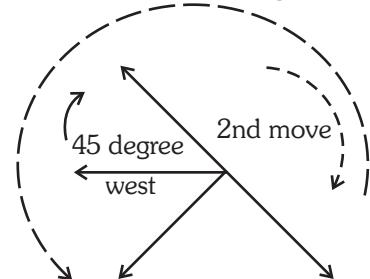
5. Total distance travelled by Kartikay from starting point till last signal is:
- | | |
|-----------|------------|
| (a) 9 km. | (b) 10 km. |
| (c) 8 km. | (d) 12 km. |

6. What would be the final position of Kartikay if one guard with red cap and two guards with green caps were placed at the first signal point after the starting point?
- 3.0 km. to the west and 2.0 km. to the south
 - 3.0 km. to the west and 4.0 km. to the north
 - 5.0 km. to the east and 4.0 km. to the north
 - 2.0 km. to the west and 4.0 km. to the south
7. If at the starting point Kartikay was heading towards south what would be his final position?
- 3.0 km. to the east and 4.0 km. to the south
 - 5.0 km. to the east and 4.0 km. to the south
 - 3.0 km. to the west and 4.0 km. to the south
 - 5.0 km. to the west and 2.0 km. to the north
8. Mr Raghav went in his car to meet his friends John. He Drove 30 kms towards north and then 40 kms towards west. He then turned to south and covered 8 kms. Further he turned to east and moved 26 kms. Finally he turned right and drove 10 kms and then turned left to travel 19 kms. How far and in which direction is he from the starting point?
- East of starting point, 5 kms
 - East of starting point, 13 kms
 - North East of starting point, 13 kms
 - North East of starting point, 5 kms

Answer with Solution

Concept Applicator

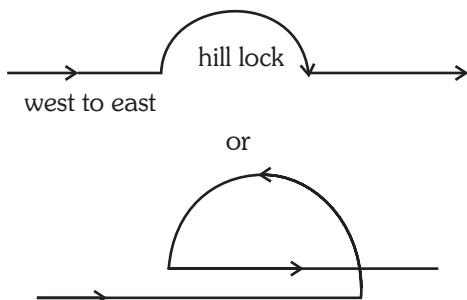
1. (d) 3rd move of 270 degree



Towards South west direction the person is standing.

2. (b) North east direction.

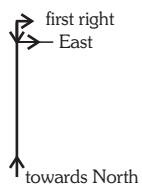
3. (b)



Above directions shows the two possibilities.

East

4. (c) First move to north direction, then turn right, again turn right without moving from the position than turn left and move. Follow the figure

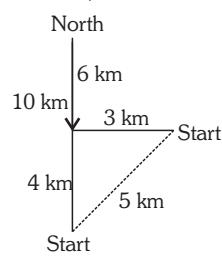


5. (e) Using of Pythagoras,

$$H^2 = P^2 + B^2$$

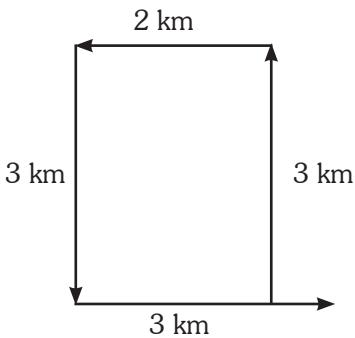
$$H^2 = (4)^2 + (3)^2 = 16 + 9 = 25$$

$H^2 = 25$, $H = 5$ km (-5 km can not possible)

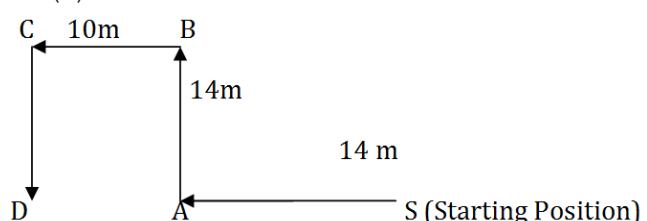


Hence, 5 km east.

6. (a)



7. (b)



Required answer: $DA + SA = 10 + 14 = 24$ m

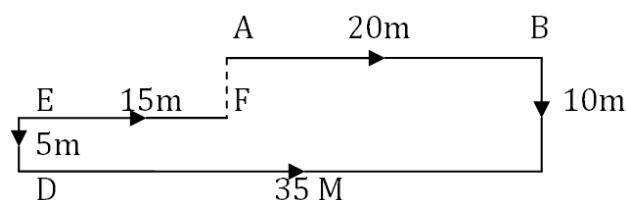
8. (b): The movements of the man from A to F are as shown in Figure

Clearly, $DC = AB + EF$

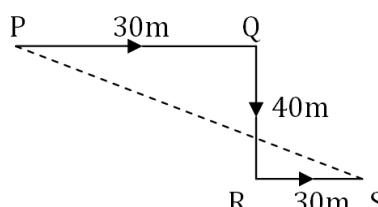
\therefore F is in line with A

Also, $AF = (BC - DE) = 5$ m.

So, the man is 5 metres away from his initial position.

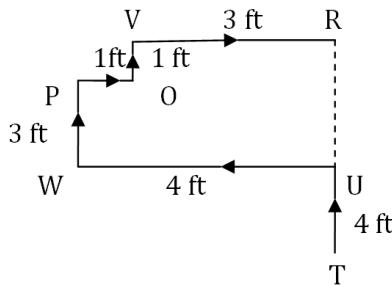


9. (c) The movements of Amit are as shown in Fig (P to Q, Q to R and R to S). Clearly, his final position is S which is to the South – east of the starting point P.



10. (d) The movements of Maya from T to R are as shown in Figure

Distance between T and R
 $= TR = TU + UR$
 $= TU + PW + QV$
 $= (4 + 3 + 1)\text{ft} = 8\text{ ft.}$



11. (b) The movements of the person are as shown in Figure

Clearly, AB = 3 km,
 $BC = 3AB = (3 \times 3)\text{ km} = 9\text{ km},$
 $CD = 5AB = (5 \times 3)\text{ km} = 15\text{ km},$

Draw AE \perp CD.

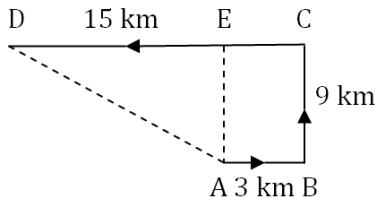
Then, CE = AB = 3 km and AE = BC = 9 km

$$DE = (CD - CE) = (15 - 3)\text{ km} = 12\text{ km.}$$

$$\text{In } \triangle AED, AD^2 = AE^2 + DE^2$$

$$\Rightarrow AD = (\sqrt{9^2 + (12)^2})\text{ km} = \sqrt{225}\text{ km}$$

$$\therefore \text{Required distance} = AD = 15\text{ km}$$



12. (b) The movements of Sanjeev from A to F are as shown in Figure

Clearly, Sanjeev's distance from starting point A

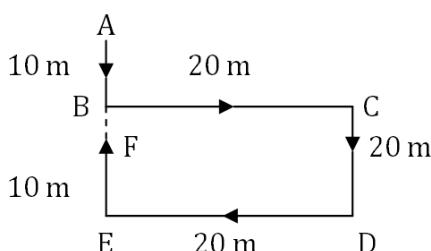
$$= AF = (AB + BF)$$

$$= AB + (BE - EF) = AB + (CD - EF)$$

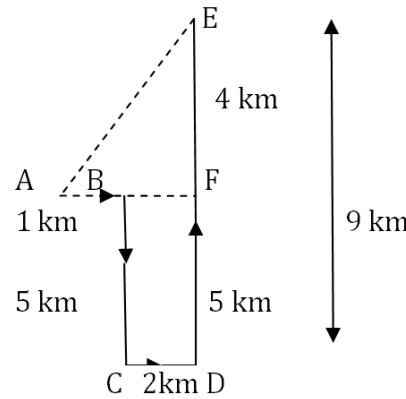
$$= [10 + (20 - 10)]\text{ m} = (10 + 10)\text{ m} = 20\text{ m.}$$

Also, F lies to the South of A.

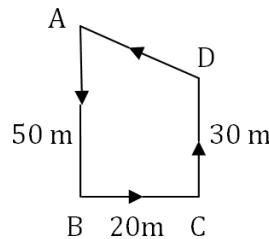
So, Sanjeev is 20 metres to the south of his starting point.



13. (c) The movements of the man are as shown in Figure (A to B, B to C, C to D, D to E).
 Clearly, $DF = BC = 5\text{ km.}$
 $EF = (DE - DF) = (9 - 5)\text{ km} = 4\text{ km}$
 $BF = CD = 2\text{ km}$
 $AF = AB + BF = AB + CD = (1 + 2)\text{ km} = 3\text{ km.}$
 Man's distance from starting point A
 $\sqrt{AF^2 + EF^2} = \sqrt{3^2 + 4^2} = \sqrt{25} = 5\text{ km.}$



14. (a) The movements of Radhika are as shown in Figure (A to B, B to C, C to D and D to A). Clearly, she is finally moving in the direction DA i.e. North – west.



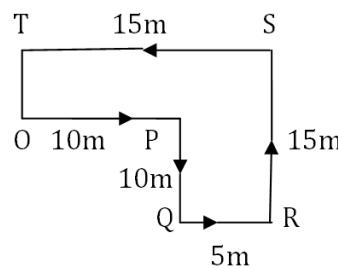
15. (a) The movements of A are as shown in Figure (O to P, P to Q, Q to R, R to S and S to T)

Since $TS = OP + QR$, so T lies in line with O.

A's distance from the starting point O

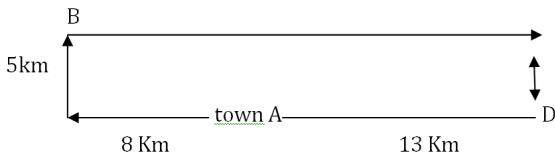
$$= OT = (RS - PQ)$$

$$= (15 - 10)\text{ m} = 5\text{ m.}$$

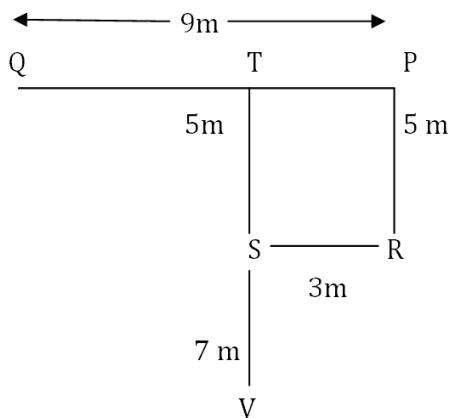


Concept Builder

1. (d)

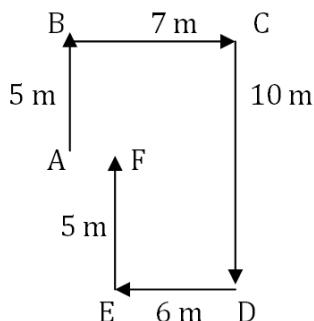


5 km towards south.

Solution for 2-3:

2. (d)

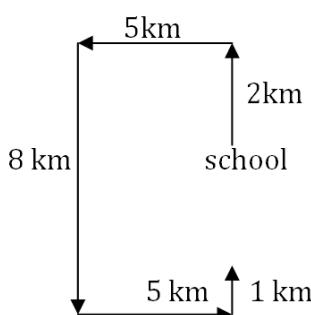
3. (e)

Solution for 4-5:

4. (a)

5. (e) $5 + 7 + 10 + 6 + 5 = 33 \text{ m}$

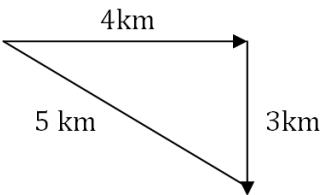
6. (e)



Remaining distance = $8 - (2 + 1) = 5 \text{ km}$

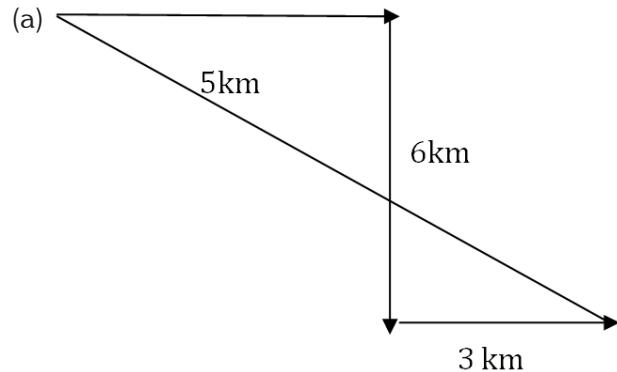
Hence the driver requires to drive 5 km more.

7. (b)



Hence option (b)

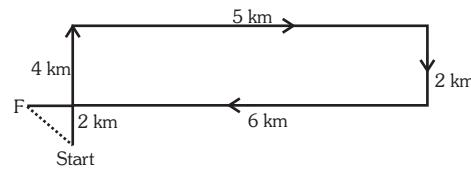
8.



Hence, option (a), using pythagorus theorem.

9. (b) 10. (a) 11. (d) 12. (b)

13. (e)



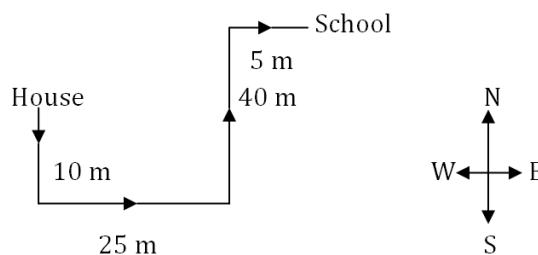
∴ Distance between starting point & finishing point

$$= \sqrt{(2)^2 + (1)^2} = \sqrt{5} \text{ kms}$$

Hence, option (e)

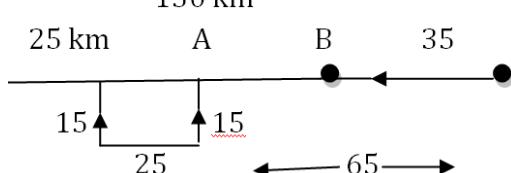
Concept Cracker

1. (b) School is in north – east direction



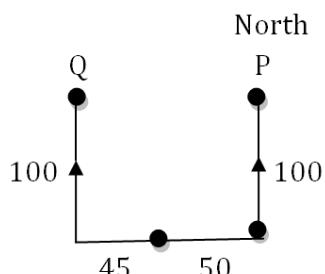
2. (a) $45^\circ + 180^\circ - 270^\circ = -45^\circ$ ie, 45° anticlockwise from initial position. Hence, the required direction is south – west.

3. (a) 150 km

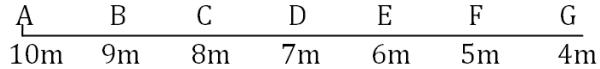


Clearly distance between A and B is 65 km

4. (c)



5. (c) After removing the pole the remaining poles are 6 then distance between two poles would be $45 \div 5 = 9$ m.

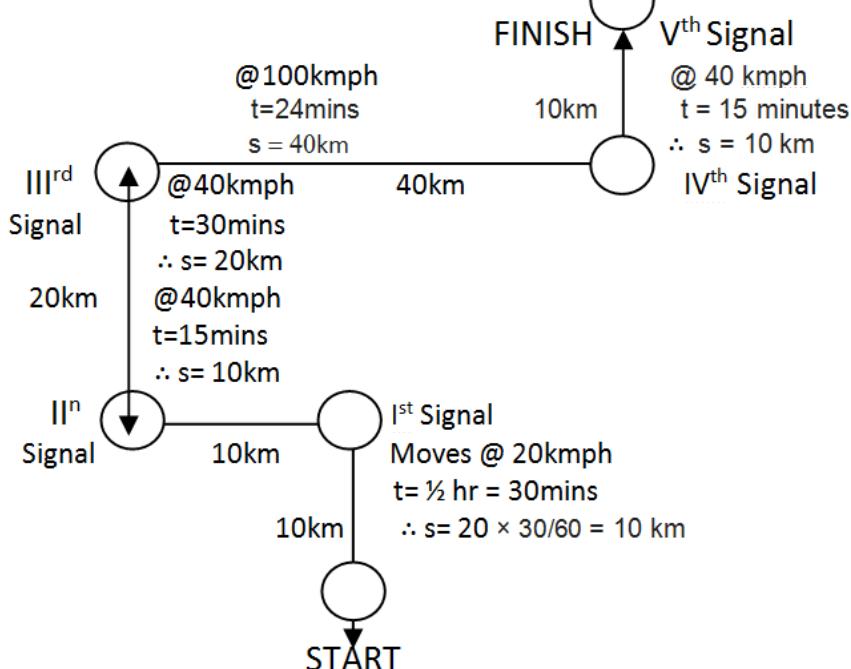
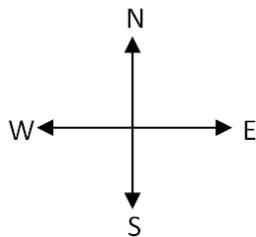


6. (a) The distance between pole G and C = $8 + 7 + 6 + 5 = 26$ m

7. (c) The distance between A and G
 $= (10 + 9 + \dots + 5)$

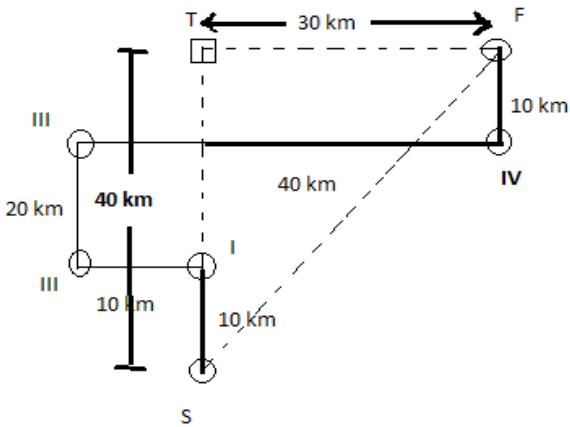
Concept Deviator

1. (a)

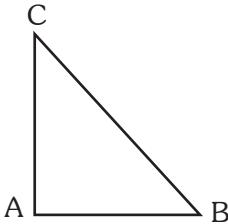


Note: s = Distance covered; v = Velocity (km/hr) t = Time taken; $s = v \times t$ The total distance travelled by the motorist from the starting point till last signal is $10 + 10 + 20 + 40 + 10 = 90$ km.

2. (c)



Note: According to Pythagoras' theorem, for a rightangled triangle

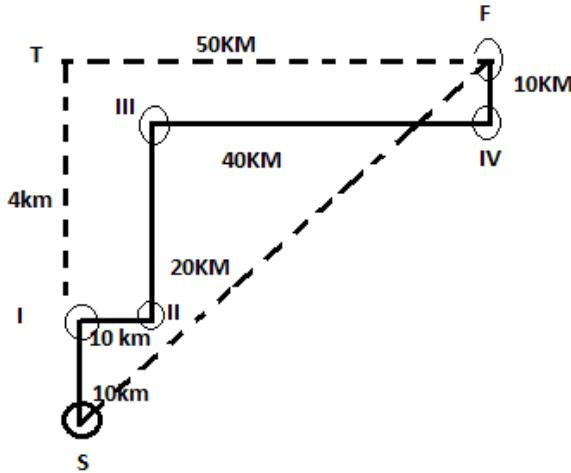


$$BC^2 = AB^2 + AC^2$$

$$BC = \sqrt{AB^2 + AC^2}$$

$$\sqrt{(ST^2 + TF^2)} = \sqrt{(40^2 + 30^2)} = \sqrt{2500} = 50 \text{ km}$$

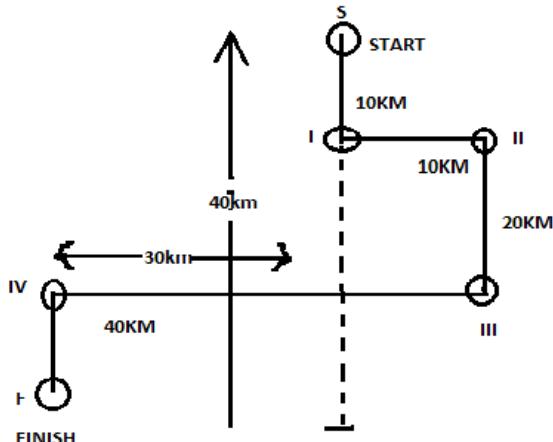
3. (c) For the case when 1st signal were 1 red and 2 green light, the surface diagram will be as given below.



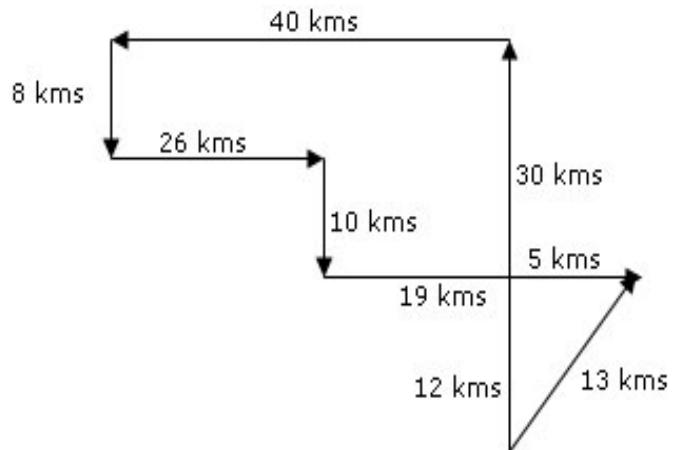
$$TF = 50 \text{ km}; ST = 40 \text{ km}$$

Considering the above figure, option 3 is correct, 50 km to the east and 40 km to the north.

4. (c)



5. (a) From the above we can conclude that option (c) is correct.
 (a) Total Distance travelled by Kartikay from starting point till last signal = $(1 + 1 + 2 + 4 + 1)$ km = 9 km.
 6. (a) As Kartikay started heading north, he will be 3.0 km to the west and 2.0 km to the south if one guard with red cap and two gaards with green caps were placed at the first signal point.
 7. (c) As Kartikay started heading south, he will be 3.0 km to the west and 4.0 km to the south.
 8. (c) From the given information we can draw the diagram:



From the diagram we can conclude that finally he is 13 kms in the North-East direction from the starting point.

Chapter

10

Analogy

Section	Level	No. of Questions
Concept Applicator	Very Easy	50
Concept Builder	Easy	55
Concept Cracker	Moderate	34
Concept Deviator	Difficult	15

THEORY

The dictionary meaning of analogy is corresponding items or correspondence. In this chapter we have to find a particular relationship from the given relationship. In competitive exams, this is given to check one's overall knowledge, power of reasoning and ability to think concisely and accurately.

RELATIONSHIPS

1. Gender with Respective name :

EX : Bull : Cow

Cow is the female side of Bull.

Examples are given below :

Dog : Bitch	Horse : Mare	Cock : Hen	Drone : Bee
Stag : Doe	Lion : Lioness	Colt : Filly	Bullock : Heifer
Gander : Goose	Fox : Vixen	Drake : Duck	Bachelor : Spinster
Nephew : Niece	Son : Daughter	Lord : Lady	Brother : Sister
Wizard : Witch	Monk : Nun	Master : Mistress	Tutor : Governess
Earl : Countess			

2. Animal with their respective Young one :

EX : Dog : Puppy

Puppy is the young one of Dog

Some more examples are given below :

Bear : Cub	Hen : Chick	Cat : Kitten	Horse : Colt/Foal
Lion/Tiger : Cub	Man : Child	Duck : Duckling	Sheep : Lamb
Insect : Larva	Butterfly : Caterpillar	Stag : Fawn	Frog : Tadpole
Cow : Calf	Deer : Fawn	Swan : Cygnet	Cockroach : Nymph

Analogy**3. Individual and Living place :****EX :** Lion : Den

A Lion lives in DEN.

Some more examples are given below :

Bee : Hive	Bird : Nest	Cow : Byre/Pen	Eagle : Eyrie
Hare : Burrow	Horse : Stable	Dog : Kennel	Mouse : Hole
Owl : Barn	Pig : Sty	Spider : Wave	Convict : prison
Eskimo : Igloo	Gypsy : Caravan	King : Palace	Knight : Mansion
Lunatic : Asylum	Monk : Monastery	Nun : Convent	Peasant : Cottage
Soldier : Barrack			

4. Country and capital :**EX.** Afghanistan : Kabul

Kabul is the capital of Afghanistan.

Some more examples are given below :

Australia : Canberra	Canada : Ottawa	Japan : Tokyo	Austria : Vienna
Spain : Madrid	Italy : Rome	Bangladesh : Dhaka	Greece : Athens
Egypt : Cairo	Bhutan : Thimpu	China : Beijing	France : Paris
Iraq : Baghdad	Iran : Teheran	Denmark : Copenhagen	India : Delhi
Nepal : Kathmandu	Cuba : Havana	Indonesia : Jakarta	Kenya : Nairobi
Norway : Oslo	Portugal : Lisbon	Pakistan : Islamabad	U.K : London
Srilanka : Colombo	Russia : Moscow	Thailand : Bangkok	USA : Washington

5. State and capital :**EX.** Maharashtra : Mumbai

Mumbai is the capital of Maharashtra.

Some more examples are given below :

Karnataka : Bengaluru	Assam : Dispur	Bihar : Patna	Sikkim : Gangtok
Odisha : Bhuvaneshwar	Rajasthan : Jaipur	Himachal Pradesh : Shimla	U.P : Lucknow
Kerala : Trivandrum	Gujarat : Ahmedabad	Meghalaya : Shillong	Nagaland : Mizoram
Tamilnadu : Chennai	Andhra Pradesh : Hyderabad	West Bengal : Kolkata	

6. Country and currency :**EX.** India : Rupee

Rupee is the currency of India

Some more examples are given below :

Afghanistan : Afghan Afghani	Bangladesh : Taka	Burma : Kyat	China : Yuan
Greece : Drachma	Iran : Rial	Iraq : Dinar	Japan : Yen
Korea : Won	Kuwait : Dinar	UK : Pound	USA : Dollar
Thailand : Bhat	UAE : Dirham	Turkey : Lira	

7. Instrument and Measurement :**EX.** Barometer : Pressure

Barometer is the instrument used to measure pressure

Some more examples are given below :

Thermometer : Temperature	Anemometer : Wind	Odometer : speed
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Hygrometer : Humidity
 Ammeter : Current
 Seismograph : Earthquakes

Balance : Mass
 Taseometer : Strains
 Sphygmomanometer : Blood Pressure

Scale : Length
 Screw-gauge : Thickness

8. Quantity and Unit :-

EX. Length : Metre

Metre is the unit of measuring Length

Some more examples are given below :

Mass : Kilogram	Time : Second
Resistance : Ohm	Volume : Litre
Potential : Volt	Work : Joule
Area : Hectare	Temperature : Degree
Magnetic field : Oersted	Luminosity : Candela

Force : Newton	Energy : Joule
Angle : Radians	Power : Watt
Current : Ampere	Pressure : Pascal
Conductivity : Mho	

9. Animal and movement :

EX : Duck : Waddle

Waddling is the name given to the movement of Duck.

Some more examples are given below :

Bird : Fly	Cock : Strut	Eagle : Swoop	Owl : flit
Bear : Lumber	Donkey : Trot	Elephant : Amble	Horse : Gallop
Lamb : Frisk	Lion : Prowl	Mouse : Scamper	Rabbit : Leap

10. Animal/Thing and Sound :

EX : Lion : Roar

Roar is the sound produced by Lion

Some more examples are given below;

Donkey : Bray	Frog : Croak	Goat : Bleat	Horse : Neigh
Snake : Hiss	Jackie : Howl	Mice : squeak	Cat : Mew
Cattle : Low	Camel : Grunt	Elephant : Trumpet	Monkey : Gibber
Crow : Caw	Owl : Hoot	Sparrow : Chirp	Cock : Crow
Duck : Quack	Hen : Cackle	Bells : Chime	Drum : Beat
Coins : Jingle	Lion : Roar	Leaves : Rustle	Rain : Patter

11. Individual/Thing and class :

EX : Lizard : Reptile

Lizard belongs to the class Reptile.

Some more examples are given below :

Man : Mammal	Butterfly : Insect	Whale : Mammal	Ostrich : Bird
Snake : Reptile	Rat : Rodent	Frog : Amphibian	Pen : Stationery
Curtain : Drapery	Chair : Furniture	Cup : Crockery	Shirt : Garment

12. Individuals and group :

EX : Sailors : Crew

A group of sailors is called Crew.

Some more examples are given below :

Cattle : Herd	Sheep : Flock	Flowers : Bouquet	Bees : Swarm
Riders : Cavalcade	Men : Crowd	Grapes : Bunch	Singers : Chorus
Artists : Troupe	Soldiers : Army	Fish : Shoal	Robbers : Gang
Players : Team	Musicians : Band	Pupils : Class	Ministers : Council
Geese : Gaggle	Chickens : Brood	Pilgrims : Caravan	Goods : Stock
Nomad : Horde	Termites : Colony	Rioters : Mob	Drawers : Chest

There are many such relationships that we must aware :

1. CONCEPT APPLICATOR

Directions (Qs. 1-50): There is a certain relation between two given words on one side of :: and one word is given on another side of :: while another word is to be found from the given alternatives, having the same relation with this word as the given pair has. Select the best alternatives.

- | | |
|---|--|
| 1. Lakshadweep : Kavaratti :: Andaman and Nicobar : ?
[I.A.F.] | 10. Square : Diamond :: Circle : ? [Hotel Management]
(a) Smooth
(b) Round
(c) Oval
(d) Silver |
| (a) Port Blair
(b) Daman
(c) Pondicherry
(d) Silvassa | 11. Man : Machine :: Master : ?
(a) Worker
(b) Manager
(c) House
(d) Slave |
| 2. Rat : Cat :: Worm : ?
[S.S.C.] | 12. Scrap : Food :: Lees : ?
(a) Bread
(b) Tea
(c) Wine
(d) Rice |
| (a) Fishing
(b) Earth
(c) Bird
(d) Silk | 13. Safe : Secure :: Protect : ?
[S.S.C.]
(a) Conserve
(b) Sure
(c) Guard
(d) Lock |
| 3. Walking : Running :: Smiling : ?
[R.R.B.] | 14. Chair : Furniture :: Shoe : ?
[Bank Recruitment]
(a) Socks
(b) Footwear
(c) Leather
(d) Cobbler |
| (a) Feeling
(b) Laughing
(c) Face
(d) Weeping | 15. Typist : Typewriter :: Writer : ?
[S.S.C.]
(a) Book
(b) Paper
(c) Script
(d) Pen |
| 4. Skirmish : War :: Disease : ?
[Hotel Management] | 16. Boat : Ore :: Bicycle : ?
(a) Pedal
(b) Seat
(c) Road
(d) Wheel |
| (a) Medicine
(b) Patient
(c) Epidemic
(d) Infection | 17. Book : Publisher :: Film : ?
[S.S.C., R.R.B.]
(a) Producer
(b) Director
(c) Editor
(d) Writer |
| 5. Coherent : Consistent :: Irate : ?
[Hotel Management] | 18. Radio : Listener :: Film : ?
[S.S.C.]
(a) Producer
(b) Actor
(c) Viewer
(d) Director |
| (a) Angry
(b) Unreasonable
(c) Unhappy
(d) Irritated | 19. Thunder : Rain :: Night : ?
[S.S.C.]
(a) Evening
(b) Dark
(c) Day
(d) Dusk |
| 6. Physician : Treatment :: Judge : ?
[S.S.C.] | 20. Mountain : Hill :: Tree : ?
[C.P.O.]
(a) Ground
(b) Leaf
(c) Forest
(d) Shrub |
| (a) Court
(b) Judgement
(c) Lawyer
(d) Punishment | |
| 7. Circle : Circumference :: Square : ?
[C.P.O.] | |
| (a) Volume
(b) Area
(c) Diagonal
(d) Perimeter | |
| 8. Laugh : Joy :: Weep : ?
[R.R.B.] | |
| (a) Grief
(b) Remorse
(c) Baby
(d) Punishment | |
| 9. Smoke : Pollution :: War : ?
[C.P.O.] | |
| (a) Destruction
(b) Treaty
(c) Victory
(d) Peace | |

21. Doctor : Patient :: Politician : ?
 (a) Masses (b) Voter
 (c) Power (d) Chair
22. India : President :: State : ? [S.C.R.A.]
 (a) Prime Minister (b) Governor
 (c) Chief Minister (d) Mayor
23. Air : Atmosphere :: Water : ? [R.R.B]
 (a) Hydrosphere (b) Ecosphere
 (c) Biosphere (d) Stratosphere
24. Steel : Alloy :: Zinc : ?
 (a) Metal (b) Non-metal
 (c) Salt (d) Halogen
25. Energy : Joule :: Volume : ?
 (a) Solid (b) Capacity
 (c) Kilogram (d) Litre
26. Electricity : Wire :: Water : ? [Specialist Officers']
 (a) Pipe (b) River
 (c) Jug (d) Bottle
27. Conference : Chairman :: Newspaper : ?
 (a) Reporter (b) Distributor
 (c) Printer (d) Editor
28. Lion : Den :: Rabbit : ? [S.S.C.]
 (a) Trench (b) Hole
 (c) Pit (d) Burrow
29. Monday : Saturday :: Thursday : ? [C.B.I]
 (a) Sunday (b) Tuesday
 (c) Wednesday (d) Friday
30. Disease : Medicine :: Famine : ?
 (a) Clouds (b) Rainfall
 (c) Drought (d) River
31. Coal : Heat :: Wax : ? [Section Officer]
 (a) Energy (b) Candle
 (c) Light (d) Bee
32. Blind : Visual :: Deaf : ? [S.S.C.]
 (a) Sound (b) Auditory
 (c) Hearing (d) Listening
33. India : New Delhi :: Pakistan : ? [Hotel Management]
 (a) Rawalpindi (b) Peshawar
 (c) Lahore (d) Islamabad
34. Carpenter : Saw :: Tailor : ? [R.R.B.]
 (a) Measurement (b) Sewing
 (c) Cloth (d) Needle
35. Bird : Fly :: Snake : ? [Hotel Management]
 (a) Hole (b) Crawl
 (c) Clatter (d) Stroll
36. Plant : Tree :: Girl : ? [R.R.B.]
 (a) Wife (b) Mother
 (c) Woman (d) Sister
37. Traveller : Journey :: Sailor : ?
 (a) Water (b) Ship
 (c) Voyage (d) Crew
38. Flow : River :: Stagnant : ? [S.S.C.]
 (a) Canal (b) Stream
 (c) River (d) Pool
39. Ink : Pen :: Blood : ? [S.S.C.]
 (a) Donation (b) Vein
 (c) Accident (d) Doctor
40. Nurture : Neglect :: Denigrate : ?
 (a) Reveal (b) Extol
 (c) Recognize (d) Caluminate
41. Patrolling : Safety :: Insurance : ? [R.R.B.]
 (a) Finance (b) Infection
 (c) Bandage (d) Bleeding
42. Chlorophyll : Plant :: Haemoglobin : ? [S.S.C.]
 (a) Haemorrhage (b) Blood
 (c) Oxygen (d) Red
43. Bread : Yeast :: Curd : ? [Hotel Management]
 (a) Fungi (b) Bacteria
 (c) Germs (d) Virus
44. Meat : Vegetarian :: Liquor : ?
 (a) Insane (b) Introvert
 (c) Teetotaller (d) Foolish
45. Quack : Duck :: Bellows : ? [S.S.C.]
 (a) Cat (b) Frog
 (c) Bull (d) Fox
46. Scissors : Lever :: Toothed wheel : ? [S.C.R.A.]
 (a) Wedge (b) Gear
 (c) Press (d) Pulley
47. Book : Critic :: Building : ? [S.S.C.]
 (a) Engineer (b) Contractor
 (c) Weigher (d) Appraiser
48. Court : Justice :: School : ? [Hotel Management]
 (a) Teacher (b) Student
 (c) Ignorance (d) Education
49. Market : Demand :: Farming : ?
 (a) Farmer (b) Monsoons
 (c) Foodgrain (d) Sully
50. Menu : Food :: Catalogue : ?
 (a) Rack (b) Newspaper
 (c) Library (d) Books

2. CONCEPT BUILDER

1. Apparel is related to cloth in the same way as Footwear is related to? [Bank P.O.]
(a) Material (b) Leather
(c) Cobbler (d) Shoes

2. Which of the following is related to Melody in the same way as Delicious is related to Taste? [R.B.I.]
(a) Voice (b) Speak
(c) Tongue (d) Highness

3. Waves is related to Air in the same way as Ripples is related to? [Hotel Management]
(a) Wind (b) Water
(c) Storm (d) Smoke

4. Young is related to old in the same way as Wide is related to? [R.B.I.]
(a) Insufficient (b) Big
(c) Narrow (d) Long

5. If is related to Condition in the same way as But is related to? [S.B.I.P.O.]
(a) Disapproval (b) Supplement
(c) Negation (d) Contradiction

6. Paddy is related to Field in the same way as Steel is related to? [S.B.I.P.O.]
(a) Mine (b) Factory
(c) Iron (d) Ore

7. Doctor is related to Diagnosis in the same way as Judge is related to? [Bank P.O.]
(a) Court (b) Punishment
(c) Lawyer (d) Judgement

8. Immigration is related to Arrival in the same way as Emigration is related to? [S.S.C.]
(a) Emigrant (b) Native
(c) Leaving (d) Alien

9. Vehicle is related to Caravan in the same way as Player is related to? [Asst. Manager Exam]
(a) Coach (b) Captain
(c) Team (d) Field

10. Win is related to Competition in the same way as Invention is related to?
(a) Product (b) Discovery
(c) Trail (d) Laboratory

11. Tree is related to Sapling in the same way as Horse is related to? [Bank P.O.]
(a) Pony (b) Mule
(c) Cub (d) Foal
(e) Puppy

12. Court is related to lawyer in the same way as Taciturn is related to? [Specialist Officers]
(a) Patient (b) Medicine
(c) Nurse (d) Doctor

13. Factory is related to Production in the same way as School is related to? [R.R.B.]
(a) Discipline (b) Building
(c) Education (d) Teacher

14. Thermometer is related to Temperature in the same way as Hygrometer is related to?
(a) Strains (b) Humidity
(c) Pressure (d) Density

15. Hamlet is related to Village in the same way as Metropolis is related to? [Specialist Officers]
(a) Urban (b) City
(c) District (d) Place

16. Heart is related to Blood in the same way as Lung is related to? [S.B.I.P.O.]
(a) Air (b) Oxygen
(c) Chest (d) Respiration

17. Back is related to backbone in the same way as Belly is related to? [Hotel Management]
(a) Navel (b) Heart
(c) Throat (d) Ribs

18. Sympathy is related to Virtue in the same way as Cruelty is related to? [R.B.I.]
(a) Vice (b) Kindness
(c) Emotion (d) Animosity

19. Dream is related to Reality in the same way as Falsehood is related to?
(a) Correctness (b) Fairness
(c) Truth (d) Untruth

20. Water is related to oxygen as salt is to?
(a) Iron (b) Sodium
(c) Calcium (d) Proteins

Directions (Qs. 21 to 55): The following questions consist of two words each that have a certain relationship to each other, followed by four lettered pairs of words. Select the lettered pair that has the same relationship as the original pair of words.

21. Run : Race [Bank P.O.]
 (a) Enjoy : Journey (b) Lecture : Study
 (c) Study : Book (d) Party : Dance
22. Glossary : Words
 (a) Thesaurus : Rhyme
 (b) Atlas : Maps
 (c) Catalogue : Dates
 (d) Lexicon : Words
23. Circle : Diameter
 (a) Rectangle : Diagonal
 (b) Diameter : Radius
 (c) Square : Rectangle
 (d) Bisector : Angle
24. Hands : Gloves
 (a) Bank : Fog (b) Socks : Feet
 (c) Fish : Water (d) Legs : shoes
25. Ass : Bray
 (a) Flies : Squeak (b) Hen : Mew
 (c) Fox : Snout (d) Sheep : Bleat
26. Brook : River
 (a) Pen : Paper (b) Yard : Alley
 (c) Path : Highway (d) Vein : Artery
27. Hymn : Praise
 (a) Dirge : Grief (b) Prayer : Congregation
 (c) Liturgy : Rite (d) Lullaby : Child
28. Hospital : Doctor
 (a) Army : Soldier (b) School : Teacher
 (c) Lawyer : Court (d) College : Student
29. Genuine : Authentic
 (a) Mirage : Illusion (b) Ocean : Water
 (c) Breeze : Cyclone (d) Fear : Threat
30. Editor : Newspaper [C.P.O.]
 (a) Blacksmith : Furnace
 (b) Author : Novel
 (c) Journal : Journalist
 (d) Table : Carpenter
31. Bee : Hive
 (a) Horse : Carriage (b) Cow : Byre
 (c) Rider : Bicycle (d) Dog : Show
32. Injury : Pain [S.S.C.]
 (a) Matter : Labour
- (b) Rotate : Churning
 (c) Thunder : Lightning
 (d) Grades : Merit
33. Plaintiff : Defendant
 (a) Judge : Jury (b) Court : Law
 (c) Attorney : Lawyer (d) Injured : Accused
34. Liquor : Intoxication
 (a) Engine : Fuel (b) Medicine : Cure
 (c) Whisky : Alcoholic (d) Bottle : Cork
35. Poor : Money
 (a) Weak : Bold (b) Bold : Dark
 (c) Strong : Body (d) Weak : Strength
36. Signal : Traffic [IIHM]
 (a) Dam : River (b) Lens : Light
 (c) Door : House (d) Operation : Doctor
37. Gland : Enzyme
 (a) Muscle : Spasm (b) Generator : Current
 (c) Organ : Kidney (d) Brain : Cortex
38. Incubator : Infant [C.D.S.]
 (a) Archives : Document
 (b) Bullet : Revolver
 (c) Green House : Plant
 (d) House : Rooms
39. Autumn : Winter
 (a) Season : Change (b) Spring : Flower
 (c) Winter : Retreat (d) Fall : Digress
40. Error : Infallible
 (a) Cure : Irreversible
 (b) Flaw : Impeccable
 (c) Emotion : Invulnerable
 (d) Defect : Intolerable
41. Druggist : Pharmacy [S.S.C.]
 (a) Physician : Patient
 (b) Carpenter : Wood
 (c) Librarian : Catalogue
 (d) Chef : Restaurant
42. Shoe : Leather
 (a) Medicine : Doctor
 (b) Highway : Asphalt
 (c) Train : Wagon
 (d) Bus : Conductor
43. Army : Logistics [R.R.B.]
 (a) School : Students
 (b) War : Logic
 (c) Team : Individual
 (d) Business : Strategy

44. King : Crown
 (a) Sculptor : Chisel
 (b) Teacher : Chalk
 (c) Soldier : Gun
 (d) Priest : Mitre
45. Stickler : Insist
 (a) Laggard : Outlast
 (b) Braggart : Boast
 (c) Haggler : Concede
 (d) Trickster : Risk
46. Detention : Release
 (a) Viciousness : Attack
 (b) Calamity : Repair
 (c) Induction : Discharge
 (d) Qualification : Employ
47. Spider : Web [R.R.B.]
 (a) Ink : Pen (b) Cock : Hen
 (c) Teacher : Student (d) Poet : Poetry
48. Goggles : Eyes
 (a) Splint : Leg (b) Braid : Hair
 (c) Gloves : Hands (d) Tie : Neck
49. Doe : Stag
 (a) Sheep : Flock (b) Duck : Drake
 (c) Dog : Kennel (d) Horse : Colt
50. Whisper : Speak
 (a) Heat : Chill (b) Brush : Touch
 (c) Request : Ask (d) Listen : Bear
51. Satisfy : Hunger
 (a) Quell : Rebellion
 (b) Frantic : Composed
 (c) Cheerful : Euphoric
 (d) Thirst : Quench
52. Auger : Carpenter
 (a) Cement : Mason (b) Awl : Cobbler
 (c) Apron : Chef (d) Seam : Seamstress
53. Bus : Diver
 (a) Cook : Kitchen (b) Class : Student
 (c) War : Soldier (d) Machine : Operator
54. Despotic : Tyranny
 (a) Authoritarian : Superiority
 (b) Generous : Liberality
 (c) Skillful : Celebrity
 (d) Suspect : Illegality
55. Coat : Lapel
 (a) Sentence : Clause (b) Garden : Vegetable
 (c) Suitcase : Trunk (d) Bird : Fledgling

3 CONCEPT CRACKER

Directions (Qs. 1-3) : Answer the questions that are independent to each other.

1. Off-hand is related to PERFUNCTORY in the same way as Above Board is related to
 (a) Guide (b) Honesty
 (c) Integrity (d) Competition
2. Which one is different from the remaining three ?
 (a) GIJK (b) DFGH
 (c) CEFG (d) ABCD
3. ABCD is related to OPQR in the same way as WXYZ is related to
 (a) EFGH (b) STUV
 (c) KLMN (d) QRST
4. Three of the following four are alike in a certain way and so form a group. Which one does not belong to that group?
 (a) - (b) +
 (c) % (d) =

Directions (Qs. 5-6) : Find the set which is most similar to the given set.

5. Given set : (6,15,28)

- (a) (46,56,66) (b) (50,59,71)
 (c) (60,69,72) (d) (60,69,82)
6. Given set : (81,77,69)
 (a) (64,61,53) (b) (56,52,44)
 (c) (92,88,79) (d) (75,71,60)
7. Find the odd one out
 (a) Grams (b) Litres
 (c) Tonnes (d) Quintals

Directions (Qs. 8-12) : There is a blank space in each of these questions in which only one of the four alternatives given under each question satisfies the same relationship as is found between the two terms on the other side of the sign : . Find the correct alternative to fill the blank space.

8. Shoe : Leather : _____ : _____
 (a) Bus : Conductor (b) Train : wagon
 (c) Highway : Asphalt (d) Medicine : Doctor

9. Condone : Offence : _____ :
 (a) Overlook : Aberration
 (b) Error : Omission
 (c) Mitigate : Penitence
 (d) Conviction : Criminal
10. Dinosaur: Dragon : :
 (a) Evolution : Revelation
 (b) Gorilla : Soldier
 (c) Snow : Ice
 (d) Primeval : Medieval
11. Deterioration : Rust : : _____ : _____
 (a) Recession : Inefficiency
 (b) Depression : Unemployment
 (c) Promulgation : Legislation
 (d) Iron : Water
12. Telephone : Ring : : _____ : _____
 (a) Door : Knock (b) Gate : Open
 (c) Door : Wood (d) Lock : Key
- Direction (Qs. 13-15)** : In these questions, there are four groups of letters, words or numbers listed as a, b, c and d. One of the groups does not belong to the same category as others. Find the odd one out.
13. (a) USTO (b) OOTU
 (c) TTOU (d) SSTO
14. (a) 5183 (b) 33442
 (c) 34424 (d) 25631
15. (a) BAT (b) RAT
 (c) EAT (d) FAT
- Direction (Qs. 16 -19)** : In each of these questions, four terms are given. While three of them are identical in some way, one is different from the rest. Select the odd one as your answer.
16. (a) T (b) Z
 (c) Q (d) H
17. (a) Hat (b) Bag
 (c) Purse (d) Basket
18. (a) UNICEF (b) IMF
 (c) WHO (d) SAARC
19. (a) 5 8 7 8 (b) 6 4 8 2
 (c) 5 7 8 8 (d) 9 7 4 8
- Directions (Qs. 20 -23)** : In each of these questions, there are four words with the letters jumbled up. Three of them are alike. Find the odd one out.
20. (a) CIRE (b) NAIR
 (c) LOUDSC (d) RNUTHDE

21. (a) FIWE (b) FLAMEE
 (c) BUSHDNA (d) OMAWN
22. (a) LITYAQU (b) TITYUANQ
 (c) TEAUBY (d) TEDUCAED
23. (a) NITK (b) TIK
 (c) TIH (d) ITS
24. If 'light' is called 'morning', 'morning' is called 'dark', 'dark is called 'night', 'night' is called 'sunshine' and 'sunshine' is called 'dusk', when do we sleep?
 (a) Dusk (b) Dark
 (c) Night (d) Sunshine
25. If only the consonants in the word MEAT are changed in such a way that each of them becomes the next letter in the English alphabet and the remaining letters are kept unchanged, then how many meaningful words can be formed with the new set of letters using each letter only once in a word?
 (a) None (b) Two
 (c) Three (d) One
- Directions (Qs. 26-30)** : Fill in the blanks in these questions from among the alternatives a to d :
26. A D G _____
 D I N
 I P
 (a) V (b) W
 (c) X (d) Y
27. B E I N T _____
 (a) A (b) S
 (c) U (d) V
28. Z W S P L I E _____
 (a) D (b) F
 (c) K (d) B
29. ABA : ECE : : _____ : _____
 (a) LML : NON (b) IDI : OFO
 (c) PQP : STS (d) CDC : GEG
30. CG : EI : : FJ : _____
 (a) LM (b) IJ
 (c) GK (d) JK
31. Three of the following are alike in a certain way and form a group. Find the odd one out.
 (a) Bird (b) Insect
 (c) Aeroplane (d) Kite

4. CONCEPT DEVIATOR

Direction (Qs. 1-10) : In each of the following questions there is a certain relationship between two given numbers on one side :: one number is given on another side of :: while another number is to be found from the given alternatives.

Answer with Solution

Concept Applicator

1. (a) Second is the capital of the first.
2. (c) Second feeds on the first.
3. (b) Second is the more intense from the first.
4. (c) Second is the more intense from the first.
5. (a) The words in each pair are synonyms of each other.
6. (b) Second denotes the function performed by the first.
7. (d) Second is a measure of the boundary of the first.
8. (a) First indicate the second.
9. (a) Second is the result of the first.
10. (c) Second Shape obtained by pulling the opposite ends of the first.
11. (d) Machine is made to work by a man. Similarly, Slave works under the instruction of his master.
12. (c) First is the left-over of the second.
13. (c) The words in each pair are synonyms of each other.
14. (b) Second denotes the class to which the first belongs.
15. (d) Second is the device used by the first.
16. (a) Second denotes that part of the first, on which the effort is applied.
17. (a) The production of the first is done by the second.
18. (c) First is meant for the second.
19. (a) First is followed by the second.
20. (d) First is the bigger form of the second.
21. (a) First works for the second.
22. (b) Second is the constitutional head of the first.
23. (a) First constitutes the second.
24. (a) Steel is an alloy, and Zinc is a metal.
25. (d) Second is the unit to measure the first.
26. (a) Second is used to transmit the first.
27. (d) Chairman is the highest authority in a conference. Similarly, editor is the highest authority in a newspaper agency.
28. (d) Second is the dwelling place of the first.
29. (b) Second is five days ahead of the first.
30. (b) Second helps to get rid of the first.
31. (c) First is burnt for producing the second.
32. (b) Blind possesses visual defects. Similarly, a deaf has auditory defects.
33. (d) New Delhi is the capital of India. Similarly, Islamabad is the capital of Pakistan.
34. (d) Second is the tool used by the first.
35. (b) Second is the movement of the first.
36. (c) First grows into the second.
37. (c) Second is the name given to the process of travel of the first.
38. (d) River contains flowing water. Similarly, pool contains stagnant water.
39. (b) First moves in the second by capillary action.
40. (b) The words in each pair are antonyms of each other.
41. (d) Second denotes the purpose for which the first is undertaken.
42. (b) Chlorophyll imparts green colour to the plant. Similarly, haemoglobin imparts red colour to the blood.
43. (b) First is produced by the action of second.
44. (c) One who abstains from meat is called vegetarian and one who abstains from liquor is called a teetotaller.
45. (c) First is the sound produced by the second.
46. (b) Second denotes the class of machines to which the first belongs.
47. (d) Second evaluates and comments on the first.
48. (d) First is the place where second is imparted.
49. (b) First depends on the second for results.
50. (c) Library, where catalogue is the list books present in library.

Concept Builder

1. (b) First is made from the second.
2. (a) Delicious represents good taste. Similarly, Melody describes pleasant voice.
3. (b) Waves travel in air, Ripples travel in water.
4. (c) The words in each pair are antonyms of each other.
5. (b) The use of the first indicates the second.
6. (b) Second is the place where first is grown /produce.
7. (d) The function of a Doctor is to Diagnose a Disease and that of a judge is to give judgement.
8. (c) 'Immigration' implies arrival of a foreigner to settle in a country. 'Emigration' implies leaving own country to settle in another country.
9. (c) Second is the name given to a group of the first.
10. (c) As competition ends in win, similarly trials ends in invention.
11. (d) Second is the young one of the first.
12. (c)
13. (c) A factory is a place meant for production. Similarly, a school is a place meant to impart education.
14. (b) First is the instrument used to measure the second.
15. (b) First is the type of the second.
16. (b) First is the prime organ carrying out circulation of the second in the human body.
17. (a) Backbone is the supporting bone.
18. (a) Cruelty is the antonym of Sympathy. Similarly, the antonym of Virtue is Vice.
19. (c) Words are in antonyms of each other.
20. (b) Second is one of the constituent of first.
21. (c) One runs a race similarly Studies a book.
22. (b) First contains the collection of second.
23. (a) Second divides the first into two parts of equal area.
24. (d) First denotes the part of the body where the second is worn.
25. (d) Second is the sound produced by the first.
26. (c) Second is the bigger form of the first.
27. (a) Hymn is a song of praise sung during religious events. Similarly, Dirge is a song of grief sung at a funeral.
28. (b) First is the working place of the second.
29. (a) The words in each pair are synonyms of each other.
30. (b) First writes and edits all the article of the second.
31. (b) Second is the dwelling place of the first.
32. (c) First causes the second.
33. (d) Injured is the plaintiff and Accused is the defendant.
34. (b) Second is the effect of the first.
35. (d) First indicates the lack of the second.
36. (a) First control the flow /movement of the second.
37. (b) Second produced by the first.
38. (c) Second is provided the desired conditions and environment in the first.
39. (b) Second denotes the prominent activity observed in the season denoted by the first.
40. (b) Second denotes the quality of being without the first
41. (d) Second is the working place of the first.
42. (b) Second is the material used to make the first.
43. (d) Second is necessary for the first to be successful.
44. (d) First is dignified by the second.
45. (b) Stickler is one who insists on perfection. A braggart is a boastful person.
46. (c) The words in each pair are antonyms of each other.
47. (d) Spider makes web. Similarly, poet makes poetry.
48. (c) First is worn to protect the second from external influences.
49. (b) First is the female of the second.
50. (c) Second is more intense form of the first.
51. (a) First refers to the act of doing away with the second.
52. (b) First is a tool, used by the second.
53. (d) Second makes the first work.
54. (b) Second is the quality possessed by the first.
55. (a) Second is the part of the first.

Concept Cracker

1. (b)

2. (d) There is a gap of one letter between the first and second letter of the group.
 $G \rightarrow +1 \rightarrow I \rightarrow J \rightarrow K$

3. (c) $A \rightarrow +14 \rightarrow O$
 $B \rightarrow +14 \rightarrow P$
 $C \rightarrow +14 \rightarrow Q$
 $D \rightarrow +14 \rightarrow R$
 Similarly, there is a shift of 14 letters to the right side of the English alphabet.

4. (c) % is not a mathematical operation like the other three.

5. (d) The difference between the first and second number of the set is 9 and that between second and third number is 13.

6. (b) The difference between the first and second number of the set is 4 and that between second and third numbers is 8.

7. (b) Litres is the unit of measurement for liquid.

8. (a)

9. (a) Condone and offence have a contradictory relationship as an offence cannot be condoned. The same relationship is exhibited by relationship overlook : Aberration.

10. (c) Dinosaur and Dragon fall under the same category as snow and ice.

11. (b) Deterioration is caused by rusting as depression is caused by unemployment.

12. (a) Ring is related with telephone and Knock is related to door.

13. (a) In all the group one letter is repeated except USTO.

14. (b) The sum of all the digits is equals to 17 except 33442.

15. (c) All the words are noun except EAT, which is a verb.

16. (c) 'Q' occupies the odd position i.e. 17 in the English alphabetical order whereas other occupy the even positions.

17. (a) All other objects are used for carrying purpose.

18. (d) Except SAARC, all other are agency of UNO.

19. (b) Sum of all the digits is 28 except 6 4 8 2.

20. (a) After arranging all the letters the words formed are CIRE, RAIN, CLOUDS, and THUNDER.

21. (c) After arranging words formed are WIFE, FEMALE, HUSBAND and WOMAN. Hence except HUSBAND all belong to the same category.

22. (b) Rearranged words are QUALITY, QUANTITY, BEAUTY and EDUCATED. Except QUANTITY all other belongs to the personality traits of person.

23. (b) After rearrangement words formed are KNIT, KIT, HIT and SIT. Therefore, the odd one out is KIT.

24. (d) We sleep in the night and night is called as Sunshine. So, we sleep in the Sunshine.

25. (a) Consonants in the word MEAT is M and T. Now next letter, of the M is N and that of T is U. So according to the question, new set of letters is NEAU. Hence, from these set of letters no meaningful word is formed.

26. (b) $A + 3 \rightarrow D + 3 \rightarrow G$
 $D + 5 \rightarrow I + 5 \rightarrow N$
 $I + 7 \rightarrow P + 7 \rightarrow W$

27. (a) The pattern is as follows:
 $B + 3 \rightarrow E + 4 \rightarrow I + 5 \rightarrow N + 6 \rightarrow T + 7 \rightarrow A$

28. (d) The sequence is follow backward direction of the English alphabet order
 $Z - 3 \rightarrow W - 4 \rightarrow S - 3 \rightarrow P - 4 \rightarrow L - 3 \rightarrow I - 4 \rightarrow E - 3 \rightarrow B$

29. (d) In ABA, middle letter is +1 of first and third letter i.e A in alphabetical order. Again in ECE, the middle letter is -2 of the first and the third letter i.e E in alphabetical order. So, in CDC middle letter is +1 and GEG the middle letter is -2.

30. (c) In each pair, three letters are between them like CG in between C and G three letters are there i.e D, E and F. So, GK will fill the blank.

31. (b) Except insects all other fly in the sky.

32. (b) Three meaningful words are formed from letter EML and the words are MEAL, LAME and MALE.

33. (b) After forming the new set of letters according to the question only one meaningful word can be formed i.e., ALONE. So, the middle letter is O.

34. (b) A person sits on Chair and here Chair is called as Cot. So, the person sits on Cot.

Concept Deviator

1. (d) relationship, $a : (a^3 + a)$
2. (c) relationship, $(a^2 + 1) : a$
3. (d) relationship, $a^3 : (a + 1)^3 + 1$
4. (c) pattern is $(a^3 + a)$
5. (b) relationship is $a : (a + 89)$
6. (b) relationship is $a : (7/2 a)$
7. (d) relationship is $a : a(a + 1)$
8. (d) it is in the form, $210 = (15)^2 - 15$ and $380 = (15 + 5)^2 - (15 + 5)$, $182 = 13^2 + 13$ and $342 = 182 + 18$
9. (c) relationship is, $(a^2 - 1) : [(a + 4)^2 + 1]$
10. (b) $100 = 5 \times 20$, $64 = 4 \times 16$, $80 = 4 \times 20$ and required number will be 3×16 is 48
11. (c) 2 is the first number and difference between 3rd and 2nd number is equal to first number. Hence,
- in option (c), the same follows i.e. difference between 3rd and 2nd Number is 3, which is first number.
12. (b): The pattern is $(3, 3 \times 6 = 18, 18 \times 2 = 36)$ then, $(4, 4 \times 6 = 24, 24 \times 2 = 48)$ which is option (b).
13. (d) The pattern is $(\overbrace{6}^9 15, \overbrace{28}^{13})$ then, option (d) follows the same pattern i.e. $(\overbrace{60}^9 \overbrace{69}^{13}, \overbrace{82})$
14. (b) The pattern is $(6, (6)^2 = 36)$, Reverse of 2nd 's digits = 63 and option (b) has $(8, (8)^2 = 64)$, Reverse is 46).
15. (d) (23, 29, 37) all are prime numbers, Here option (d) has all prime numbers.

Chapter

11

Data Sufficiency

Section	Level	No. of Questions
Concept applicator	Very easy	26
Concept builder	Easy	25
Concept cracker	Moderate	20
Concept deviator	Difficult	15

THEORY

Data sufficiency is one of the most important as well as most difficult to handle. Questions based on data sufficiency requires deeper knowledge in the subject area. Data sufficiency questions can be from any topic viz Numbers, Arithmetic, Algebra, Geometry, LOGICAL REASONING and puzzles. These questions are not difficult but confusing. Students generally get confuse with the given information. Some general tips to solve the data sufficiency questions.

Tip 1: 1st and foremost is understanding of options. In GMAT options are fixed but in other aptitude test exams these options vary.

Tip 2: Identify the parent question, means the main question that is asked.

Tip 3: Look at the statement I. and information given in that, see whether it is sufficient enough to answer the parent question.

Tip 4: Look at the statement II. and information given in that, most important is that when you see statement II. then just forget the information given in statement I. , then see whether it is sufficient enough to answer the parent question.

Tip 5: When the given statements are not sufficient then use information given in both the statements.

As we discussed early in this chapter, that this chapter needs deeper knowledge, so, mostly question comes on any topic such as Blood Relation, Puzzle Test, Coding-Decoding, Arrangement, Direction sense, Ranking etc. Its a suggestion to build your basic on the above mention logical reasoning topics.

1. CONCEPT APPLICATOR

Directions (Qs. 1-16): Each of the questions below consists of a question and two statements numbered I and II are given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the question.

[State Bank of India (PO)]

Give answer (1) if the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.

Give answer (2) if the data in Statements II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.

Give answer (3) if the data in Statement I alone or in Statement II alone are sufficient to answer the question.

Give answer (4) if the data in both the Statements I and II are not sufficient to answer the question.

Give answer (5) if the data in both the Statements I and II are sufficient to answer the question.

1. Tower 'P' is in which direction with respect to tower 'Q'?

- I. P is to west of H, which is to the South of Q.
- II. F is to west of Q and to the North of P.

2. What is Suneeta's rank from the top in the class?

- I. In the class of 42 children Suneeta is 29th from the bottom.
- II. Suneeta is ten ranks below Samir.

3. How is K related to N?

- I. N is the brother of M, who is the daughter of k.
- II. F is the husband of K

4. Who reached the station first among L, M J, T and R if no two person reached together.

- I. M reached only after J and T.
- II. L reached before R.

5. What is the code for 'walks' in the code language?

- I. In the code language 'she walks fast' is written as 'he ka to'
- II. In the code language 'she learns fast' is written as 'jo ka to'

6. How is A related to B?

- I. A is the sister-in law of C. who is the daughter-in-law of B, who is the wife of D.
- II. B is the mother of A's son's only uncle's son

7. Amongst A, B, C, D, E and F, each are having a

different height. Who is the shortest?

- I. C is shorter than only B.
- II. A is taller than only D and F.

8. Point X is in which direction with respect to Y?

- I. Point Z is at equal distance from both point X and point Y.
- II. Walking 5 km to the East of the point X and taking two consecutive right turn 9. After walking 5 kms before each turn leads to point Y.

9. How is 'must' written in a code language?

- I. 'you must see' is written as 'la pa ni' and 'did you see' is written as 'jo ni pa' in that code language.
- II. 'you did that' is written as 'pa si jo' in that code language.

10. On which day of week does Arti's birthday fall?

- I. Sonu correctly remembers that Arti's birthday falls after Wednesday but before Sunday.
- II. Raj correctly remembers that Arti's birthday falls after Friday but before Tuesday.

11. How is 'sure' written in a code language?

- I. 'he is sure' written as 'ja ha main that code language.
- II. 'is she sure' written as 'Ka ja main that code language.

12. Among P Q, R, S and T each having different age. Who is the youngest among them?

- I. Q is the younger than only P.
- II. S is older than only R.

13. On which day of the week did Sourav visit Delhi?

- I. Sourav visited Delhi after Monday before but before Thursday but not on an odd day of the week.
- II. Sourav visited Delhi before Friday but after Monday.

14. What is R's position from the left end in a row?

- I. M is tenth from the left end of the row
- II. There are sixteen children between M and R.

15. Town P is towards which direction of town T?

- I. Town T is towards South of town K, which is towards West of town P.
- II. Town R is towards South of town V, and towards East of town P.

16. How is J related to M?
- M has only one brother and two sister.
 - J is daughter of T who is wife of M

Directions (Qs. 17-21): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and and answer the question.

[Central Bank of India(PO)]

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

17. On which day was Yasir born?
(His date of birth is February 29)
- He was born between years 2005 and 2011.
 - He will complete 4 years on February 29, 2012.
18. Out of 64 students, 38 play both chess and crickets. How many students play only chess?
- Out of 64 students, 22 students don't play any game. 4 student play only cricket.
 - Out of 64 students, 20 are girls and 10 of them don't play any game.
19. What is the total number of students in the school?
- The ratio of girls to boys is 2 : 3.
 - The number of student has grown by 5% this years as compared to 4% last year from the number 2000, which it was year before last.
20. Who among the six of them is the tallest if Geetha is taller than Shilpa and Deepa is taller than Meeta?(Sunita and Sadhana are other two).
- Sadhana is taller than Sunita.
 - Sadhana is taller than Shilpa and Meeta as well as Deepa
21. On which date is Amit's birthday in September 2010?

- Last years his birthday was on last Thursday of the month in September 2009.
- This year his birthday will be on the last Friday of the month in September 2010

Directions (Qs. 22-26): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and and answer the question.

[Punjab and Sind Bank (PO)]

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

22. How is 'never' written in a code language?
- 'never ever go there' is written as 'na ja ni ho' in that code language.
 - 'go there and come back' is written as 'ma ho sa ni da' in the code language.
23. Among M, P, K, J, T and W, who is lighter than only the heaviest?
- P is heavier than M and T
 - W is heavier than P but lighter than J who is not the heaviest.
24. What does 'S' means in a code language?
- '5 S # 3' means 'flowers are really good'.
 - '7 # 3 5' means flowers are available'.
25. How is P related to J?
- M is the brother of P and T is the sister of P
 - P's mother is married to J's husband who has one son and two daughter.
26. How many students are there between Suresh and Mohan in a row of fifty students?
- Suresh is twelfth from the left end and Mohan is seventeenth from the right end.
 - Suresh is six places away from Jayesh, who is twentieth from left end.

2. CONCEPT BUILDER

Directions (Qs. 1-5): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the question.

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

1. Who amongst L, M, N, O and P is the shortest?
 - I. O is shorter than P but taller than N.
 - II. M is not as tall as L.
2. Are all the five friends, viz, Leena, Amit, Arun, Ali and Ken, who are seated around a circular table, facing the centre?
 - I. Leena sits second to the left of Amit. Amit faces the centre. Arun sits second to the right of Leena.
 - II. Ali sits on the immediate left of Ali but Ken is not an immediate neighbour of Amit.
3. Is T grandmother of Q?
 - I. P is the mother of Q. Q is the son of R. R is the son of T.
 - II. L is father of N and N is daughter of T.
4. Point A is towards which direction from point B ?
 - I. If a person walks 4m towards the north from point A, and takes two consecutive right turns each after walking 4m, he would reach point C, which is 8 m away from point B.
 - II. Point D is 2m towards the east of point A and 4m towards the west of point B.

5. How many brothers does Bharat have?
 - I. Shiela, the mother of Bharat, has only three children.
 - II. Meena, the grandmother of Bharat, has only one granddaughter.

Directions (Qs. 6-10): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the question.

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

6. How is ‘letter written in a code language?
 - I. ‘please write a letter’ is written as ‘7218’ ‘and received a Greek letter’ is written as ‘7513’.
 - II. ‘write in English please’ is written as ‘2084’ and ‘a Greek’ is written as ‘5714’.
7. Among A, B, C, D and E seated in a straight line, facing North, who sits exactly in the middle of the line?
 - I. A sits third to the left of D. B sits on the immediate right of C.
 - II. B sits second to the right of A. E is not an immediate neighbour of D
8. A six-storey building consisting of an unoccupied ground floor and five floors on the top of the ground floor numbered 1, 2, 3, 4, and 5 houses five different persons, viz A, B, C, D and E. Who lived on third floor?
 - I. C lived on an even-numbered floor. A lives immediately above D. B live immediately above A.

- II. D lives on an odd-numbered floor. A and B are immediate neighbours. Similarly, C and E are immediate neighbours. C does not live on an odd-numbered floor.
9. Are all four friends, Abhay, Kavita, Prashant and Yasir, Who are sitting around a circular table, facing the centre?
- I. Kavita sits second to the left of Abhay. Abhay faces the centre. Yasir sits on the immediate right of Abhay as well as Kavita.
 - II. Prashant sits third to the right of Kavita. Abhay sits on the immediate right of Prashant as well as Yasir.
10. Is R the grand-daughter of C?
- I. The only sister of A is the mother of R's brother B.
 - II. C, the mother of A, has only one grandson B.
- Directions (Qs. 11-15):** Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the question.
- Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
- Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
- Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and
- Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and
- Give answer (5) if the data in both the statements I and II together are necessary to answer the question.
11. How many students are there between Suresh and Mohan in a row of 50 students?
- I. Suresh is twelfth from the left end and Mohan is seventeenth from the right end.
 - II. Suresh is six places away from Jayesh, who is twentieth from the left end.
12. What does 'S' mean in a code language?
- I. '5 S # 3' means 'flowers are really good'.
 - II. '7 # 3 5' means flowers are available'.
13. How is P related to J?
- I. M is the brother of P and T is the sister of P
 - II. P's mother is married to J's husband who has one son and two daughter.

14. How is 'never' written in a code language?
- I. 'never ever go there' is written as 'na ja ni ho' in that code language.
 - II. 'go there and come back' is written as 'ma ho sa ni da' in the code language.
15. Among M, P, K, J, T and W, who is lighter than only the heaviest?
- I. P is heavier than M and T
 - II. W is heavier than P but lighter than J who is not the heaviest.

Directions (Qs. 16-20): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the questions.

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

16. Who amongst A, B, C, D and E is the tallest?
- I. A is taller than B but shorter than C, D is not the tallest.
 - II. Two people taller than C.
17. Which directions is Ali facing?
- I. If Ken, who is currently facing East turns 90° towards his right he would face a direction exactly opposite to the direction which Ali is facing.
 - II. If Priya who is currently facing South, turns left, walks 1m and then takes a left turn again, she would face the same direction as Ali.
18. Did 300 candidates appear for the written examination for admission into College X?
- I. The principal of the college correctly mentioned that the number of candidates who had appeared for the examination was more than 200.
 - II. According to a statistical report, only 175 candidates could qualify the examination.

19. How far is point P from Point Q? (All the points lie on a straight line.)
 I. Point T is exactly midway between Point P and Q.
 Point T is 5 km towards west of Point R.
 II. Point Q is 2 km towards the east of Point R.
20. How many brothers does A have?
 I. A, who is B's brother, has two siblings.
 II. D is brother of A and is youngest in the family.

Directions (Qs. 21-25): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the questions.

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

21. How is J related to K?
 I. J's father P is the brother of N. N is K's wife.
 II. J is the son of P. P is the brother of N. N is K's wife.
22. On which floor of the building does G stay? (the building has five floors 1, 2, 3, 4, 5.)
 I. Only the even-numbered floors are occupied and G does not stay on the second floor.
 II. G does not stay on an odd-numbered floor.
23. How many days did Raju take to complete his assignment?
 I. Mohit correctly remembers that Raju took more than 3 days less than 9 days to complete his assignment.
 II. Mina correctly remembers that Raju took more than 7 days less than 11 days to complete his assignment.
24. How is the word 'GATES' coded in the code language?
 I. 'BRICK' is coded as 'LDJSC' and 'PIN' is coded as 'QJQ'
 II. 'WATER' is coded as 'SFUBX' and 'DISH' is coded as 'ITJE'
25. Among A, B, C and D, which school has the highest number of students.
 I. School A has fewer students than school D.
 II. School C has fewer students than school D.

3 CONCEPT CRACKER

Directions (Qs. 1-5): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the questions.

[SBI (Associates) PO]

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

- Which bag amongst P, Q, R, S and T is the heaviest?
 I. Bag Q is heavier than R and S. Bag T is heavier than only bag P.
 II. Only three bags are lighter than R. The weight of bag Q is 50 kg, which is 2 kg more than bag R.
- Are all the five friends – A, B, C, D and E – who are seated around a circular table facing the centre?

- I. A sits to the left of B. B faces the centre. D and E are immediate neighbours of each other. C sits second to the right of E.
- II. D sits second to right of C. C faces the centre. Both E and A are immediate neighbours of D. B sits second to the right of A.
3. In a college, five different subjects, viz Physics, Chemistry, Botany, Zoology and Mathematics, are taught on five different days of the same week, starting from Monday and ending on Friday. Is Chemistry taught on Wednesday?
- I. Two subjects are taught between Zoology and Mathematics. Mathematics is taught before Zoology. Chemistry is taught on the day immediately next to the day when physics is taught. Botany is taught on Friday.
- II. Three lectures are scheduled between the lectures of Botany and Zoology. Mathematics is taught immediately before Physics.
4. Is it 9 o'clock now?
- I. After half an hour, the minute and the hour hands of the clock will make an angle of exactly 90° with each other.
- II. Exactly 15 minutes ago, the minute and the hour hands of the clock coincided with each other.
5. Is F granddaughter of B?
- I. B is the father of M. M is the sister of T. T is the mother of F.
- II. S is the son. V is the daughter of F. R is the brother of T.

Directions (Qs. 6-10): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the questions.

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

IBPS Common Written Exam PO (PO/MT)

6. How many daughter does W have?
- I. B and D are the sisters of M.
- II. M's father T is the husband of W.
- III. Out of the three children which T has, only one is a boy.
- Only I and II are sufficient to answer the question.
 - All I, II and III are required to answer the question.
 - Only II and III are sufficient to answer the question.
 - Question cannot be answered even with all I, II and III.
 - Only I and II are sufficient to answer the question.
7. Who among A, B, C, D, E and F each having a different height, is the tallest?
- I. B is taller than A but shorter than E.
- II. Only two of them are shorter than C.
- III. D is taller than only F.
- Only I and II are sufficient to answer the question.
 - Only I and III are sufficient to answer the question.
 - Only II and III are sufficient to answer the question.
 - All I, II and III are required to answer the question.
 - All I, II and III even together are not sufficient to answer the question.
8. Towards which direction is Village J from Village W?
- I. Village R is to the west of Village W and to the north of Village T.
- II. Village Z is to the east of Village J and to the north of Village Z.
- III. Village M is to the north-east of Village J and to the north of Village Z.
- Only III is sufficient to answer the question.
 - Only II and III are sufficient to answer the question.
 - All I, II and III are required to answer the question.
 - Question cannot be answered even with all I, II and III.
 - None of these.

9. On which day of the week did Suresh visit Chennai? (Assume that the week starts from Monday)
- Suresh took a leave on Wednesday.
 - Suresh visited Chennai the day after his mother's visit to his house.
 - Suresh's mother visited Suresh's house on neither Monday nor Thursday.
- Only II and III are sufficient to answer the question.
 - Only I and II are sufficient to answer the question.
 - Only I and III are sufficient to answer the question.
 - All I, II and III are required to answer the question.
 - Question cannot be answered even with all I, II and III.
10. How is 'go' written in a code language?
- 'now or never again' is written as 'torn ka na sa' in that code language.
 - 'you come again now' is written as 'ja ka ta sa' in that code language.
 - 'again go now or never' is written as 'na ho ka sa' in that code language.
- Only I and III are sufficient to answer the question.
 - Only II and II are sufficient to answer the question.
 - Only I and II are sufficient to answer the question.
 - All I, II and III are required to answer the question.
 - None of these.

Directions (Qs. 11-15): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the questions.

[RBI Grade 'B' Officer's]

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

11. Among P, Q, R, S and T sitting in a straight line, facing North, who sits exactly in the middle of the line?
- P sits third to the left of S. T is an immediate neighbour of P as well as R
 - T sits second to the left of S. Q is not an immediate neighbour of Tor S.
12. Are all the five friends – A, B, C, D and E – sitting around a circular table facing the centre, who sits to the immediate right of A?
- E sits to third to the right of D. A is not an immediate neighbours of D.
 - C sits to second left of B. A is not an immediate neighbours of D.
13. Who among P, Q, R, S and T is the tallest?
- P is taller than Sand T but shorted than R, Q is taller than S.
 - T is taller than S.P is not the tallest.
14. Is 'EAST' the word formed after performing the following operation on a word containing there four letters?
- There is only one letter between A and T, E is to the left of A.
 - The word does not begin with T. There is only one letter between E and S, T is not an immediate neighbours of E.
15. Is C grandmother of M?
- C is the mother of D.D is the brother of M's father
 - E is the mother of S. S is the sister of M. F the aunt of S, is the daughter of C

Directions (Qs. 16-20): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and answer the questions.

[IBPS RRB (Group A Officers)]

Give answer (1) if the data in statement I alone is sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.

Give answer (2) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.

Give answer (3) if the data either in statement I alone or in statement II alone are sufficient to answer the question; and

Give answer (4) if the data given in both the statements I and II together are not sufficient to answer the question; and

Give answer (5) if the data in both the statements I and II together are necessary to answer the question.

16. Among P Q, R, S T and V, each lives on a different floor of six-storey building having its six floors numbered one to six (the ground floor is numbered 1, the floor above it, number 2, and so on, and the topmost floor is numbered 6). Who lived on the topmost floor?

- I. There is only one floor between the floors on which R and Q live. P lives on an even-numbered floor.
 - II. T does not live on an even-numbered floor. Q lives on an even-numbered floor. Q does not live on the topmost floor.
 - III. S lives on an even-numbered floor. There are two floors between the floors on which S and P live. T lives on a floor immediately above R's floor.
17. There are six letters W, A, R, S, N and E. Is 'ANSWER' the word formed after performing the following operations using these six letters only?
- I. E is placed fourth to the right of A, S is not placed immediately next to either A or E.
 - II. R is placed immediately next (either left or right) to E. W is placed immediately next (either left or right) to S.
 - III. Both N and W are placed immediately next to

S. The word does not begin with R. A is not placed immediately next to W.

18. Point D is in which direction with respect to Point B?
- I. Point A is to the west of Point B. Point C is to the north of Point B. Point D is to the south of Point C.
 - II. Point G is to the south of Point D. Point G is 4 km from Point B. Point D is 9 m from Point B.
 - III. Point A is to the west of Point B. Point B is exactly midway between Point A and E. Point F is to the south of Point E, Point D is to the west of Point F.
19. How is 'one' coded in a code language?
- I. 'one of its kind, is coded as 'zo pi ko fe' and 'in kind and cash' is coded as 'ga to ru ko'.
 - II. 'its point for origin' is coded as 'ba le fe mi' and 'make a point a clear' is coded as 'yu si mi de'.
 - III. 'make money and cash' is coded as 'to mi ru hy' and 'money of various kind' is coded as 'qu ko zo hy'.
20. Are all the four friends, viz A, B, C and D, who are sitting around a circular table, facing the centre?
- I. B sits second to the right of D. D faces the centre. C sits on the immediate right of both B and D.
 - II. A sits on the immediate left of B. C is not an immediate neighbour of A. C sits on the immediate right of D.
 - III. D is an immediate neighbour of both A and C. B sits on the immediate left of A. C sits on the immediate right of B.

4. CONCEPT DEVIATOR

Directions for (Qs. 1-7): Each of the following questions is followed by two statements. Mark

- (a) if statement I alone is sufficient to answer the question.
 - (b) if statement II alone is sufficient to answer the question.
 - (c) if both statement I and II together are necessary to answer the question.
 - (d) if both statements I and II together are not sufficient to answer the question.
1. Is 'Ube' positive?
- I. $a + b$ is positive.
 - II. $a - b$ is positive.

2. In a general body election, 3 candidates, p, q and r were contesting for a membership of the board. How many votes did each receive?
- I. p received 17 votes more than q and 103 votes more than r.
 - II. Total votes cast were 1703.
3. If C₁ and C₂ are the circumferences of the outer and inner circles respectively. What is C₁ : C₂?
- I. The two circles are concentric.
 - II. The area of the ring is $\frac{2}{3}$ the area of greater circle.
4. What is the middle number of 7 consecutive whole numbers?

- I. Product of number is 702800.
 II. Sum of the number is 105.
5. Total marks obtained by P, Q, R and S in Mathematics is 360. How many marks did P secure in Mathematics?
 I. P secured one-third marks of the total of Q, R and S.
 II. Average marks obtained by Q and R are 20 more than that secured by S.
6. How many ice cubes can be accommodated in a container?
 I. The length and breadth of the container is 20 cm and 15 cm respectively.
 II. The edge of the ice cube is 2 cm.
7. Ram got ₹ 1500 as dividend from a company. What is the rate of interest given by the company?
 I. The dividend paid last year was 10%.
 II. Ram has 350 shares of ₹ 10 denomination.

Directions for (Qs. 8-11): Each of questions consist of question followed by two statements numbered I and II
 Answer (a) if data in Statement I alone is sufficient to answer the question but the data in Statement II alone is not sufficient to answer the question.

Answer (b) if data in Statement II alone is sufficient to answer the question but the data in Statement I alone is not sufficient to answer the question.

Answer (c) if data in Statement I and II together are necessary to answer the question.

Answer (d) if data in Statement I and II together are not sufficient to answer the question.

8. ΔABC and ΔPQR are congruent
 I. Area of ΔABC and ΔPQR are same
 II. ΔABC and ΔPQR are right angle Triangles
9. Salary of A and B is in ratio 3:4 and expenditure is in ratio 4:5. What is the ratio of their saving?
 I. B's saving is 25% of his salary.
 II. B's salary is ₹ 2500.
10. What is the average height of the class?
 I. Average height of the class decreases by 1 cm if we exclude the tallest person of the class whose height is 56 cm.
 II. Average height of the class increases by 1 cm if we exclude the shortest person of the class whose height is 42 cm.
11. Ram is taller than Shyam and Jay is shorter than Vikram. Who is the shortest among them?
 I. Ram is the tallest.
 II. Shyam is taller than Vikram.

Direction (Qs. 12-13) are followed by two statements labelled as I and II. Decide if these statements are sufficient to conclusively answer the question. Choose the appropriate answer from the options given below:

- (a) Statement I alone is sufficient to answer the question.
 (b) Statement II alone is sufficient to answer the question.
 (c) Statement I and Statement II together are sufficient, but neither of the two alone is sufficient to answer the question.
 (d) Either Statement I or Statement II alone is sufficient to answer the question.
 (e) Neither Statement I nor Statement II is necessary to answer the question.
12. Let PQRS be a quadrilateral. Two circles O1 and O2 are inscribed in triangles PQR and PSR respectively. Circle O1 touches PR at M and circle O2 touches PR at N. Find the length of MN.
 I. A circle is inscribed in the quadrilateral PQRS.
 II. The radii of the circles O1 and O2 are 5 and 6 units respectively.
13. Given below is an equation where the letters represent digits. $(PQ) \cdot (RQ) = XXX$. Determine the sum of P + Q + R + X.
 I. X = 9.
 II. The digits are unique. [3]

Questions (Qs. 14-15) are followed by two statements labeled as I and II. You have to decide if these statements are sufficient to conclusively answer the question. Choose the appropriate answer from options given below:

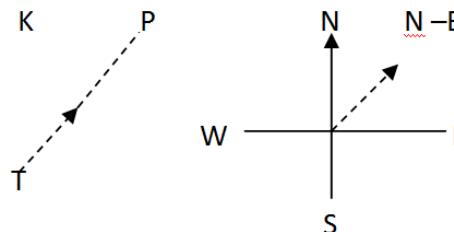
- (a) If statement I alone is sufficient to answer the question.
 (b) If statement II alone is sufficient to answer the question.
 (c) If statement I and statement II together are sufficient but neither of the two alone is sufficient to answer the question.
 (d) If either statement I or statement II alone is sufficient to answer the question.
 (e) Both statement I and statement II are insufficient to answer the question.
14. The base of a triangle is 60 cms, and one of the base angles is 60° . What is length of the shortest side of the triangle?
 I. The sum of lengths of other two sides is 80 cms.
 II. The other base angle is 45° .
15. A, B, C, D, E and F are six integers such that $E < F$, $B > A$, $A < D < B$. C is the greatest integer. Is A the smallest integer?
 I. $E + B < A + D$
 II. $D < F$

Answer with Solution

Concept Applicator

1. (c) From I: P is the South-west of Q
 From II; P is to the South-west of Q
 As from both the statement we can find the answer.
2. (a) From I; Suresh rank = $42 - 29 + 1 = 14$
 From II; Since we don't know Samir's rank. we get nowhere.
3. (e) From 1: K

$$\begin{array}{c} | \\ (+)N - M (-) \end{array}$$

 From II: $F(+) \Leftrightarrow K(-)$
 Combining both : $(+)N - (M)$
 Hence k is the mother of N.
4. (d) We can't decided who reached first between j and T
5. (e) 'to'. Which is not common between the two code, stands for 'walk'.
6. (e) From 1: A is a Female
 Using this in II, we get;
 $B = \text{mother of A's son's only uncle's son}$
 $= \text{mother of A's son's cousin}$
 $= \text{mother of A's brother-in-law's wife.}$
7. (d) Statement I gives us the two tallest persons.
 Hence it is not sufficient.
 From II; either D or F is the shortest Hence II is also not sufficient.
8. (d) Statement I is of no use because we don't know the directions.
 Statement II is sufficient because distances and directions have been given property.
9. (a) Statement I You must see = la pa ni(i)
 Did u see = jo ni pa(ii)
 From (i) and (ii) you see = pa ni(iii)
 Using (iii) in (i), we get must = la
 Hence I alone is sufficient.
 But II is not even remotely connected with 'must'
10. (e) From 1: Arti's birthday falls on Thu, Fri or Sat
 From II; It falls on Sat, Sun or Mon
 Combining I and II it falls on Sat
11. (d) From 1: he is sure = ja ha ma
 From II: is she sure = ka ja ma
 Combining the two, we get
 Is sure = ja ma
 Hence, sure = ja or ma
12. (b) From I: P is oldest and Q second oldest
 From II: R is the youngest and S Second youngest.
13. (a) From I: Saurav visited Delhi on Wednesday.
 From II: He visited on Tue, Wed or Thu.
14. (e) From I and II R's position = $10 + 16 + 1 = 27^{\text{th}}$ from left
15. (a) From I:

 Hence P is north-east of T
- From II: We can't move to any conclusion because Town P has not even been mentioned.
16. (b) From I: Not sufficient as J has not been mentioned.
 From II: $M(+) \Leftrightarrow T(-)$

$$\begin{array}{c} | \\ J(-) \end{array}$$

 Hence J is daughter of M
17. (c) Feb 29 can occur only in a leap year. 2008 happens to be the only leap years between 2005 and 2011. Hence Yesir was born on Feb 29, 2008. Using Calendar Method we can find out the day. Hence I is sufficient.
 From II: Yasir was born on Feb 29, 2008 ($2012 - 4 = 2008$). Hence II is also sufficient.
18. (a) From I: 22 students don't play any game. Which means $64 - 22 = 42$ play either chess or cricket.
 Now, either chess or cricket = only chess + Only cricket + Chess and Cricket or $42 = \text{Only chess} = 0$
 From II: We don't get information about boys.
 Hence II is also sufficient.

19. (b) I leads us nowhere. II will give us the present strength as we have the base and percentage increases.
20. (d) From the question:
 $G > Sh; D > M$ (i)
 From I: $Sa > Su$ (ii)
 Not sufficient.
 From II: $Sa > Sh, M, D$, But who is taller between Sa and G? Not sufficient.
21. (c) The calendar method is helpful in either case.
22. (d) Only two words are common between I and II
23. (e) From I: $P > M, T$
 From II: $J > W > P$ Combining, we get $K > J > W > P > M, T$
 Hence, K is the heaviest and J lighter than only the heaviest.
24. From I: $5\$#3 = \text{flowers are really good}$ (i)
 From II: $7\#35 = \text{good flowers are available}$ (ii)
 From I and II: $5\#3 = \text{Flowers are good}$ (iii)
 Putting (iii) in (i), we get \$ = Really
25. (e) From I: $M (+) - P - T (-)$
 Combining, we get $M (+) - P - T (-)$
 But II also says J's husband has one son and two daughters.
 Hence P must be daughter of J
26. (a) From I: $n Suresh = 12^{\text{th}}$ from left
 Mohan = 17^{th} from right $= (50 - 17 + 1) = 34^{\text{th}}$ from left
 No student between them $= 34 - 12 - 1 = 21$
 From II: No data about Mohan

Concept Builder

1. (a) From I: $P > O > N$
 From II: $L > M$ From I and II, either M or N is the shortest. We can't determine who is shorter between the two of them.
2. (c) From I: If all of them face the centre, it means if A sits second to the left of B, then B should sit second to the right of A. But here Amit and Arun are different persons. Hence all of them do not face the centre.
 From II: Again suppose of them face the centre like KEN. Ali sits third to the left of Ken. Now, if Amit sits on the left of Ali obviously Ken should be his neighbour. But the statement says otherwise. Hence our assumption is disproved. All of them do not face the centre.
3. (e) In I, Sex of T is not known. In II, Q does not figure. Hence we need both the statements to establish the relationship.
4. (d) From I: We don't know whether B is to the west or east of C. In fact, it could be in any other direction.
 From II: Obviously A is west of B
5. (d) From I: Bharat has two siblings but we don't know their sex
6. (d) Using Statement I:
 a letter $\rightarrow '71'$
 Using Statement II:
 'in' $\rightarrow '4'$
- Using both:
 'Greek' $\rightarrow '5'$ and 'received' $\rightarrow '3'$
 Code for 'letter' cannot be found even by using both statements together.
7. (e) Using Statement I:
 A C B D
 Position of E Cannot be found it can be left of A or right of D.
 Using Statement II: Many seating arrangements are possible
 Using both: E A C B D is the unique arrangement that is possible and C sits in the middle.
8. (d) Using Statement I:
 We get two arrangement, ie
 $5 \rightarrow B \quad E$
 $4 \rightarrow A \quad C$
 $3 \rightarrow D \quad \text{or} \quad B$
 $2 \rightarrow C \quad A$
 $1 \rightarrow E \quad D$
- Using Statement II: Many arrangements are possible.
9. (c) Using Statement I: From the line "Yasir sits on the immediate right of Abhay as well as Kavita" we can conclude that one of Abhay and Kavita is facing towards the centre and the outside So, all friends are Not facing the centre.
10. (e) Using Statement I: C is not in the statement. So using I only we can never find the relation between R and C. Using Statement II: R is not in the statement.

So using II only we can never find the relation between R and C. Using both: We can conclude that R is the granddaughter of C.

11. (a) Using Statement I:

$$\text{II} \rightarrow \text{Suresh} \leftarrow 21 \rightarrow \text{Mohan} \leftarrow 16$$

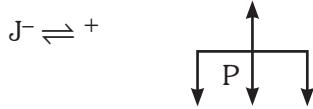
So, there are 21 students between Suresh and Mohan

Using Statement II:

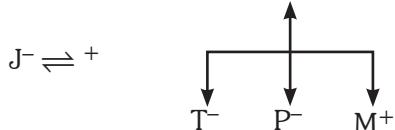
Mohan's name is not even mentioned in the given statement so we cannot find the answer using statement II alone.

12. (e) Using either is not mentioned alone we cannot find the code S, but using both the statements together we can find that '# 53' is 'good flower are'. So, the code for S is 'really'.

13. (e) Using Statement I: We cannot find the relation using the statement as J's name is not even mentioned in it. Using Statement II:



We can say that J is the mother of P but cannot decide whether P is the son or daughter of J. Using both statement together:



P is the daughter of J.

14. (d) Using either of the statements alone we cannot find the code, and even by using both the statements together we can only find that 'never ever' is coded as 'na ja' the code for 'never' cannot be uniquely determined even by using both the statements together.
15. (e) Using either of the statements alone we cannot find the answer, but when we use both the statements together we can find the relation in term of weight, i.e. K > J > W > P > M, T.
16. (e) From I: C > A > B and - > D

From II: - > - > C. Combining, we get E > D > C > A > B.

17. (c) Using Statement I: If ken turns 90° towards his right he will face South. So Ali is facing north. Using Statement II:

In the end Priya faces north. So Ali also faces north.

18. (d) Even by using both the statements together we can only determine that number of candidates appeared was more than 200.

19. (e) Using I:

$$\text{T } \underline{5} \text{ R and T is midway between P and Q}$$

Using II:

$$\text{R } \underline{2} \text{ Q}$$

Using Both:

$$\text{P } \underline{7} \text{ T } \underline{5} \text{ R } \underline{2} \text{ Q}$$

20. (d) Even by using both the statements together we cannot determine the gender of B. So A can have one or two brothers.

21. (b) I. $\text{P} \leftrightarrow \text{N} \rightleftharpoons \text{k}^+$

$$\begin{array}{c} \uparrow \\ \text{J} \end{array}$$

Using I only, we cannot determine if J is the nephew or niece of k.

$$\text{II. } \text{P} \leftrightarrow \text{N} \rightleftharpoons \text{k}^+ \quad \begin{array}{c} \uparrow \\ \text{J} \end{array}$$

J is the nephew of K.

22. (a) I. Using I only, we cannot determine that G stayson 4th floor.
23. (e) I. Raju can take 4 to 8 days to complete the work.
 II. Raju can take 8 to 10 days to complete the work.
 Using both the statements together we can determine that Raju took 8 days to complete the work.
24. (c)
24. (d) Even by using both the statements together we cannot determine whether B has highest number of student or D.

Concept Cracker

1. (c) Using Statement I:
 $Q > R > S > T > P$,
 Q is the heaviest
 Using Statement II:
 $Q > R > S > T > P$,
 Q is the heaviest.
2. (b) Using Statement I: We cannot determine if all the friends are facing the centre.
 A is the facing outside of C is facing the centre of circle. So all friends are not facing the centre.
3. (c) Using Statement I:

Monday	Botany
Tuesday	Mathematic
Wednesday	Physics
Thursday	Chemistry
Friday	Zoology

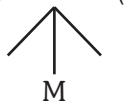
Chemistry is not taught on Wednesday

Using Statement II:

Monday	Botany/Zoology
Tuesday	Mathematic
Wednesday	Physics
Thursday	Chemistry
Friday	Zoology

Or

Monday	Botany/Zoology
Tuesday	Mathematic
Wednesday	Physics
Thursday	Chemistry
Friday	Zoology/Botany

Chemistry is not taught on Wednesday
4. (c) Using Statement I: If the time is 9 o'clock now then after 30 minutes ie at 9:30 the angle between the minute hand and hour hand cannot be 90° . So, now time is not 9 o'clock
 Using Statement II: If the time is 9 o'clock now then 15 min before the hour and minute hand of the clock can never coincide with each other Instead they will have an angle of 7.5° . So, the time now is not 90° clock.
5. d; Using Statement I: The gender of F is not known So, we cannot say if F is granddaughter or grandson of B.
 Using Statement II: The name of B has not even been mentioned. Using both statements together.
6. (c) From the statements II and III:
 $T \Leftrightarrow W$
 $(+)$ $(-)$


Though, sex of M is not known, it is given in statement III, that T has three children only one of them is boy. Therefore, we may conclude that W has two daughters.
7. (d) From Using Statement I:
 $E > B > A$
 From Using Statement II:
 $\underline{\quad} > \underline{\quad} > \underline{\quad} > C > \underline{\quad} > \underline{\quad}$
 From Using Statement III: Now combining all the above statements, we have
 $E > B > A > C > D > F$
8. (e) From Using Statement II: From Using Statement III: Now combining statements I and II J is in southwest direction from W
9. (e) Even by combining all the statements we cannot find the day of the week on which Suresh's mother visited Suresh's house.
10. (a) From Using Statement I and III:
 Now or never again torn ka na sa ... (i)
 again go now or never na ho ka sa ... (ii)
 From (i) and (ii) code for 'go' is 'ho'
11. (a) From I: There are two possible arrangements.
 (a) P T R S
 (b) P T R S
 So, either T or R
 From II: There are two possible arrangements.
 (a) Q T S
 (b) T S Q
 Again either T or S
 Combining I and II
12. (a) Using Statement I:
 Using Statement II:

So, by Using Statement I alone, we can say that E sits on the immediate right of A.

13. (d) Even by using both the statements, we are not able to determine who is tallest as we do not have the exact idea about the height of Q.

14. (b) From I: EAST or ETSA

Hence I alone is not sufficient

From II: Only EAST is possible

Hence II alone is sufficient.

15. (a) From I

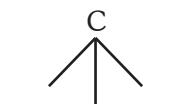
C (-)

D (+) – M's father (+)

M

Hence C is the grandmother of M.

From II:



$E(-) \Leftrightarrow -F(-)$

S (-) – M

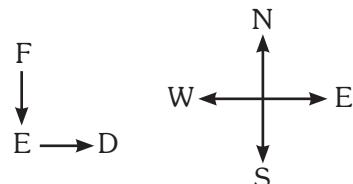
We still don't know C's sex.

16. (e) From I: $P > Q$, but T is not the tallest.

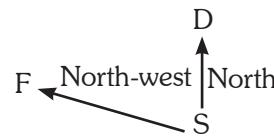
From II: $R > P$, but S is not the tallest.

From I and II: $R > P > Q$. Neither S nor T can be the tallest. Hence R is the tallest.

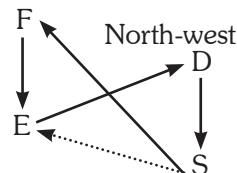
17. (e) From I:



From II:



From I and II:



Point E is to the north-west of Point S.

18. (b) From I: Possible months: January, February, March, April, May or June.

From II: Rahul's son correctly remembers that his father went on vacation after 31st March but before 1st May. So his father went on vacation in the month of April. Hence only II is sufficient.

19. (c) From I: The possible day of exam is Wednesday.

From II: The third day of the week is Wednesday.

Hence, either statement I alone or statement II alone is sufficient.

20. (d) From I: Two-digit marks is less than or equal to 20.

Possible marks: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20.

From II: Suman scored more than 9 marks.

Possible marks: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20.

Hence statement I and II together are not sufficient.

Concept Deviator

1. (d) If we look at Statement I then we will get

If $a = 3$ and $b = 2$, $a + b > 0$. Here $b > 0$

If $a = 3$ and $b = -2$, $a + b > 0$. Here $b < 0$

Hence I alone is not sufficient.

Now if we look at Statement II only then we will get

If $a = 3$ and $b = 2$, $a - b > 0$. Here $b > 0$

If $a = 3$ and $b = -2$, $a - b > 0$. Here $b < 0$

Hence II alone is not sufficient.

Now by using statements I and II together

If $a = 3$ and $b = 2$, $a - b > 0$ and $a + b > 0$. Here $b > 0$

If $a = 3$ and $b = -2$, $a - b > 0$. and $a + b > 0$. Here $b < 0$.

Hence I and II together are also insufficient.

2. (c) If we look at Statement I

$$i = p - 17 \text{ and } r = p - 103$$

Hence, we cannot find how many each received so this statement is not sufficient enough.

Now by considering Statement II alone.

$$p + i + r = 170$$

Hence, we cannot find how many each received. so this statement is not sufficient enough

Using I and II together, we get $p + (p - 17) + (p - 103) = 170$.

Solving the above equation we get the value of p and the values of q and r.

3. (b) If we look at Statement I

It is given that the circles are concentric. But nothing is given about their dimensions. Hence I alone is not sufficient.

In statement II ratio of area is given hence we can find the required ratio.

4. (b) Let the 7 consecutive whole numbers be $(n \pm 3)$, $(n \pm 2)$, $(n \pm 1)$, n.

Now if we consider Statement I alone

Product of these 7 integers = 702800

Since $702800 = 2^4 5^2 (251)(7)$, it cannot be the product of 7 consecutive whole numbers. Hence I alone is insufficient.

Now if we consider Statement II alone

Given that their sum = $105 = 7n$ or $n = 15$ and then 7 consecutive integers are 12, 13, 14, 15, 16, 17, 18

So, II alone is sufficient.

5. (a) Since sum is 360 hence $P + Q + R + S = 360$

From statement I alone we will get $P = (Q + R + S)/3$ from this we can find the value of P hence statement I alone is sufficient enough.

From statement II alone we can not find the value of P.

6. (d) Statement I is not sufficient as the size of the ice cube and height of the container is not known hence statement I is not sufficient alone.

Statement II is also not sufficient as the dimension of the container is not known.

We cannot answer the question even by combining both the statements as the height of the container is not known.

7. (b) It is given that Ram got a dividend of ₹ 1500.

Statement I

Knowing the dividend paid last year, we cannot find the dividend paid this year.

Statement II

Given that Ram bought 350 shares of face value ₹10, and so, their total face value is ₹3500. So here we know the investment and the return hence we can find out the rate of interest.

8. (d) Consider Statement I alone.

Given that $\text{Area } (\Delta ABC) = \text{Area}(\Delta PQR)$ since nothing about the sides or angles is mentioned, we cannot say if they are congruent. Hence, I alone is not sufficient.

Consider Statement II alone

ΔABC and ΔPQR are right triangles. Nothing about the sides is given, hence, II alone is not sufficient.

Now using both I and II

Now we have two right angled triangle with same area we may have different combination as only product of base and height is same. Hence even by using both the statement we can not find the answer.

9. Given that their salaries are in the ratio of 3:4 and expenditure is in the ratio of 4:5 hence we can assume that salary of A and B are $3x$ and $4x$ and their expenditures are $4y$ and $5y$.

Now we need to find the ratio of $(3x - 4y)/(4x - 5y)$

Consider statement I alone:

Saving of B is 25% of his salary hence his expenditure must be 75% so $\frac{3}{4}(4x) = 5y$ or $3x = 5y$ from this we can find the required ratio hence this statement is sufficient.

Consider statement II alone:

Given that $4x = 2000$ or $x = 500$ but from this we can not find the value of y and hence we can not find the ratio of their savings.

10. (c) Let x be the average height of the class and n be the number of students in the class.

Consider statement I alone:

$$\begin{aligned} xn - 56 &= (x - 1)(n - 1) \\ \Rightarrow x + n &= 57 \end{aligned} \quad \dots(i)$$

Hence, the value of x cannot be found. So, I alone is not sufficient.

Consider statement II alone:

$$\begin{aligned} xn - 42 &= (x + 1)(n - 1) \\ \Rightarrow x - n &= 41 \end{aligned} \quad \dots(ii)$$

Hence, the value of x cannot be found. So, II alone is not sufficient.

Both the statements together are sufficient as the value of x can be found by solving (i) and (ii)

11. (b) Given that Ram > Shyam, Vikram > Jay.

Hence from this we can conclude that neither Ram nor Vikram is the shortest. And we have to find the shortest among them:

Consider statement I alone:

We know that Ram is not the shortest, either Shyam or Jay is the shortest.

Hence (I) alone is not sufficient.

Consider statement I alone Shyam > Vikram.

From the given information and the information in (II), we get Ram > Shyam > Vikram > Jay.

Hence, (II) alone is sufficient.

12. (a) Statement I alone is sufficient.

Statement II alone is not sufficient, for we can have more than one value of MN possible.

13. (e) Given relationship is $(PQ)(RQ) = XXX$

Since X can take 9 values from 1 to 9 hence we have 9 possibilities

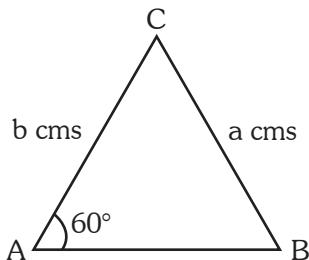
$$111 = 3 \times 37 \quad 444 = 12 \times 37 \quad 777 = 21 \times 37$$

$$222 = 6 \times 37 \quad 555 = 15 \times 37 \quad 888 = 24 \times 37$$

$$333 = 9 \times 37 \quad 666 = 18 \times 37 \quad 999 = 27 \times 37$$

But out of these 9 cases only in 999, we get the unit's digit of the two numbers the same. Since it is a unique value, hence we need neither statement I nor statement II to answer the question.

14. (d)



Let, a cm and b cm are the the two unknown sides as shown in the fig.

From statement 1,

$$a + b = 80 \text{ cm, hence } b = (80 - a) \text{ cm}$$

Now using cosine rule.

$$\cos 60^\circ = (AB^2 + AC^2 - CB^2)/2 AB$$

$$\therefore \frac{1}{2} = [60^2 + b^2 - (80 - b)^2]/120$$

By solving this we get, b= 28 cm. Hence, statement 1 is sufficient to answer.

From statement 2,

$$\text{Since } \angle B = 45^\circ \text{ hence } \angle C = 75^\circ$$

According to sine rule: we know that $a/\sin A = b/\sin B = c/\sin C$

$$a/\sin 45^\circ = b/\sin 60^\circ = 60/\sin 75^\circ$$

From this we can find the value of the sides.

Hence statement 2 is sufficient to answer the question.

15. (a) From statement I,

$E + B < A + D$, we easily say that E is less than A, because $B > D$ and as the statement suggest $E + B < A + D$.

$$\therefore E < A.$$

$\therefore A$ is not the smallest integer.

Statement I is sufficient to answer.

From statement II, $D < F$

This statement is not sufficient to find the relation between A and E.

Chapter

12

Inequality

Section	Level	No. of Questions
Concept Application	Very Easy	15
Concept Builder	Easy	24
Concept Cracker	Moderate	30
Concept Deviator	Difficult	18

THEORY

To understand this chapter, we must keep one concept in our mind that is equality means equal and inequality means-

- (i) greater than ($>$)
- (ii) Less than ($<$)
- (iii) Greater than or equal to (\geq)
- (iv) Less than or equal to (\leq)

Symbolic Representation

- $A > B$ – "A" is greater than B" or "B is less than A"
- $A < B$ – "A" is Less than B" or "B is greater than A"
- $A \geq B$ – "A" is greater than B" or equal to B"
or
either A is greater than B or A is equal to B
- $A >< B$ – i.e. $A \neq B$ " no relationship"
- $A = B$ – "A is equal to B"

Conditions for no – relationship

- (i) $> <$ (ii) $\geq \leq$ (iii) $> \leq$ (iv) $\geq <$
- (v) $< >$ (vi) $\leq \geq$ (vii) $< \geq$ (viii) $\leq >$

For Example

$$A = B > C < D$$

- (i) A is equal to B
- (ii) A is greater than C
- (iii) A and D has no relations, As between A and D conditions for no-relationship exists i.e. ($> <$).

1. CONCEPT APPLICATOR

Direction (Qs. 1-5): In these question, relationship between different element is shown in the statements. These statements are followed by two conclusions.

[Central Bank of India (PO).]

Mark answer

- (a) If only conclusion I follows
- (b) If only conclusion II follows
- (c) If either conclusion I or II follows
- (d) If neither conclusion I nor II follows
- (e) If both conclusion I and II follow.

1. **Statements:** $N = P$, $P < F$, $F > L$, $L = K$

Conclusions: I. $F = K$ II. $F > K$

2. **Statements:** $Z > T$, $T < M$, $M < J$

Conclusions: I. $T < J$ II. $J < Z$

3. **Statements:** $Q = Z$, $C \geq G$, $G \geq Q$, $Q \geq R$

Conclusions: I. $G \geq Z$ II. $C \geq R$

4. **Statements:** $A > B > C$, $D > E > F$, $D > C$

Conclusions: I. $E > C$ II. $F > B$

5. **Statements:** $K < L$, $K > M$, $M \geq N$, $N > O$

Conclusions: I. $O < M$ II. $O < K$

[Corporation Bank (PO)]

6. **Statements:** $P \geq Q = R > S > T$

Conclusions: I. $P \geq T$ II. $T < Q$

7. **Statements:** $L \leq M < N > O \geq P$

Conclusions: I. $O < M$ II. $P \leq N$

8. **Statements:** $A > B$, $B \geq C = D < E$

Conclusions: I. $C < A$ II. $D \leq B$

9. **Statements:** $H > J = K$, $K \geq L$, $L > T$, $T < V$

Conclusions: I. $K > T$ II. $L \leq H$

10. **Statements:** $A \geq B = C$, $D > C = E$

Conclusions: I. $E > A$ II. $A < D$

Direction (Qs. 11-15): In these question, the relationship between different element is shown in the statements. These statements are followed by two conclusions. [India Overseas Bank (PO)]

Mark answer

- (a) If only conclusion I follows
- (b) If only conclusion II follows
- (c) If either conclusion I or II follows
- (d) If neither conclusion I nor II follows
- (e) If both conclusion I and II follow.

11. **Statements:** $A \geq B = C$, $B < D \leq E$

Conclusions: I. $D > A$ II. $E > C$

12. **Statements:** $L > U \geq K$, $Z < U < R$

Conclusions: I. $L > Z$ II. $K < R$

13. **Statements:** $Y < J = P \geq R > I$

Conclusions: I. $J > I$ II. $Y < R$

14. **Statements:** $V \geq K > M = N$, $M > S$, $T < K$

Conclusions: I. $T < N$ II. $V = S$

15. **Statements:** $F \leq X < A$, $R < X \leq F$

Conclusions: I. $F \leq E$ II. $R < F$

2. CONCEPT BUILDER

Direction (Qs. 1-5): In the following information question, the symbols @, ©, %, S and δ are used with the following meaning as illustrated below:

'P % Q' means 'P is greater than Q'

'P δ Q' means 'P is neither greater than smallest than Q'

'P @ Q' means 'P is smallest than Q'.

'P © Q' means 'P is either smallest than or equal to Q'

'P S Q' means 'P is either greater than or equal to Q'

In each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true

Give answer:

- (1) if only conclusion I is true
- (2) if only conclusion II is true
- (3) if either conclusion I or conclusion II is true
- (4) if neither conclusion I nor conclusion II is true
- (5) if both conclusion I and II are true

1. **Statements:** M @ J, J © R, R δ K

Conclusions: I. K δ J II. K % J

2. **Statements:** N S T, T δ H, N @ W

Conclusions: I. W % T II. H © N

3. **Statements:** F @ R, R © V, V S T

Conclusions: I. V % F II. F @ T

4. **Statements:** W © D, D S B, B @ H

Conclusions: I. H % D II. W @ B

5. **Statements:** F δ T, T S M, M © R

Conclusions: I. R S F II. M © F

6. **Statements:** H S N, N % R, R @ J

Conclusions: I. R @ H II. J % H

7. **Statements:** V % B, B S D, D © E

Conclusions: I. E δ B II. D @ V

Direction (Qs. 8-12): In these following question, the symbols @, #, *, and % are used with the different meaning as follow: [SBI (PO)]

'A @ B' means 'A is not smallest than B'.

'A # B' means 'A is neither smallest than nor equal to B.'

'A S B' means 'A is neither greater than nor smallest than B.'

'A * B' means 'A is not greater than B'.

'A % B' means 'A is neither greater than or equal to B'.

In each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true.

Give answer:

- (a) if only conclusion I is true.
- (b) if only conclusion II is true.
- (c) if either conclusion I or conclusion II is true.
- (d) if neither conclusion I nor conclusion II is true.
- (e) if both conclusion I and II are true.

8. **Statements:** L * P, P % V, V # D

Conclusions: I. L * V II. L S D

9. **Statements:** V * W, W S H, H @ I

Conclusions: I. L * V II. L S D

10. **Statements:** N @ W, W # H, H % T

Conclusions: I. H % N II. T # W

11. **Statements:** F # R, H % R, L * H

Conclusions: I. F # L II. R @ L

12. **Statements:** J @ K, K % M, M # T

Conclusions: I. K % T II. K @ T

Direction (Qs. 13-17): In the following information question, the symbols @, #, %, * and \$ are used with the following meaning as illustrated below:

'P @ Q' means 'P is not smallest than Q'.

'P # Q' means 'P is not greater than Q'.

'P % Q' means 'P is neither greater than nor equal to than Q'.

'P * Q' means 'P is neither smallest than nor greater than Q'.

'P \$ Q' means 'P is neither smallest than nor greater than Q'.

Now each of the following questions assuming the given statements to be true, find which of the three conclusions I, II and III given below them is/are definitely true and give your answer accordingly. [Bank of India (PO)]

13. **Statements:** M % R, R # T, T * N

Conclusions: I. N * R, II. NSR, III. NSM

- (a) All follow
- (b) Only either I or II follows
- (c) Only either I or II and III follow
- (d) Only either I or III and II follow
- (e) None of these

14. **Statements:** I # N

Conclusions: I. J % T II. T S N III. N @ J

- (a) None follow
- (b) Only I and II follow
- (c) Only I and III follow
- (d) Only II and III follow
- (e) All follow

15. **Statements:** B * D, D @ H, H % F

Conclusions: I. B * F II. B S F III. D S F

- (a) None follow
- (b) Only either I or III follows
- (c) Only either I or II follows
- (d) Only either II or III and follows
- (e) All follow

16. **Statements:** T S K, K # R, R * M

Conclusions: I. M * K II. M % T III. M S K

- (a) All follow
- (b) Only either I or III follows
- (c) Only either I or II follows
- (d) Only either II or III follows
- (e) None of these

17. **Statements:** V @ M, A S M, R # V

Conclusions: I. R # A II. V @ A III. R S M

- | | |
|----------------------|---------------------|
| (a) Only I follows | (b) Only II follows |
| (c) Only III follows | (d) None follows |
| (e) All follow | |

Direction (Qs. 18-24) In the following information question, the symbols @, ©, S, % and are used with the following meaning as illustrated below:

[Oriental Bank of Commerce (PO)]

3 CONCEPT CRACKER

Direction (Qs. 1-5): In these following question, the symbols @, S, #, *, and % are used with the different meaning as follows:

'A @ B' means 'A is smallest than B'.

'A S B' means 'A is greater than B'.

'A # B' means 'A is either smallest than or equal to B'.

'A * B' means 'A is either greater than or equal to B'.

'A % B' means 'A is either smallest than nor greater than B'.

In each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true.

'P © Q' means 'P is either greater than or equal to Q'.

'P % Q' means 'P is either smallest than or equal to Q'.

'P @ Q' means 'P is neither smallest than nor greater than Q'.

'P S Q' means 'P is smallest than Q'.

'P δ Q' means 'P is greater than Q'.

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is are definitely true.

Give answer:

- (a) if only conclusion I is true.
- (b) if only conclusion II is true.
- (c) if either conclusion I or II is true.
- (d) if neither conclusion I nor II is true.
- (e) if both conclusions I and II are true.

18. **Statements:** H © T, T % M, M δ F

Conclusions: I. F S T II. H δ M

19. **Statements:** B @ N, N © T, T S K

Conclusions: I. T @ B II. T S B

20. **Statements:** R S J, J δ F, F % H

Conclusions: I. H δ J II. R S F

21. **Statements:** J δ D, D @ N, N % F

Conclusions: I. J δ F II. F © D

22. **Statements:** B δ T, T S H, H @ M

Conclusions: I. M δ T II. B δ H

23. **Statements:** W % V, V @ Z, Z © D

Conclusions: I. D % V II. W % Z

24. **Statements:** M % R, R S T, T © K

Conclusions: I. T δ M II. R S T

Give answer:

- (a) if only conclusion I is true.
- (b) if only conclusion II is true.
- (c) if either conclusion I or conclusion II is true.
- (d) if neither conclusion I nor conclusion II is true.
- (e) if both conclusions I and II are true.

1. **Statements:** H # T, T @ L, L % F

Conclusions: I. F S H II. H # L

2. **Statements:** V S I, I * M, M # Q

Conclusions: I. I # Q II. I * Q

3. **Statements:** P @ W, W * D, D S J
Conclusions: I. J @ P II. J @ W
4. **Statements:** E @ U, U % R, R S F
Conclusions: I. E S F II. E * F
5. **Statements:** T # J, J * I, I @ W
Conclusions: I. J @ W II. T % I
6. **Statements:** K * D, D S L, L @ J
Conclusions: I. K S L II. K # J

Direction (Qs. 7-12) In the following information question, the symbols #, %, @, S and © are used with the following meaning as illustrated below:

[Indian Overseas Bank (PO)]

'P # Q' means 'P is not smallest than Q'.

'P % Q' means 'P is not greater than Q'.

'P @ Q' means 'P is neither smallest than nor equal to Q'.

'P S Q' means 'P is neither greater than nor equal to Q'.

'P © Q' means 'P is neither smallest than nor greater than Q'.

In each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is definitely true.

Give answer:

- (a) if only conclusion I is true.
- (b) if only conclusion II is true.
- (c) if either conclusion I or conclusion II is true.
- (d) if neither conclusion I nor conclusion II is true.
- (e) if both conclusions I and II are true.

7. **Statements:** R % N, N # F, F @ B

Conclusions: I. F © R II. B S N

8. **Statements:** H © W, W % R, R @ F

Conclusions: I. R © H II. R @ H

9. **Statements:** M S T, T @ K, K © D

Conclusions: I. D S T II. K S M

10. **Statements:** H @ W, W S M, M # K

Conclusions: I. K S W II. H @ M

11. **Statements:** F # K, K S B, B % M

Conclusions: I. M @ F II. B @ F

12. **Statements:** R # T, T © M, M @ D

Conclusions: I. D S T II. R # M

[United Bank of India (PO)]

Direction (Qs. 13-18): In the following information question, the symbols S, %, @, © and are used with the following meaning as illustrated below:

'P % Q' means 'P is not smallest than Q'.

'P % Q' means 'P is not greater than Q'.

'P * Q' means 'P is neither greater than nor equal to Q'.

'P © Q' means 'P is neither smallest than nor equal to Q'.

'P @ Q' means 'P is neither greater than nor smallest than Q'.

13. **Statements:** J © M, M * K, K % D
Conclusions: I. J © D, II. D * M III. K © J

- (a) None is true
- (b) Only I is true
- (c) Only II is true
- (d) Only III is true
- (e) Only I and II are true

14. **Statements:** R @ K, K S F, F * N

Conclusions: I. N © R, II. F @ R, III. F © R

- (a) Only I is true
- (b) Only either II or III is true
- (c) Only I and either II or III are true
- (d) Only III is true
- (e) None of these

15. **Statements:** R S D, D @ N, N © F

Conclusions: I. F * D II. F * R III. N % R

- (a) Only I and II are true
- (b) Only I and III are true
- (c) Only II and III are true
- (d) All are true
- (e) None of these

16. **Statements:** H * T, T S B, B © R

Conclusions: I. R © H II. B © H III. T * R

- (a) Only I is true
- (b) Only I and II are true
- (c) Only I and III are true
- (d) Only II and III are true
- (e) None of these

17. **Statements:** M % D, D * K, K S N

Conclusions: I. K © M II. N © D III. M © N

- (a) Only I is true
- (b) Only II is true
- (c) Only III is true
- (d) Only I and II are true
- (e) None of these

18. **Statements:** F S B, B @ H, H % K

Conclusions: I. B % F II. K @ F III. K S B

- (a) Only I is true
- (b) Only II is true
- (c) Only III is true
- (d) Only I and III are true
- (e) None of these

Direction (Qs. 19-25) In the following information question, the symbols @, © S, %, and are used with the following meaning as illustrated: Andhra Bank

(Marketing Associate)]

'P S Q' means 'P is neither smallest than nor equal to Q'.

'P # Q' means 'P is not smallest than Q'.

'P @ Q' means 'P is not greater than Q'.

'P % Q' means 'P is neither smallest than greater than Q'.

'P © Q' means 'P is neither greater than nor equal to Q'.

In each of the following questions assuming the given statements to be true, find which of the three conclusions I, II and III given below them is are definitely true.

19. **Statements:** F @ N, N © D, D @ R

Conclusions: I. D # F II. R S N III. R S F

- (a) None is true
- (b) Only I is true
- (c) Only II is true
- (d) Only III is true
- (e) Only II and III are true

20. **Statements:** B % H, H S E, E @ K

Conclusions: I. K S H II. K S B III. E © B

- (a) None is true
- (b) Only III is true
- (c) Only II is true
- (d) Only I is true
- (e) Only I and III are true

21. **Statements:** W @ F, F S M, M © D

Conclusions: I. D S F II. W © B III. F S D

- (a) None is true
- (b) Only I is true
- (c) Only II is true
- (d) Only III is true
- (e) Only II and III are true

22. **Statements:** M # W, W % N, N S B

Conclusions: I. N % M II. N © M III. M S B

- (a) Only either I or II is true
- (b) Only either I or III is true
- (c) Only either I or II and III are true
- (d) Only III is true
- (e) None of these

23. **Statements:** M # W, W % N, N S B

Conclusions: I. N % M II. N © M III. M S B

- (a) Only either I or II is true
- (b) Only either I or III is true
- (c) Only either I or II and III are true
- (d) Only III is true
- (e) None of these

24. **Statements:** M © T, T # J, J S K

Conclusions: I. K © T II. M © J III. K @ M

- (a) None is true
- (b) Only III is true
- (c) Only II is true
- (d) Only I is true
- (e) Only I and II are true

25. **Statements:** R © F, F # D, D @ M

Conclusions: I. R © D II. M % F III. M S R

- (a) None is true
- (b) Only I is true
- (c) Only II is true
- (d) Only III is true
- (e) Only I and II are true

[RBI Grade B Officers (PO)]

Direction (Qs. 26-30): In these question, relationship between different elements is shown in the statements. The statements are followed by two conclusions.

Give answer

- (a) If only conclusion I is true
- (b) If only conclusion II is true
- (c) If either conclusion I or II is true
- (d) If neither conclusion I nor II is true
- (e) If both conclusion I and II are true

26. **Statements:** N < O ≥ R > T; R < A; B ≤ T

Conclusions: I. N < A II. B < A

27. **Statements:** C ≥ D = E ≤ F; Y < D ≥ W

Conclusions: I. C ≥ Y II. F ≥ Y

(28-29):

28. **Statements:** S ≤ T < U ≥ W; T ≤ R, G > U

Conclusions: I. S < G II. W ≤ R

29. **Conclusions:** I. R ≥ S II. W < G

30. **Statements:** H ≥ G < I; F ≤ G > Z

Conclusions: I. F ≤ H II. Z < I

4. CONCEPT DEVIATOR

Direction (Qs. 1-5): Read each of the following statements carefully and answer the questions.

[Allahabad Bank (PO)]

1. Which of the following expression will be true if the given expression $A > B \geq C < D < E$
 - (a) $A \geq C$
 - (b) $E > C$
 - (c) $D \geq B$
 - (d) $A > D$
 - (e) None of these
2. If the expression $E < J \leq H > Z$, ‘ $H \leq Y$ ’ and ‘ $E > F$ ’ true. Which of the following conclusions will be definitely false?
 - (a) $F < Y$
 - (b) $Y > E$
 - (c) $F < H$
 - (d) $J \leq Y$
 - (e) All are true
3. Which of the following symbols should replace the question mark in the given expression in order to make the expressions ‘ $K \leq H$ ’ and ‘ $M > J$ ’ definitely true?

$$H \geq I = J ? K \leq L < M$$
 - (a) $>$
 - (b) \geq
 - (c) \leq
 - (d) Either $<$ or \leq
 - (e) $=$

4. In which of the following expressions will be expression ‘ $P > S$ ’ definitely false?
 - (a) $P > Q \geq R = S$
 - (b) $S \leq R \leq Q < P$
 - (c) $R = P > Q \geq S$
 - (d) $S > Q \geq R < P$
 - (e) $S < Q \leq R < P$

5. Which of the following symbols should be placed in the blank spaces respectively (in the same order from left to right) in order to complete the given expressions in a such a manner that ‘ $N < K$ ’ definitely holds true?

$K - L - M - N$

- (a) $\geq, =, >$
- (b) $\leq, <, =$
- (c) $\geq, =, <$
- (d) $>, \geq, <$
- (e) None of these

Direction (Qs. 6-12): In the following information question, the symbols S , $\%$, $@$, \circledcirc and \circ are used with the following meaning as illustrated below:

[Corporation Bank (PO)]

- ‘ $P \% Q$ ’ means ‘ P is neither greater than nor smallest than Q ’.
 ‘ $P S Q$ ’ means ‘ P is neither smallest than nor equal to Q ’.
 ‘ $P \circledcirc Q$ ’ means ‘ P is neither greater than nor equal to Q ’.

‘ $P * Q$ ’ means ‘ P is not greater than Q ’.

‘ $P @ Q$ ’ means ‘ P is not smallest than Q ’.

Now in each of the following questions assuming the given statements to be true, find which of the three conclusions I, II and III given below them is are definitely true and give your answer accordingly.

6. **Statements:** $V \circledcirc K, K @ B, B S M$

Conclusions: I. $V \circledcirc B$ II. $M \circledcirc K$ III. $M \circledcirc R$

- (a) None is true
- (b) Only I is true
- (c) Only II is true
- (d) Only III is true
- (e) Only II and III are true

7. **Statements:** $D * R, R \% F, F S T$

Conclusions: I. $F \% D$ II. $F S D$ III. $T \circledcirc R$

- (a) Only I is true
- (b) Only II is true
- (c) Only III is true
- (d) Only either I or II is true
- (e) Only either I or II and III are true

8. **Statements:** $N @ D, D * K, K S A$

Conclusions: I. $K @ N$ II. $A \circledcirc D$ III. $N S A$

- (a) None is true
- (b) Only I is true
- (c) Only II is true
- (d) Only III is true
- (e) Only II and III are true

9. **Statements:** $K @ T, T S N, N \circledcirc R$

Conclusions: I. $R S K$ II. $N * K$ III. $K S N$

- (a) None is true
- (b) Only I is true
- (c) Only II is true
- (d) Only III is true
- (e) Only II and III are true

10. **Statements:** $W \% K, K \circledcirc T, D S F$

Conclusions: I. $D S K$ II. $D S W$ III. $F @ W$

- (a) Only I and III are true
- (b) Only I and II are true
- (c) Only II and III are true

- (d) All I, II and III are true
 (e) None of these
11. **Statements:** $B * K$, $K \circledcirc F$, $F \% R$
Conclusions: I. $R \$ K$ II. $R \$ B$ III. $F \$ B$
 (a) Only I and III are true
 (b) Only I and II are true
 (c) Only II and III are true
 (d) All I, II and III are true
 (e) None of these
12. **Statements:** $H \$ M$, $M \% D$, $D @ K$
Conclusions: I. $H \$ D$ II. $K * M$ III. $K \circledcirc H$
 (a) Only II is true
 (b) Only II and III are true
 (c) Only I and III are true
 (d) Only I and II are true
 (e) All I, II and III are true
- Direction (Qs. 13-18):** In the following information question, the symbols %, @ and © are used with the following meaning as illustrated below:
- [Indian Bank (PO)]
- ' $P * Q$ ' means 'P is not greater than Q'
 ' $P @ Q$ ' means 'P is neither greater nor equal to than Q'.
 ' $P \circledcirc Q$ ' means 'P is not smallest Q'.
 ' $P \% Q$ ' means 'P is neither smallest than nor greater than Q'.
 ' $P \delta Q$ ' means 'P is neither smallest nor than Q'.
 Now each of the following questions assuming the given statements to be true, find which of the three conclusions I, II and III given below them are definitely true and give your answer accordingly.
13. **Statements:** $R \circledcirc K$, $K \delta M$, $M *$
Conclusions: I. $J \delta K$ II. $M @ R$ III. $M \% R$
 (a) None is true
 (b) Only I is true
 (c) Only II is true
 (d) Only either II and III are true
 (e) Only III is true
14. **Statements:** $R \delta B$, $B \circledcirc N$, $N @ T$
Conclusions: I. $N @ R$ II. $T \delta B$ III. $T \delta R$
 (a) None is true
 (b) Only I is true
 (c) Only II is true
 (d) Only III is true
 (e) Only II and III are true
15. **Statements:** $W \circledcirc K$, $K \delta R$, $R \% N$
Conclusions: I. $N @ K$ II. $R @ W$ III. $W \delta N$
 (a) Only I and II are true
 (b) Only either II or III is true
 (c) Only II and III are true
 (d) Only I and III are true
 (e) All I, II and III are true
16. **Statements:** $H * W$, $W @ N$, $N \% R$
Conclusions: I. $R \delta W$ II. $N \delta W$ III. $H @ R$
 (a) Only I and II are true
 (b) Only II and III are true
 (c) Only I and III are true
 (d) All I, II and III are true
 (e) None of these
17. **Statements:** $Z \% M$, $M * F$, $F \delta D$
Conclusions: I. $F \% Z$ II. $F \delta Z$ III. $D @ Z$
 (a) Only I is true
 (b) Only either I or II is true
 (c) Only II is true
 (d) Only III is true
 (e) None of these
18. **Statements:** $D @ K$, $K \% F$, $F \circledcirc B$
Conclusions: I. $F \delta D$ II. $B @ K$ III. $B \% K$
 (a) Only I is true
 (b) Only II is true
 (c) Only III is true
 (d) Only either II or III is true
 (e) Only either II or III and I are true

Answer with Solution

Concept Applicator

1. (c) $N = P \leq F \geq L = K$
Hence $F \geq K$. Which means either
I ($F = K$) or II ($F > K$) follows
2. (a) $Z > T < M < J$
Which means $T < J$. Hence I follows.
But Z and J can't be compared. Hence II does not follow.
3. (e) $C \geq G \geq Q = Z \geq R$
Hence $G \geq Z$ and I follows.
Also $C \geq R$ and II follows.
4. (d) $A > B < C < D > E > F$
 E and C can't be compared. Hence II does not follow.
 Z and J can't be compared. Hence I does not follow.
Consequently II does not follow either.
5. (e) $L > K > M \geq N > O$
Hence $O < M$ and I follows.
Also $O < K$ and II follows.
6. (b)
7. (d)
8. (e)
9. (a)
10. (c)

Solution for 11 to 15

1. (b) $A \geq B = C < D \leq E$
I. $D > A$ is not true, II. $E > C$ is true.
2. (e) Split them as $L > U \dots$ (i)
Combining (i) and (ii),
We get $L > U > Z$ or $L > Z$
Hence I follows.
Combining (ii) and (iv) we get $K \leq U < R$ or $K < R$
Hence II follows.
13. (a) $Y < J = P \geq R > I$
I. $J > I$ is true, II. $Y < R$ is not true.
14. (d) $V \geq K > M = N > S$
 $K > T$
I. $T < N$ is not true, II. $V = S$ is true.
15. (a) Split them as $F \leq X \dots$ (i) $X < A \dots$ (ii)
 $R < X \dots$ (ii) and $X \leq E \dots$ (iv)
Combining (i) and (iv) we get
 $F \leq X \leq F$ or $F \leq E$.
Hence I follow.
From (i) and (iii) R and F can't be compared. Hence II does not follow.

Concept Builder

Solution for 1 to 7

1. (c) $M < J \dots$ (i) $J \leq R \dots$ (ii) $R = K \dots$ (iii)
From (ii) and (iii) $J \leq K$ or $K \geq J$, ...
Hence either I ($K = J$) or II ($K > J$) follow
2. (e) $N \geq T \dots$ (i) $T = H \dots$ (ii) $N < W \dots$ (iii)
Combining these we get $W > N \geq T = H$
Hence $W > T$ and I follows.
Also $H \leq N$ and II follows
3. (a) $F < R \dots$ (i) $R \leq V \dots$ (ii) $V \geq T \dots$ (iii)
From (i) and (ii) $F < V \dots$ (iv)
Hence $F > V$ and I follows
But F and T can't be compared From (iii) and (iv)
Hence II does not follow

4. (d) $W \leq D \dots$ (i) $D \geq B \dots$ (ii) $B > H \dots$ (iii)
 H and D can't be compared from (ii) and (iii)
Hence I does not follows
Nor can W and B be compared From (i) and (ii).
Hence II does not follows
5. (b) $F = T \dots$ (i) $T \geq M \dots$ (ii) $M \leq R \dots$ (iii)
From (i) and (ii) $F \geq M \dots$ (iv)
Hence $M \leq F$ and II follows
But R and F can't be compared From (iii) and (iv)
Hence I does not follow
6. (a) $H \geq N \dots$ (i) $N > R \dots$ (ii) $R < J \dots$ (iii)

- From (i) and (ii) $R > H \dots(iv)$
Hence $R < H$ and I follows
But J and H can't be compared From (iii) and (iv)
Hence II does not follow.
7. (a) $V > B \dots(i)$ $B \geq D \dots(ii)$ $D \leq E \dots(iii)$
From (ii) and (iii) E and B can't be compared.
Hence I does not follows.
From (i) and (iv) $V > D$ or $D < V$.
Hence II follows
- Solution for 8 to 12** [SBI (PO)]
8. (d) $L \leq P \dots(i)$ $P < V \dots(ii)$ $V > D \dots(iii)$
Combining (i) and (ii)
we get $L \leq P < V$ or $L < W \dots(iv)$ L and D can't be compared.
Hence II does not follows.
9. (b) $V \leq W \dots(i)$ $W = H \dots(ii)$ $H \geq I \dots(iii)$
From (i) and (ii) $W = H \geq I$ or $W \geq I \dots(iv)$
Hence $I \leq W$ and II follows
But V and I can't be compared From (iii) and (iv)
Hence I does not follow.
10. (a) $N \leq W \dots(i)$ $W = H \dots(ii)$ $H < T \dots(iii)$
From (i) and (ii) $W = N \geq W > H$ or $N > H \dots(iv)$.
Hence $H < N$ and I follows.
But T and W can't be compared from (ii) and (iii)
Hence II does not follow.
11. (a) $F > R \dots(i)$ $H < R \dots(ii)$ $L \leq H \dots(iii)$
Combining these we get $F > R > H \geq L$
Hence $F > L$ and I follows.
Also $R > L$ and II ($R \geq L$) does not follows.
12. (c) $J \geq K \dots(i)$ $K < M \dots(ii)$ $M > T \dots(iii)$
K and T can't be compared From (ii) and (iii) but either I ($K < T$) or II ($K \geq T$) must be true.
- Solution for 13 to 17** [Bank of India (PO)]
13. (c) $M < R \dots(i)$ $R \leq T \dots(ii)$ $T = N \dots(iii)$
Combining these we get $M < R \leq T = N$.
Hence $N \leq R$.
Which means either I ($N = R$) or II ($N > R$) follows.
Again $N > M$. Hence III follows
14. (e) $J \leq N \dots(i)$ $K \leq N \dots(ii)$ $T > K \dots(iii)$
Combining these we get $T > K \geq N \geq J$.
Hence $J < T$ and I follows. Also $T > N$ and II follows.
Beside $N \geq J$ and III follows

15. (a) $B = D \dots(i)$ $D \geq H \dots(ii)$ $H > F \dots(iii)$
D and F can't be compared from (i) and (ii). And from the same reason, if we bear (i) in mind. B and F can't be compared. Hence none follows.
16. (b) $D > K \dots(i)$ $K \leq R \dots(ii)$ $R = M \dots(iii)$
From (ii) and (iii) $M \geq K \dots(iv)$
Hence either I ($M = k$) or III ($M > k$) follow. But M and T can't be compared from (i) and (iv).
Hence II does not follow.
17. (d) $V \geq M \dots(i)$ $A > M \dots(ii)$ $R \leq V \dots(iii)$
These lead us to no relationship by combination.
- Solution for 18 to 19** [Oriental Bank of Commerce (PO)]
18. (d) $H \geq T \dots(i)$ $T \leq M \dots(ii)$ $M > F \dots(iii)$
From (i) and (ii) H and M can't be compared. Hence II does not follow
From (ii) and (iii) F and T can't be compared. Hence I does not follow
19. (c) $B = N \dots(i)$ $N \geq T \dots(ii)$ $T > K \dots(iii)$
From (i) and (ii) $B = N \geq T$ or $T \leq B$,
Hence I either ($T = B$) or II ($T < B$) follows.
20. (d) $R < J \dots(i)$ $J > F \dots(ii)$ $F \leq H \dots(iii)$
From (ii) and (iii) H and J can't be compared.
Hence I does not follow
From (i) and (ii) R and F can't be compared.
Hence II does not follow
21. (b) $J > D \dots(i)$ $D = N \dots(ii)$ $N \leq F \dots(iii)$
From (ii) and (iii) $D = N \leq F$ or $F \geq D \dots(iv)$
Hence II follows.
From (i) and (iv) J and F can't be compared.
Hence I does not follow.
22. (a) $B > T \dots(i)$ $T < H \dots(ii)$ $H = M \dots(iii)$
From (ii) and (iii) $T < H = M$ or $M > I$
Hence I follow
From (i) and (ii) B and H can't be compared. Hence II does not follow
23. (e) $W \leq V \dots(i)$ $V = Z \dots(ii)$ $Z \geq D \dots(iii)$
From (ii) and (iii) $V = Z \geq D$ or $D \leq V$
Hence I follows.
From (i) and (ii) $W \leq V = Z$ or $W \leq Z$
Hence II follows.
24. (a) $M \leq R \dots(i)$ $R < T \dots(ii)$ $T \geq K \dots(iii)$
From (ii) and (iii) $M \leq R < T$ or $T > M$
Hence I follows
From (ii) and (iii) R and K can't be compared. Hence II does not follow

Concept Cracker

Solution for 1 to 6

[Canara Bank (PO) 2009]

1. (a) $H \leq T$...(i) $T < L$...(ii) $L = F$...(iii)
Combining these we get $H \leq T < L = F$.
Hence $F > H$ and I follows.
But $H < L$ and Hence II ($H \leq L$) does not follow.
2. (c) $V > I$...(i) $I \geq M$...(ii) $M \leq Q$...(iii)
From (ii) and (iii) I and Q, can't be compared. But I and II make a complementary pair. Hence either I ($I \leq Q$) or II ($I \geq Q$) follows.
3. (b) $P < W$...(i) $W \geq D$...(ii) $D > J$...(iii)
From (ii) and (iii) $W \geq D > J$ or $J < W$...(iv)
Hence II follows. However, From (i) and (iv) we can conclude that J and P can't be compared. Hence I does not follow.
4. (d) $E < U$...(i) $U = R$...(ii) $R > F$...(iii)
From (i) and (ii) $E < R$...(iv)
Now, From (iii) and (iv) E and F can't be compared
Hence neither I nor II follows.
5. (d) $T \leq J$...(i) $J \geq I$...(ii) $I < W$...(iii)
From (ii) and (iii) J and W can't be compared. Hence I does not follow
From (i) and (ii) T and I can't be compared. Hence II does not follow.
6. (a) $K \geq D$...(i) $D > L$...(ii) $L < J$...(iii)
From (i) and (ii) $K \geq D > L$ or $K > L$...(iv)
Hence I follows.
However, From (iii) and (iv) J and H can't be compared. Hence II does not follow.

Solution for 7 to 12

[Indian Overseas Bank (PO)]

7. (b) $R \leq N$...(i) $N \geq F$...(ii) $F > B$...(iii)
From (i) and (ii) F and R can't be compared. Hence I does not follow.
Combining (ii) and (iii) we get $N \geq F > B$ or $N > B$ or $B < N$. Hence II follows.
8. (c) $H = W$...(i) $W \leq R$...(ii) $R > F$...(iii)
From (i) and (ii) $H = W \leq R$ or $R \geq H$,
Hence either I ($R = H$) or II ($R > H$) follows.
9. (a) $M < T$...(i) $T > K$...(ii) $K = D$...(iii)
From (ii) and (iii) $T > K = D$ or $D < T$.
Hence I follows
From (i) and (ii) K and M can't be compared.
Hence II does not follow.
10. (d) $H > W$...(i) $W > M$...(ii) $M \geq K$...(iii)

From (ii) and (iii) K and W can't be compared.

Hence I does not follow.

From (i) and (ii) H and M can't be compared.

Hence II does not follow.

11. (d) $F \geq K$...(i) $K > B$...(ii) $B \leq M$...(iii)

From (i) and (ii) F can't be compared with B and consequently with M. Hence neither II nor I follows.

12. (e) $R \geq T$...(i) $T = M$...(ii) $M > D$...(iii)

Combining these we get $R \geq T = M > D$.Hence $D > T$ and I follows.Also $R \geq T$ and II follows**Solution for 13 to 18**

[United Bank of India (PO)]

13. (a) $J > M$...(i) $M < K$...(ii) $K \geq D$...(iii)

From (i) and (ii) J and K can't be compared and consequently J and D can't be compared. Hence neither III nor I follows. From (ii) and (iii) D and M can't be compared

Hence II does not follow.

14. (c) $R = K$...(i) $K \leq F$...(ii) $F < K$...(iii)

Combining these we get $R = K \leq F < K$.Hence $K > R$ and I follows.Also $F \geq R$. Hence either II ($F = R$) or III ($F = R$) follows.

15. (b) $R \leq D$...(i) $D = N$...(ii) $N > F$...(iii)

From (ii) and (iii) $D = N > F$ or $F < D$...(iv)

Hence I follows.

From (i) and (iv) F and R can't be compared.

Hence II does not follow.

16. (e) $H < T$...(i) $T \leq B$...(ii) $B > R$...(iii)

From (i) and (ii) we get $H < T \leq B$ or $B > H$.

Hence II follows.

From (ii) and (iii) T and R can't be compared.

Hence III does not follow.

17. (b) $M \geq D$...(i) $D < K$...(ii) $K \leq N$...(iii)

From (i) and (ii) K and M can't be compared. Hence I does not follow.

From (ii) and (iii) $D < K \leq N$ or $N > D$.

Hence II follows. From (i) and II, M and N can't be compared. Hence III does not follow.

18. (d) $F \leq B$...(i) $B = H$...(ii) $H \geq K$...(iii)

From (i) B F. Hence I follows.

From (ii) and (iii) $B = H \geq K$ or $B \geq K$ or $K \leq B$ can't be compared. Hence II does not follow.

Solution for 19 to 24

[Andhra Bank (Marketing Associate)]

19. (c) $F \geq N$... (i) $N < D$... (ii) $D \leq R$... (iii)
 From (i) and (ii) F and D can't be compared.
 Hence I does not follow.
 From (ii) and (iii) $N < D \leq R$ or $R > N$... (iv)
 Hence II follows. From (i) and (iv) R and F can't be compared. Hence III does not follow.
20. (b) $B = H$... (i) $H > E$... (ii) $E \leq K$... (iii)
 From (i) and (ii) $B = H > E$ or $E < B$
 Hence III follows.
 From (ii) and (iii) H and K can't be compared.
 Hence I does not follow. Nor can II follow.
21. (a) $W \leq F$... (i) $F > M$... (ii) $M < D$... (iii)
 From (i) and (ii) W and M can't be compared. Hence II does not follow.
 From (ii) and (iii) F and D can't be compared. Hence neither I or III follows.
22. (c) $M \geq W$... (i) $W = N$... (ii) $N > B$... (iii)
 Combining these we get $M \geq W = N > B$.
 Hence $M \geq N$ or $N \leq M$,
 Which means either I ($N = M$) or II ($N < M$) follows.
 Also $M > B$ and II ($M \leq D$) Hence III definitely true.
23. (d) $M < T$... (i) $T \geq J$... (ii) $J > K$... (iii)
 From (ii) and (iii) $T \geq J > K$ or $K < T$.
 Hence I follows.
 From (i) and (ii) M and J can't be compared. Hence II does not follow. Nor can III follow.
24. (a) $R < F$... (i) $F \geq D$... (ii) $D \leq M$... (iii)
 From (i) and (ii) R and D can't be compared. Hence neither I nor III follows.
 From (ii) and (iii) M and F can't be compared. Hence II does not follows.

Solution for 25 to 30

[RBI Grade B Officers (PO)]

25. (b) $N < O \geq R > T$; $R < A$; $B \leq T$

Check for I:

$$N < O \geq R > T$$

- ∴ No definite relation can be found between N and A.
 Check for II:
 26. (d) $C \geq D = E \leq F$; $Y < D \geq W$
 Check for I:
 $C \geq D > Y$
 It means $C > Y$. Thus, I does not stand true.
 Check for II:
 $Y < D \leq F$
 It means $F > Y$. Thus, II also does not stand true.
27. (a) $S \leq T < U \geq W$; $T \leq R$, $G > U$
 Check for I:
 $S \leq T < U \geq W$
 ∴ S < G follows
 Check for II
 $R \geq T < U \geq W$
 ∴ No definite relation can be found between W and R can be found.
 Hence, only I follows
29. (e) $S \leq T < U \geq W$; $T \leq R$, $G > U$
 Check for I:
 $S \leq T \leq R$
 ∴ R ≥ S follows
 Check for II:
 $G > U \geq W$
 ∴ W < G follows
 Hence, both I and II follows
30. $H \geq G < I$; $F \leq G > Z$
 Check for I:
 $F \leq G \leq H$ is definitely follows
 Check for II:
 $Z < G < I$
 ∴ Z < I also follows
 Hence, both I and II follows

Concept Deviator**Solution for 1 to 5**

[Allahabad Bank (PO)]

1. (b)
2. (e) $F < E < J \leq H > Z$; $H \leq Y$ and $Z < H$
3. (e) $H \geq I = J = K \leq L < M$
4. (d) From this expression we cannot deduce any relation between P and S
5. (a) $K \geq L = M > N$

Solution for 6 to 12

[Corporation Bank (PO)]

6. (c) $V < K$... (i) $K \geq B$... (ii) $B > M$... (iii)

- From (i) and (ii) V and B can't be compared. Hence I does not follow.
- From (ii) and (iii) $K \geq B > M$ or $K > M$ or $M < K$.
 Hence II follows.
- From (i) and (iv) V and M can't be compared. Hence III does not follow.
7. (e) $D \leq N$... (i) $R = F$... (ii) $F > T$... (iii)
 From (i) and (ii) $D \geq R = F$ or $D \leq F$ or $F \geq D$.

- Hence either I ($F = D$) or II ($F > D$) follows.
- From (ii) and (iii) $R = F > T$ or $R > T$ or $T < R$.
Hence III follows.
8. (a); $N \geq D$...(i) $D \leq N$...(ii) $K > A$...(iii)
Obviously none of these in equations can be combined.
9. (d) $N \geq T$...(i) $T > N$...(ii) $N < R$...(iii)
From (i) and (ii) $N \geq T$. Hence II ($N \leq K$) does not follow. From (iii) and (iv) no relationship can be established a between K and R. Hence I does not follow.
10. (b) $W = K$...(i) $K < F$...(ii) $D > F$...(iii)
Combining these we get $W = K < F < D$
Hence $D > K$ and I follows.
Again $D > W$ and II follows. Also, $F > W$
Hence III ($F \geq W$) does not follow.
11. (b) $B \leq K$...(i) $K < F$...(ii) $F = W$...(iii)
Combining these we get $B \leq K < F = R$
Hence $R > K$ and I follows.
Again $R > B$ and II follows.
Also, $F > B$ III follow.
12. (e) $H > M$...(i) $M = D$...(ii) $D \leq K$...(iii)
Combining these we get $H > M = D \leq K$
Hence $H > D$ and I follows.
Again $K \leq M$ and II follows.
Also, $K < H$ III follows.
- Solution for 13 to 18** [Indian Bank (PO)]
13. (c) $R \geq K$...(i) $K > M$...(ii) $M \leq J$...(iii)
From (i) and (ii) J and K can't be compared. Hence I does not follow.
14. (b) $R > B$...(i) $B \geq N$...(ii) $N < T$...(iii)
From (i) and (ii) $R > B \geq N$ or $N < R$.
Hence I is true
From (ii) and (iii) B and T can't be compared.
Hence III does not follow. Nor does III subsequently.
15. (e) $W \geq K$...(i) $K > R$...(ii) $R = N$...(iii)
Combining these we get $W \geq K > R = N$
Hence $N < K$ and I follows.
Again $R < W$ and II follows.
And, $W > N$ III follows.
16. (d) $H \leq W$...(i) $W < N$...(ii) $R = N$...(iii)
Combining these we get $H \leq W < N = R$
Hence $R > W$ and I follows.
Again $N > W$ and II follows.
And, $H < R$ III follows.
17. (b) $Z = M$...(i) $M \leq F$...(ii) $F > D$...(iii)
From (i) and (ii) $Z = M \leq F$ or $F \geq Z$...(iv)
Hence either $F = Z$ (I is true) or $F > Z$ (II follows)
From (iii) and (iv) no relationship can be established between D and Z Hence III does not follow.
18. (e) $D < K$...(i) $K = F$...(ii) $F \geq B$...(iii)
From (i) and (ii) $D < K = F$ or $F > D$
Hence I is true
From (ii) and (iii) $K = F \geq B$ or $B \leq K$. Hence either II
($B < K$) or ($B = K$) is true

Chapter

13

Statement and Assumptions

Section	Level	No. of Questions
Concept Application	Very Easy	20
Concept Builder	Easy	10
Concept Cracker	Moderate	15
Concept Deviator	Difficult	10

THEORY

EXAMPLES

Directions: In each question below is given a statement followed by two assumptions numbered I and II. Consider the statement and decide which of the given assumptions is implicit.

Give answer:

- (a) if only assumption I is implicit;
- (b) if only assumption II is implicit;
- (c) if either I or II is implicit;
- (d) if neither I nor II is implicit
- (e) if both I and II are implicit.

Ex. 1:

Statement: Bank 'A' has announced reduction of half percentage on the interest rate on retail lending with immediate effect.

Assumptions: I. Other banks may also reduce the retail lending rates to be in competition.

II. Bank 'A' may be able to attract more customers for availing retail loans.

Solution: To draw the attractions or attractions of customers Reducing interest rate on loans is surely a good step to draw. But the implications of such a policy on other banks cannot be ascertained, as interest rate is not the only criterion to lure customers. So, only II is implicit. Hence, the answer is (b).

Ex. 2:

Statement: "Use of cell phones and pagers is not allowed inside the auditorium. Please switch off such devices while you are inside the auditorium." ----- A notice.

Assumptions: I. All those who have such devices will switch them off before they take their seat in the auditorium.

II. Generally people do not bring such devices when they come to attend functions in the auditorium.

Solution: The notice has clearly mentioned the bringing such device can disturbance in the auditorium. So, I is implicit. Further, such notice has been issued keeping in mind that a lot of people come with such devices to the auditorium. So, II is not implicit. Hence, the answer is (a).

Ex. 3:

Statement: Railway officials have started ten new trains and increased the frequency of fourteen running trains.

Assumptions: I. The existing trains are not sufficient to provide accommodation to all passengers.

II. The new and additional trains would have sufficient passengers so that they will be economically viable.

Solution: Clearly, such decisions are always taken keeping in mind the public requirements and their economic viability for the concerned department. So, both I and II are implicit. Hence, the answer is (e).

1. CONCEPT APPLICATOR

Directions (Qs. 1-20) : In each question below is given a statement followed by two assumptions numbered I and II. You have to consider the statement and the following assumptions and decide which of the given assumptions is implicit in the statement.

Give answer:

- (a) if only assumption I is implicit.
- (b) if only assumption II is implicit
- (c) if either I or II is implicit
- (d) if neither I nor II is implicit
- (e) if both I and II are implicit.

1. **Statement:** Detergents should be used to clean clothes.

Assumptions: I. Detergents form lather
II. Detergents help to dislodge grease and dirt.

2. **Statement:** The government has decided to pay compensation to the tune of Rs. 1 lakh to the family members of those who are killed in railway accidents.

Assumption: I. The government has enough funds to meet the expenses due to compensation
II. There may be reduction in incidents of railway accidents in near future. [Bank P. O.]

3. **Statement:** “I have not received telephone bills for nine months inspite of several complaints” ----A telephone customer’s letter to the editor of a daily [Bank P. O.]

Assumption: I. Every customer has a right to get bills regularly from the telephone company.
II. The customer’s complaints point to defect in the services which is expected to be corrected.

4. **Statement:** The management of XYZ Pvt. Ltd. Asked the workers’ union to call off strike immediately otherwise the management would be forced to close down the factory.

Assumption: I. No alternative other than closing down the factory is left for the management of XYZ Pvt. Ltd.

II. Such threat may have some effect on the workers’ union. [Bank P. O.]

5. **Statement:** Vitamin E tablets improve circulation, keep your complexion in a glowing condition

Assumption: I. People like a glowing complexion
II. Complexion becomes dull in the absence of circulation.

6. **Statement:** Why don’t you go to the court if the employer does not pay you the Provident Fund contribution?

Assumptions: I. Courts can intervene in matters of dispute between employer and employees

II. It is obligatory for the employer to pay the Provident Fund contribution to the Employees.

[Bank P. O.]

7. **Statement:** Nobody can predict as to how long our country would take to contain the unfortunate and disastrous terrorist activities.

Assumption: I. It is impossible to put an end to terrorist activities.

II. Efforts to control the terrorist activities are on [S. B. I. P. O.]

8. **Statement:** His recent investment in the shares of Company A is only a gamble.

Assumption: I. He may incur loss on his investment
II. He may gain from his investment. [R. B. I.]

9. **Statement:** The principal instructed all the teachers to be careful in class because some students may disturb other students.

Assumption: I. The teachers will handle the situation properly and they will point out the naughty students

- II. The students will welcome the decision of Principal. [S. B. I. P. O.]
10. **Statement:** This year most of the shops and departmental stores are offering prizes and discounts on purchases to attract customers
- Assumptions:** I. The shops and departmental stores have so far earned a lot of profit, so now they have started sharing it with the customers.
- II. Lots of goods are available but the sale is not shooting up. There is no cheer for the customers.
11. **Statement:** Provide mid-day meals to the children in primary schools to increase the number of students attending schools
- Assumptions:** I. Mid-day meals will attract the children to the schools
- II. Those children who are otherwise deprived of good food will attend the schools. [SIDBI]
12. **Statement:** Traffic jams on most of the roads in the city have become a regular feature during monsoon.
- Assumption:** I. Material used for road construction cannot withstand the fury of monsoon resulting into innumerable pot holes on the roads.
- II. Number of vehicles coming on the roads is much more in monsoon as compared to other seasons.
- [RBI]
13. **Statement:** "Private property, trespassers will be prosecuted"- A notice on a plot of land.
- Assumption:** I. The passerby may read the notice and may not trespass.
- II. The people are scared of prosecution.
- [SBI PO]
14. **Statement:** "Use our product to improve memory of our child. It is based on natural herbs and has no harmful side effects."---- An advertisement of a pharmaceutical company.
- Assumptions:** I. People generally opt for a medical product which is useful and has no harmful side effects.
- II. Improving memory of child is considered as important by many parents. [Bank PO]
15. **Statement:** The government has decided to disinvest large chunk of its equity in select public sector undertakings for a better fiscal management.
- Assumptions:** I. The amount generated out of the disinvestment process may reduce substantially the mounting fiscal deficits.
- II. There will be enough demand in the market for the shares of these undertakings. [RBI]
16. **Statement:** If he is intelligent, he will pass the examination.
- Assumption:** I. To pass, he must be intelligent
- II. He will pass the examination. [SSC]
17. **Statement:** If it is easy to become an engineer, I don't want to be an engineer.
- Assumptions:** I. An individual aspires to be professional.
- II. One desires to achieve a thing which is hard earned.
18. **Statement:** Kartik left for Delhi on Tuesday by train to attend a function to be held on Friday at his uncle's house in Delhi.
- Assumptions:** I. Kartik may reach Delhi on Wednesday.
- II. Kartik may reach Delhi before Friday.
- [Bank PO]
19. **Statement:** The civic authority has advised the residents in the area to use mosquito repellents or sleep inside nets as large number of people are suffering from malaria.
- Assumption:** I. Local residents have enough money to arrange for the repellents or nets.
- II. People may ignore and continue to get mosquito bites as they have other pressing needs.
- [Bank PO]
20. **Statement:** Many historians have done more harm than good by distorting truth.
- Assumptions:** I. People believe what is reported by the historians.
- II. Historians are seldom expected to depict the truth.

2. CONCEPT BUILDER

Directions (Qs. 1-10) : In each question below is given a statement followed by two assumptions numbered I and II. You have to consider the statement and the following assumptions and decide which of the given assumptions is implicit in the statement. Give answer:

- (a) if only assumption I is implicit
- (b) if only assumption II is implicit
- (c) if either I or II is implicit
- (d) if neither I nor II is implicit
- (e) if both I and II are implicit.

1. **Statement:** The 'M' Cooperative Housing Society has put up a notice at its gate that sales persons are not allowed inside the society

Assumptions: I. All the sales persons will stay away from the 'M' Cooperative Housing Society.
II. The security guard posted at the gate may be able to stop the sales persons entering the society

[Bank PO]

2. **Statement:** If the city bus which runs between Ram Nagar and Sant Colony is extended to Vasant Vihar, it will be convenient. ---- Appeal of residents of Ram Nagar to the city bus company

Assumptions: I. The convenience of the city bus company is much more important than the needs of the consumers
II. The city bus company is indifferent to the aspirations of the residents of Sant Colony

[Bank PO]

3. **Statement:** "Fly X airways whenever you decide to go places. Our fares are less than train fares." --- An advertisement.

Assumptions: I. People prefer to travel by air when the fares are reasonable.
II. The fares of other airlines are costlier than those of X airways.

[Bank PO]

4. **Statement:** "To keep myself up – to – date, i always listen to 9:00 p.m. news on radio." ---- A candidate tells the interview board.

Assumption: I. The candidate does not read newspaper
II. Recent news are broadcast only on radio.

[RRB]

5. **Statement:** There has been a remarkable increase in the air traffic in India during the past few years.

Assumption: I. Travelling by air has become a status symbol now

II. Large number of people are able to afford air travel now. [RBI]

6. **Statement:** Science is a sort of news agency comparable in principle to other news agencies. But this news agency gives us information which is reliable to an extraordinary high degree due to elaborate techniques of verification and its capacity to survive centuries. So, science should be read with as much interest as we read news.

Assumptions: I. Science encourages investigative spirit

II. People read news out of interest.

7. **Statement:** The school authorities have decided to increase the number of students in each classroom to seventy from the next academic session to bridge the gap between the income and the expenditure to a large extent.

Assumptions: I. The income generated by way of fees of the additional students will be sufficient enough to bridge the gap

II. The school will get all the additional students in each class from the next academic session.

[Bank PO]

8. **Statement:** "Two months ago, it was announced that Central Government pensioners would get dearness relief with immediate effect but till date, banks have not credited the arrears." --- A statement from a Pensioners' forum.

Assumptions: I. Most of the banks normally take care of the pensioners

II. Two months' time is sufficient for the government machinery to move and give effect to pensioners.

[Bank PO]

9. **Statement:** The product X that you have asked for is not with us but can be made available against firm order form you

Assumptions: I. The product X is not in great demand
II. The product X is out of stock as new model is coming up.

10. **Statement:** The head of the organization congratulated the entire staff in his speech for their sincere effort to bring down the deficit and urged them to give their best for attaining a more profitable position in future.

Assumptions: I. The employees may get motivated and maintain and if possible enhance their present level of work.

II. The employees may now relax and slow down in their day to day work as there is no immediate threat of huge deficit

[SBI PO]

3. CONCEPT CRACKER

Direction (Qs. 1-10): In each question below is given a statement followed by two assumptions number I and II.

An assumption is something supposed or taken for granted. You have to consider the statement and the following assumption and decide which of the assumptions is implicit in the statement.

Give answer:

- (a) if only assumption I is implicit.
- (b) if only assumption II is implicit.
- (c) if either assumption I or II is implicit.
- (d) if neither assumption I nor II is implicit.
- (e) if both assumptions I and II are implicit.

1. **Statement:** The General Administration Department has issued a circular to all the employees information them that henceforth the employees can avail their lunch break at any of the half-hour slots between 1.00 pm and 2.30 pm.

Assumption: I. The employees may welcome the decision and avail lunch break at different time slots.
II. There may be not be any break in the work of the organisation as the employees will have their lunch break at different time slots.

2. **Statement:** The Government has decided against reduction of prices of petroleum products though there is a significant drop in the crude oil prices in the international market.

Assumption: I. The prices of crude oil in the international market may again increase in the near future.
II. The present price difference of petroleum products will help the government to withstand any possible price rise in future.

3. **Statement:** The Govt has made an appeal to all the citizens to honestly pay income tax and file return reflecting the true income level to help the Government to carry out developmental activities.

Assumption: I. People may now start paying more taxes in response to the appeal.

II. The total income tax collection may considerably increase in the near future.

4. **Statement:** The state government has decided to appoint four thousand primary school teachers during the next financial year.

Assumption: I. There are enough schools in the state to accommodate four thousand primary school teachers.

II. The eligible candidates may not be interested to apply as the Government may not finally appoint such a large number of primary school teachers.

5. **Statement:** The school authority has decided to increase the number of students in each classroom to seventy from the next academic session to bridge the gap between income and expenditure to a largest extent.

Assumption: I. The income generated by way of fees of the additional students will be sufficient enough to bridge the gap.

II. The school will get all the additional students in each class from the next academic session.

Canara Bank (PO)

6. **Statement:** Even though the number of factories is increasing at a fast rate in India, we still continue to import it from other countries.

Assumption: I. Even the increased number of factories may be not able to meet the demand for sugar in India.

II. The demand for sugar may increase substantially in future.

7. **Statement:** The Government announced a heavy compensation package for all the victims of the terrorist attacks.

Assumption: I. Such incident of terror may not occur in near future.

II. Compensation may mitigate anger among the citizens against the current government.

Statement and Assumptions

8. **Statement:** Many organizations have switched over to online mode of examinations.

Assumption: I. Candidate from all parts of the country may be well- versed using computers.
II. Online mode of examinations helps in recruiting more capable personnel.

9. **Statement:** Government has decided to relocate all the factories from the city with immediate effect to reduce pollution.

Assumption: I. Pollution in the city is being caused only because of the factories existing there.
II. People may be able to manage travelling daily to the relocated factories.

10. **Statement:** Gambling through lotteries is banned by the Central Government in all the states with immediate effect.

Assumption: I. This may save innocent citizens from getting cheated of their hard-earned money.
II. The citizens may not gamble in any other way if the lotteries are banned.

Indian Overseas Bank (PO)

11. **Statement:** Many employees of the organisation applied for special sabbatical leaves of two years to pursue higher education

Assumption: I. The management of the organisation may not grant leave of most of these employees.
II. These employees may be able to complete their education during the sabbatical leave.

12. **Statement:** The college administration has instructed all the students to stop using cell phone within the college premises.

Assumption: I. The students to stop using cell phone in the college premises.
II. The students may be continue to use cell phone in the college premises.

13. **Statement:** The Govt has decided to levy congestion tax on passenger travelling by air to and from the metro cities.

Assumption: I. The tax collected may be adequate to meet part of the expense for providing additional resources to handle huge traffic.
II. Passenger travelling by air to and from these cities may be able to pay extra amount by way of congestion tax.

14. **Statement:** The local citizens group submitted a memorandum to the civic authority for allowing them to convert the vacant plot in the locality into a garden at their on cost.

Assumption: I. The local citizen group may be able to gather enough funds to develop the garden
II. The civic authority may not accede to the request of the local citizen group.

15. **Statement:** Most of the private companies have decided against awarding annual increase in the salaries of their employees for the previous year due to the current economic situation.

Assumption: I. Majority of the employees may leave their job to protest against the decision.
II. These companies may announce hike in salaries next year.

4. CONCEPT DEVIATOR

Directions (Qs. 1-5): In each question below is given a statement followed by two assumptions number I and II.

An assumption is something supposed or taken for granted. You have to consider the statement and the following assumption and decide which of the assumptions is implicit in the statement. Central Bank of India (PO)

Give answer.

- (a) if only assumption I is implicit.
 - (b) if only assumption II is implicit.
 - (c) if either assumption I or II is implicit.
 - (d) if neither assumption I nor II is implicit.

- II. The person checking knows the details of the person travelling. Central Bank of India (PO)
3. **Statement:** If you want to increase your writing spend use 0.7 pen.
- Assumption:** I. These are different types of pen available
II. The person being told understands what is 0.7 pen. Central Bank of India (PO)
4. **Statement:** In order to build more space, extra FSI needs to be brought
- Assumption:** I. The person being told does not know the meaning of FSI
II. More space will reduce the construction cost.
Central Bank of India (PO)
5. **Statement:** Let these be a Signboard also indicating the directions and instruction.
- Assumption:** I. Signboard can be prepared without using any language.
II. Signboard is the only effective tool to indicate directions. Central Bank of India (PO)
6. **Statement:** Bank should always check financial status before lending money to a client.
- Assumption:** I. Checking before lending would give a true picture of the client financial status
II. Client sometimes may not present the correct picture of their ability to repay loan amount to the bank. Syndicate Bank (PO)
7. **Statement:** The government has decided to run all commercial vehicles on bio-fuels in order to save the depleting fossil fuel reserves.
- Assumption:** I. It is possible to switch over from fossil fuels to bio-fuels for vehicles
II. Sufficient amount of bio-fuels can be produced in the country to run all commercial vehicles.
Syndicate Bank (PO)
8. **Statement:** To save the environment enforce total ban on illegal mining throughout the country.
- Assumption:** I. Mining which is done legally does not cause any harm to the environment
II. Mining is one of the factors responsible for environment degradation. Syndicate Bank (PO)
9. **Statement:** Give adequate job-related training to the employees before assigning them full-fledged work
- Assumption:** I. Training helps in boosting the performance of employees
II. Employees have no skill sets before training is provided to them Syndicate Bank (PO)
10. **Statement:** Take a ferry or a boat instead of a bus to reach the Kravi islands faster
- Assumption:** I. The islands being in remote location are not easily accessible.
II. Ferries and boats are available to travel to Kravi islands. Syndicate Bank (PO)

Answer with Solution

Concept Applicator

1. (b) Nothing is mentioned about lather formation by the detergent. So, I is not implicit. Also, the statement states that problems will be solved by 'me'. So II is implicit.
2. (a) Clearly, the amount of compensation must have been decided keeping in mind the monetary position of the Government. So, I is implicit. However, nothing can be said about the frequency of railway accidents in future. So, II is not implicit.
3. (e) The customer's eagerness to get the bills makes I implicit. Besides, the customer has written to the editor to bring the malfunctioning of the department to public notice. So, II is also implicit.
4. (b) Such a warning is usually given to the workers to threaten them that they would lose their job and income forever if they didn't mend their ways. So, only II is implicit.
5. (e) Generally, only that good feature of a product is highlighted which people crave for. So, I is implicit. Since complexion glows if circulation is improved, so II is also implicit.
6. (e) Clearly, the statement encourages one to go to court to get his Provident Fund from his employer. This implies that the issue comes under the jurisdiction of courts and that it is the right of the employee to claim his Provident Fund. So, 'both I and II are implicit'
7. (b) The statement expresses concern over the issue as to when our country would be able to curb terrorism completely. This means that efforts are on and it is quite possible to put an end to terrorist activities although it could take longer. So, only II is implicit.
8. (c) The use of the word 'gamble' indicates that he may either gain or lose in the deal.
9. (e) Clearly, teachers have been instructed to maintain discipline in the class and point out the naughty students who do not let other students study. So, I is implicit. Besides, the implementation of the instructions would surely help good students to concentrate on their studies and ensure a good working atmosphere in the class. So, II is also implicit.
10. (b) That someone has earned a lot is no reason to share the profit margin with the customers. So, I is not implicit. Clearly, the offers have been announced to attract more customers and boost up the sale. So, II is implicit.
11. (a) Providing mid-day meals would attract more number of children as an added privilege and not because the children are deprived of good meals at home. So, only I is implicit.
12. (a) Clearly, the problem of traffic jams arises during monsoons not because of increased number of vehicles but due to slow movement of traffic on account of bad roads. So, only I is implicit.
13. (e) Any notice is displayed assuming that people will read the notice and also follow the content of the notice. So, I is implicit. Besides, the notice threatens any trespassers to be prosecuted. So, II is also implicit.
14. (e) An advertisement highlights only those features of a product, which are liked by people and are also desirable. So, both I and II are implicit.
15. (a) The fact given in I directly follows from the phrase '... for a better fiscal management' in the statement. So, I is implicit. However, the public response to the new policy cannot be ascertained. So, II is not implicit.
16. (a) The statement mentions that he will pass if he is intelligent. So, I is implicit. Further, this means that it is not necessary that he will pass. So, II is not implicit.
17. (b) Clearly, nothing is mentioned about the professional nature of the job. So, I is not implicit. The statement hints that one rejects a thing that is easy to achieve. So, II is implicit.
18. (b) Clearly, it cannot be deduced as to which day Kartik would reach Delhi. But Kartik has left for Delhi to attend a function to be held on Friday. So, he must have planned his journey to reach Delhi before Friday. Thus, only II is implicit.
19. (a) The civic authority has advised residents to keep away from mosquitoes to avert the risk of malaria. Such an advice would surely be adhered to by the people. So, II is not implicit. Besides, it has been advised to use mosquito repellents or nets. This means that people can afford to buy the same. So, I is implicit.
20. (a) The fact that historians have done harm by distorting truth, means that people believe what is reported by the historians. So, I is implicit. II does not follow from the statement and so is not implicit.

Concept Builder

1. (e) both I and II follows
2. (d) it is clear that the city bus have to provide bus services according to the needs of the local person and not as per their own convenience. So I is not implicit. So, again the statements says of an appeal of a resident of Ram Nagar. And nothing can be said about the company's response to appeals of the residents of the colony. So, II is also not implicit.
3. (e)
4. (d) it doesn't mean that the candidate listens to news on the radio, will not read newspaper or radio is not the only source of information (news). So neither I nor II.
5. (b) the statement says that large number of people travelling by air has increased in the recent years, which implies that large number of persons can afford. So, only II.
6. (e) the statement mentions that science is reliable as facts can be verified by investigation. So, I is implicit II follows directly from the last sentence in the statement and so it is also implicit.
7. (a)
8. (b) I is vague so it is not implicit.
9. (a)
10. (a)

Concept Cracker

Solution for 1-5:

1. (e) A decision is taken when it is felt that it would be accepted by most of the people concerned. Hence I is implicit. II is also implicit as the reason behind the need.
2. (d) it is not necessary that price rise be these on the mind of the govt while taking the decision. Hence I nor II is implicit. In fact, the truth is that our petroleum companies are running losses even after the drop international prices.
3. (e) Both are imminent positive outcomes assumed.
4. (a) I is implicit because teachers can't be appointed in a vacuum II is more of a presumption.
5. (e) When a move is made, it is assumed to be effective. Hence I is implicit. It is also assumed that the stipulated target will be met. Hence II is implicit.

Solution for 6-10 :

6. (a) Assumption I is implicit because it is this that us import sugar in spite of increase in the number of sugar factories.
But II is not implicit because "future" is beyond the scope of the statement
7. (b) Compensation is a way of sympathising with the victims, not a different to terrorism. Hence II is implicit but I is not.
8. (a) Assumption I is implicit because only then the switching over makes sense. But II need not be an assumption. The switching over may have been prompted by economic factors or those of convenience.

9. (b) Assumption I is ruled out because of the word only. But II is implicit because without considering this factor relocation won't make sense.
10. (a) Assumption I is implicit as the govt's moves are generally aimed at protecting the interests of the masses. But II is not implicit because of "any other way". There might be other means of gambling which the govt does not consider significantly detrimental for the people.

Solution for 11-15 :

11. (b) When one applies for leave, one assumes that it would be granted. Hence I is not implicit. But Assumption II is implicit because only then the period of "two years" assumes meaning
12. (a) when you instruct someone to do something, you assume that he may do it. Hence II is implicit and II is not.
13. (e) Assumption I is implicit as this is the purpose assumed while levying the tax. II is also implicit because when a rule is framed, it is assumed that people are capable of following it.
14. (a) Assumption I is implicit in "at their own cost". Assumption II is contrary to what the citizens may have assumed.
15. (d) Were it assumed that the employees might leave, such a decision would not be taken. Hence Assumption I is implicit. Assumption II is not implicit because "next year" is present nowhere in the picture.

Concept Deviator

Solution for 1-5 :

1. (e) I is implicit from the need of different types of letter on different occasion II is implicit from “official” and “semi-official”.
2. (a) I is implicit because only then the person checking can check the availability, But II is not implicit. Personal details are generally required at the time of booking tickets.
3. (e) Obviously, 0.7 is one of the types. Hence I is implicit II is also implicit or else statement would make no sense.
4. (d) When we mention something to someone, we assume they know its meaning. Hence I is implicit. But II is not implicit as the details cannot be assumed.
5. (d) The statement does not give any clue to the use of language. Hence I is not implicit. II is not implicit because of only.

Solution for 6-10 :

6. (a) I is implicit in the norm prescribed in the sentence. This is why checking is being advised. Again, what

would the banks check? Obviously, what the clients reveal. Banks would assume the revelation to be true. Hence I is not implicit. However, II is vague. If cross-checking is what the speaker has in mind II would become implicit.

7. (a) If the govt has taken the decision. It must have assumed that its implementation would be possible II would not be implicit because of “produced in the country” it is possible that the govt has import on its mind for the said purpose.
8. (b) It is not implicit that legal mining does not harm and illegal mining does all harm. It is harmful for the environment. This happens because norms are flouted with impunity in illegal mining.
9. (a) I is implicit in the need for training. But II takes things to an extreme with the phrase “no skill sets”.
10. (b) I is not an assumption because there may be several reasons for the preference being stated. II is implicit because you ask someone to employ a means only when you assume that the means is available.

Chapter

14

Statement and Arguments

Section	Level	No. of Questions
Concept Applicator	Very Easy	25
Concept Builder	Easy	10
Concept Cracker	Moderate	8
Concept Deviator	Difficult	8

THEORY

In this type of question A statement which is based on different issues of the society or nation stated, followed by certain arguments in favour or against the statement. The candidates have to understand and analyse the statement first then the arguments and on the basis of analysis he or she has to respond.

Ex. 1:

Statement: Should education be brought under the control of the central Government like defence?

Argument: I. No, Education is a state subject and it should remain with the state.

[RBI]

II. Yes, this is the only way to establish uniformity in growth of education across the states.

Solution: As we can understand from the statement that the benefits of they education can reach better to the masses if looked after by the state governing bodies rather than the central body. So I hold strong. And II is weak.

Ex. 2:

Statement: Should India immediately stop digging coal from its mines?

[Bank PO]

Arguments: I. Yes. The present stock of coal will not last long if we continue mining at the present rate.

II. No. We do not have alternate energy source of sufficient quantity.

III. No. This will put millions of people at a disadvantage and their lives will get adversely affected and also the industry.

(a) Only I and II are strong

(b) Only II and III are strong

(c) Only I and III are strong

(d) All are strong

(e) None is strong

Solution: (b) we know the reserves of coal are limited, but we don't have discovered the alternate sources of energy till date. So, I is not strong. It is true that we haven't till date found a renewable source of energy which is available in plenty and can substitute coal. So, II holds strong. Further, stopping coal mining would surely throw the engaged workers out of employment. So, III also holds strong.

1. CONCEPT APPLICATOR

Directions (Qs. 1-25) : Each question given below consists of a statement, followed by two arguments numbered I and II. You have to decide which of the arguments is a 'strong' argument and which is a 'weak' argument.

Give answer:

- (a) if only argument I is strong
- (b) if only argument II are strong
- (c) if either I or II is strong
- (d) if neither I nor II is strong and
- (e) if both I and II are strong.

1. **Statement:** Should agriculture in rural India be mechanized?

Arguments: I. Yes. It would lead to higher production.

II. No. Many villagers would be left unemployed.

2. **Statement:** Should the educated unemployed youth be paid "unemployment allowance" by the Government?

Arguments: I. Yes. It will provide them some monetary help to either seek employment or to kickstart some 'self-employment' venture.

II. No. It will dampen their urge to do something to earn their Livelihood and thus promote idleness among the unemployed youth. (Bank P.O.)

3. **Statement:** Should all the practicing doctors be brought under Government control so that they get salary from the Government and treat patients free of cost?

Arguments: I. No. How can any country do such an undemocratic thing?

II. Yes. Despite many problems, it will certainly help minimize, if not eradicate, unethical medical practices. (R.B.I.)

4. **Statement:** Should there be more than one High Courts in each state in India?

Argument: I. No. This will be a sheer wastage of taxpayers' money.

II. Yes. This will help reduce the backlog of cases pending for a very long time. (I.B.P.S.)

5. **Statement:** Are nuclear families better than joint families?

Arguments: I. No. joint families ensure security and also reduce the burden of work.

II. Yes Nuclear families ensure greater freedom.

6. **Statement:** Should there be concentration of foreign investment in only few states?

Argument: I. No. It is against the policy of overall development of the country.

II. Yes. A large number of states lack infrastructure to attract foreign investment. (S.B.I.P.O.)

7. **Statement:** Should India engage into a dialogue with neighbouring countries to stop cross border tension?

Argument: I. Yes. This is the only way to reduce the cross border terrorism and stop loss of innocent lives.

II. No. Neighbouring countries cannot be relied upon in such matters, they may still engage in subversive activities. (S.B.I.P.O.)

8. **Statement:** Should system of offering jobs only to the wards of government employees be introduced in all government offices in India?

Argument: I. No. It denies opportunity to many deserving individuals and government may stand to lose in the long run.

II. No. It is against the principle of equality. Does not government owe its responsibility to all its citizens? (S.B.I.P.O.)

9. **Statement:** Should the sex determination test during pregnancy be completely banned?

Arguments: I. Yes. This leads to indiscriminate female feticide and eventually will lead to social imbalance.

II. No. People have a right to know about their unborn child. (Bank P.O.)

10. **Statement:** Should there be only one rate of interest nor term deposits of varying durations in banks?

Arguments: I. No. People will refrain from keeping money for longer duration resulting into reduction of liquidity level of banks.

II. Yes. This will be much simple for the common people and they may be encouraged to keep more money in banks. (Bank. P.O.)

11. **Statement:** Should all refugees, who make unauthorized entry into a country, be forced to go back to their homeland?
- Arguments:** I. Yes, they leave their colonies and occupy a lot of land.
- II. No. They leave their homes because of hunger or some terror and on human grounds, should not be forced to go back.
12. **Statement:** Should the oil companies be allowed to fix the price of petroleum products depending on market conditions?
- Arguments:** I. Yes. This is the only way to make the oil companies commercially viable.
- II. No. This will put additional burden on the retail prices of essential commodities and will cause a lot of hardships to the masses. (Bank P.O.)
13. **Statement:** Should there be a maximum limit for the number of ministers in the Central government ?
- Arguments:** I. No. The political party in power should have the freedom to decide the number of ministers to be appointed.
- II. Yes. The number of ministers should be restricted to a certain percentage of the total number of seats in the parliament to avoid unnecessary expenditure. (Bank PO)
14. **Statement:** Should non – non vegetarian food be totally banned in our country ?
- Arguments:** I. Yes. It is expensive and therefore it is beyond the means of most people in our country.
- II. No. Nothing should be banned in a democratic country like ours.
15. **Statement:** Should India become a permanent member of 'UN's security Council ?
- Arguments:** I. Yes. India has emerged as a country which loves peace and amity.
- II. No. let us first solve problems of our own people like poverty, malnutrition. (I.B.P.S.)
16. **Statement:** Should the persons below the age of 18 years be allowed to join armed forces ?
- Arguments:** I. No. Persons below the age of 18 do not attain both physical and mental maturity to shoulder such burden.
- II. Yes. This will help the country develop its armed forces which will serve the country for a longer time. (Bank P.O.)
17. **Statement:** Should there be a ban on product advertising ?
- Arguments:** I. No. It is an age of advertising. Unless your advertisement is better than your other competitors, the product will not be sold.
- II. Yes. The money spent on advertising is very huge and it inflates the cost of the product. (Bank P.O.)
18. **Statement:** Should those who receive dowry, despite the law prohibiting, be punished?
- Arguments:** I. Yes. Those who violate the law, must be punished.
- II. No. Dowry system is firmly rooted in the society since time immemorial.
19. **Statement:** Should all the infrastructural development projects in India be handed over to the private sector ?
- Arguments:** I. No. the private sector entities are not equipped to handle such projects.
- II. Yes. Such projects are handled by private sector in the developed countries. (Bank P.O.)
20. **Statement:** Should our country extend generous behavior and goodwill to our erring and nagging neighbours?
- Arguments:** I. Yes. Goodwill always pays dividend.
- II. No. our generous behavior and goodwill be considered as our weakness. (Bank P.O.)
21. **Statement:** Should judiciary be independent of the executive ?
- Arguments:** I. Yes. This would help curb the unlawful activities of the executive.
- II. No. the executive would not be able to take bold measures. (R.B.I.)
22. **Statement:** Should indian scientists working abroad be called back to India?
- Arguments:** I. Yes. They must serve the motherland first and forget about discoveries, honours, facilities and all.
- II. No. We have enough talent, let them stay where they want. (S.B.I.)
23. **Statement:** Is paying ransom or agreeing to the conditions of kidnappers of political figures, a proper course of action ?
- Arguments:** I. yes. the victims must be saved at all cost.
- II. No. It encourages the kidnappers to continue their sinister activities.

24. **Statement:** Should higher education be restricted to only those who can bear the expenditure?

Arguments: I. Yes. Higher education is very costly, hence it should not be given free.

II. No. There are a large number of brilliant students who cannot afford to pay and they should be given higher education.

25. **Statement:** Should the tuition fees in all post-graduate courses be hiked considerably?

Arguments: I. Yes. This will bring in some sense of seriousness among the students and will improve the quality.

II. No. This will force the meritorious poor students to stay away from post- graduate courses.

(S.B.I.P.O.)

2. CONCEPT BUILDER

Directions (Qs. 1-5): In making decisions about important questions it is desirable to be able to distinguish between ‘strong’ ‘arguments and ‘weak’ arguments. Strong argument are those which are both important and directly related to the question. ‘weak’ arguments are those which are of minor importance and also may not be directly related to the question or may be related to a trivial aspect of the question. [Bank of INDIA]

Each questions has two arguments numbered I and II. You have to decide which of the arguments is a stong or weak.

Give answer:

- (a) If only Argument I is Strong.
- (b) If only Argument II is Strong.
- (c) If either Argument I or II is Strong.
- (d) If neither Argument I or II is Strong.
- (e) If both Argument I and II are Strong.

1. Should the parents in India in future be forced to opt for only one child as against two or many at present?

Arguments: I. yes, this is the only way to check the ever – increasing population of India.

II. No, this type of presure tactic is not adopted by any other country in the world.

2. Should the sex determination test during pregnancy be completely banned?

Arguments: I. yes this leads to indiscriminate female foeticide and eventually will lead to social imbalance.

II. No, people have a right to know about their unborn child.

3. Should all the slums in big cities be demolished and the people living in such slums be relocated outside the city limits?

Arguments: I. No, all these people will lose their home and livelihood and hence they should not be relocated.

II. yes, the big cities need more and more spaces to carry out developmental activities and hence these slums should be removed.

4. Should there be a complete ban on mining coal in India?

Arguments: I. Yes, the present stock of coal will not last long if we continue mining at the present rate.

II. No, we do not have alternate energy source of sufficient quantity.

5. Should there be uniforms for students in the colleges in India as in the schools?

Arguments: I. Yes, this will improve the ambience of the colleges as all the students will be decently dressed.

II. No, college students should not be regimented and they should be left to choose their clothes for coming to college.

Directions (Qs. 6-10): In making decisions about important questions, it is desirable to be able to distinguish between “Strong” arguments and “weak” arguments. “Strong” arguments must be both important and directly related to the question. “weak” arguments may not be directly related to the question and may be of minor importance or may be related to the trivial aspects of the question. Each question below is followed by two arguments numbered I and II. You have to decide which of the arguments is a “Strong” argument and is a “Weak” argument.

Give answer:

- (a) if only argument I is strong
- (b) If only argument II is strong
- (c) If either argument I or II is strong
- (d) If neither argument I nor II is strong
- (e) If both arguments I and II are strong

[Bank of Baroda Agriculture Officere]

6. **Statement:** Should the number of holidays given to Govt employees be reduced to only five in a year?
Arguments: I. Yes, such holidays subsequently reduce working hours, thus adversely affecting the economy of the nation.
II. No, employees require intermittent rest from hectic work schedule.
7. **Statement:** Should all correspondence courses at graduate level be stopped?
Argument: I. No, correspondence courses help needy students to pursue studies and earn at the same time
II. Yes, quality education is not possible without teachers and classrooms.
8. **Statement:** Should only nuclear power be used to generate electricity?

9. **Statement:** Should the Govt remove all the slums in major cities?
Argument: I. Yes, slums are a nuisance to the people living in big cities
II. No, inhabitants of slums are also citizens of the country and they contribute towards the growth of the nation.
10. **Statement:** Should cricket replace hockey as the national sport of India?
Argument: I. Yes, the performance of the hockey team has been dismal for the last few years
II. No, cricket is the national sport of Australia and no two countries must have the same national sport.

3. CONCEPT CRACKER

Directions (Qs. 1-8) : Each question given below consists of a statement, followed by three or four arguments numbered I, II, III and IV. You have to decide which of the arguments is/are ‘strong’ argument(s) and which is/are ‘weak’ argument(s) and accordingly choose your answer from the alternatives given below each question.

1. **Statement:** Should India immediately stop digging coal from its mines?
Arguments: I. Yes. The present stock of coal will not last long if we continue mining at the present rate.
II. No. We do not have alternate energy source of sufficient quantity.
III. No. This will put millions of people at a disadvantage and their lives will get adversely affected and also the industry.
(a) Only I and II are strong
(b) Only II and III are strong
(c) Only I and III are strong
(d) All are strong
(e) None is these [Bank PO]

2. **Statement:** Should there be complete ban on Indian professionals seeking jobs elsewhere after getting their education in India?
Arguments: I. Yes. This is the only way to sustain present rate of technological development in India

- II. No. The Indians settled abroad send huge amount of foreign exchange and this constitutes a significant part of foreign exchange reserve
III. No. The practical knowledge gained by Indians by working in other countries help India develop its economy.
(a) None is strong
(b) All are strong
(c) Only I and II are strong
(d) Only III are strong
(e) Only II and III are strong
3. **Statement:** Should admission to all professional courses be made on the basis of past academic performance rather than through entrance tests?
Arguments: I. Yes. It will be beneficial for those candidates those who unable to bear the expenses of entrance tests.
II. Yes. Many deserving candidates securing high marks in their qualifying academic examinations do not perform well on such entrance tests.
III. No. The standard of examinations and assessment conducted by different Boards and universities are not comparable and hence there is a need to conduct entrance tests to calibrate them on a common yardstick.

- (a) Only I and II are strong
 (b) Only II and III are strong
 (c) Only I and III are strong
 (d) Only III are strong
 (e) All are strong [Bank PO]
4. **Statement:** Should all the students graduating in any discipline desirous of pursuing post-graduation of the subjects of their choice be allowed to enrol in the post-graduate courses?
- Arguments:** I. Yes. The students are the best judge of their capabilities and there should not be restrictions for joining post-graduate courses.
- II. No. The students need to study relevant subjects in graduate courses to enrol in post-graduate course and the students must fulfill such conditions.
- III. No. There are not enough institutes offering post-graduate courses which can accommodate all the graduates desirous of seeking post-graduate education of their own choice.
- (a) None is strong
 (b) Only I and II are strong
 (c) All are strong
 (d) Only I and III are strong
 (e) None of these [SBI PO]
5. **Statement:** Should religion be taught in our schools?
- Arguments:** I. No. Ours is a secular state
- II. Yes. Teaching religion helps inculcate moral values among children
- III. No. How can one dream of such a step when we want the young generation to fulfill its role in the 21st century
- (a) All are strong
 (b) None is Strong
 (c) Only I is strong
 (d) Only II is Strong
 (e) Only I and III are strong
6. **Statement:** Should there be only few banks in place of numerous smaller banks in India?
- Arguments:** I. Yes. This will help secure the investor's money as these big banks will be able to withstand intermitten market related shocks.
- II. No. A large number of people will lose their jobs as after the merger many employees will be redundant.
- III. Yes. This will help consolidate the entire banking industry and will lead to healthy competition
- (a) None is strong
 (b) Only I and II are strong
 (c) Only II and III are strong
 (d) Only I and III are strong
 (e) All are strong. [SBI PO]
7. **Statement:** Should the income be generated out of agricultural activities be taxed?
- Arguments:** I. No. Farmers are otherwise suffering from natural calamities and low yield coupled with low procurement price and their income should not be taxed.
- II. Yes. Majority of the population is dependent on agriculture and hence their income should be taxed to augment the resources
- III. Yes. Many big farmers earn much more than the majority of the service earners and they should be taxed to remove the disparity
- (a) Only I is strong
 (b) Only I and II are strong
 (c) Only II and III are strong
 (d) All are strong
 (e) None of these [SBI PO]
8. **Statement:** Should all the indirect taxes in India can be combined into a single tax on all commodities?
- Arguments:** I. Yes. This will considerably simplify the tax collection mechanism and the cost of collecting tax will also reduce
- II. Yes. The manufacturers and traders will be benefited by this which in turn will boost tax collection.
- III. No. other country has adopted such system.
- (a) None is strong
 (b) Only I and III are strong
 (c) Only II is strong
 (d) Only II and III are strong
 (e) None of these [SBI PO]

4. CONCEPT DEVIATOR

1. **Statement:** Should all the management institutes in the country be brought under government control?
Arguments: I. No. The government does not have adequate resources to run such institutes effectively.
 II. No. Each institute should be given freedom to function on its own.
 III. Yes. This will enable to have standardized education for all the students
 IV. Yes. Only then the quality of education would be improved.
 - (a) None is strong
 - (b) Only I, II and III are strong
 - (c) Only I and III are strong
 - (d) All are strong
 - (e) Only III are strong

[Bank PO]
2. **Statement:** Should the consumption of aerated drinks be banned in India?
Arguments: I. Yes. This is the only way to reduce the risk of exposing people to some diseases
 II. No. Each individual should have right to choose what he wants.
 III. No. There is no confirmed evidence that such products have adverse effect on human body.
 IV. Yes. It is banned in many other countries also.
 - (a) Only I is strong
 - (b) Only I and II are strong
 - (c) Only III is strong
 - (d) Only I and IV are strong
 - (e) All are strong

[Bank PO]
3. **Statement:** Should all the youngsters below 21 years of age be disallowed from going to a beer bar?
Arguments: I. No. it is not correct to prevent matured youngsters above 18 years of age who can vote, from having fun.
 II. Yes. The entry fees to such pubs should also be hiked.
 III. No. There is no such curb in western countries
 IV. Yes. This will help in preventing youngsters from getting into bad company and imbibing bad habits
 - (a) Only I is strong
 - (b) Only I and III are strong
 - (c) Only III and IV are strong
4. **Statement:** Should there be reservation of jobs in the organizations in the private sector also as in the public sector undertakings in India?
Arguments: I. Yes. This would give more opportunities of development to the weaker sections of the society and thus help reduce the gap between the affluent and the downtrodden in India.
 II. No. The private sector does not get any government assistance and therefore they should not be saddled with such policies.
 III. No. Nowhere else in the world such a practice is being followed.
 IV. No. the management of the private sector undertaking would not agree to such compulsions.
 - (a) Only I is strong
 - (b) Only I and II are strong
 - (c) Only I, II and IV are strong
 - (d) Only I and IV are strong
 - (e) All are strong.

[RBI]
5. **Statement:** Should class IV children have Board examination?
Arguments: I. Yes. This will motivate the children to study and get higher marks, and thus more knowledge can be imbibed at a younger age.
 II. No. The children will be forced to study and won't enjoy the process.
 III. Yes. In today's competitive world the children need to be prepared right from the beginning to face such difficult examinations.
 IV. No. This will add pressure on tender aged children and leave very little time for them to play.
 - (a) All are strong
 - (b) Only I, II and IV are strong
 - (c) Only II, III and IV are strong
 - (d) Only I and III are strong
 - (e) Only I and IV are strong.
6. **Statement:** Should people with educational qualification higher than the optimum requirements be debarred from seeking jobs?
Arguments: I. No. It will further aggravate the

- problem of educated unemployment
- II. Yes. It creates complexes among employees and affects the work adversely.
- III. No. This goes against the basic rights of the individuals
- IV. Yes. This will increase productivity
- (a) Only I and II are strong
- (b) All are strong
- (c) Only II and IV are strong
- (d) Only III is strong
- (e) None of these
- [Bank PO]
7. **Statement:** Should all those who are convicted for heinous crimes like murder or rape, beyond all reasonable doubts be given capital punishment or death penalty?
- Arguments:** I. No. the death penalty should be given only in very rare and exceptional cases.
- II. Yes. This is the only way to punish such people who take others' lives or indulge in inhuman activities.
- III. Yes. Such severe punishments only will make people refrain from such heinous acts and the society will be safer.
8. IV. No. Those who are repentant for the crime they committed should be given a chance to improve and lead a normal life.
- (a) Only II and IV are strong
- (b) All are strong
- (c) Only III is strong
- (d) Only II and III are strong
- (e) Only I, II and III are strong.
- Statement:** Should the rule of wearing helmet for both driver and pillion rider while driving a motor bike be enforced strictly? [Bank PO]
- Arguments:** I. Yes. It is a rule and rules should be followed strictly by all.
- II. No. Each individual knows how to protect his own life and it should be left to his discretion.
- III. No. It does not ensure safety as only the head is protected and rest of the body is not.
- IV. Yes. It is a necessity as head, being the most sensitive organ, is protected by the helmet.
- (a) None is strong
- (b) Only I and III are strong
- (c) Only I and IV are strong
- (d) Only II and IV are strong
- (e) All are strong.

Answer with Solution

Concept Applicator

1. (a) Clearly, mechanization would speed up the work and increase the production. So, argument I is strong enough. Argument II is vague because mechanization will only eliminate wasteful employment not create unemployment.
2. (e) Young people, who do not get employment due to the large number of applicants in all fields, must surely be given allowance so that they can support themselves. So, argument I is valid. However, such allowances would mar the spirit to work, in them and make them idle. So argument II also holds.
3. (b) A doctor treating a patient individually can mislead the patient into wrong and unnecessary treatment for his personal gain. So, argument II holds strong. Also, a policy beneficial to common people cannot be termed 'undemocratic'. So, I is vague.
4. (b) Clearly an increase in the number of High courts will surely speed up the work and help to do away with the pending cases. So, argument II holds strong. In light of this, the expenditure incurred would be 'utilization', not 'wastage' of money. So, argument I does not hold.
5. (e) Clearly with so many people around in joint family, there is more security. Also, work is shared. So argument I holds. In nuclear families there are lesser number of people and so lesser responsibilities and more freedom. Thus, II also holds.
6. (a) An equitable distribution of foreign investment is a must for uniform development all over the country. So, argument I holds. Also, no backward state ought to be neglected, rather such states should be prepared and shaped up to attract foreign investment as well. So, II does not hold.
7. (a) Clearly, peaceful settlement through mutual agreement is the option, whatever be the issue. So argument I holds strong. Moreover, the problem indicated in II can be curbed by constant check and vigilance. So, II seems to be vague.
8. (e) Merit, fair selection and equal opportunities for all - these three factors, if taken care of, can help government recruit competent officials and also fulfill the objectives of the Constitution. Thus, both the arguments hold strong.
9. (a) Parents indulging in sex determination of their unborn child generally do so, they want to keep only a boy child and do away with a girl child. So, argument I holds. Also, people have a right to know only about the health, development and general well-being of the child before its birth, and not the sex. So, argument II does not hold strong.
10. (a) Clearly, the proposed scheme would discourage people from keeping deposits for longer durations (the rate of interest being the same for short durations) and not draw in more funds. So, only argument I holds.
11. (b) Clearly, refugees are people forced out of their homeland by some misery and need shelter desperately. So, argument II holds. Argument I against the statement, is vague.
12. (b) Clearly, Oil is an essential commodity and its prices govern the prices of other essential commodities. As such, the interest of the common people must be taken care of, rather commodities. As such, the interest of the common people must be taken care of, rather than the profitability of some oil companies. So, only argument II holds, strong.
13. (b) Clearly, there should be some norms regarding the number of ministers in the Government, as more number of ministers would unnecessarily add to the Government expenditure. So, argument II holds strong. Also, giving liberty to the party in power could promote extension of unreasonable favor to some people at the cost of government funds. So, argument I does not hold.
14. (b) Clearly, restriction on the diet of people will be denying them their basic human right. So, only argument II holds.
15. (a) A peace-loving nation like India can well join an international forum which seeks to bring different nations on friendly terms with each other. So, argument I holds strong. Argument II highlights a different aspect. The internal problems of a nation should not debar it from strengthening international ties. So, argument II is vague.
16. (a) The armed forces must consist of physically strong and mentally mature individuals to take care of defence properly. So, argument I holds strong. Clearly, argument II is vague.

17. (e) Clearly, it is the advertisement which makes the customer aware of the qualities of the product and leads him to buy it. So, argument I is valid. But at the same time, advertising nowadays has become a cost affair and expenses on it add to the price of the product. So, argument II also holds strong.
18. (a) Clearly, laws are made to ensure that no person pursues the practice. So, persons who violate the laws need to be punished. Thus, argument I holds. A wrong practice, no matter how firmly rooted, needs to be ended. So, argument II is vague.
19. (d) Clearly, such projects if handed over to the private sector shall be given to a competent authority. So, argument I is vague. Also, imitating a policy on the basis that it worked out successfully in other countries, holds no relevance. Thus, argument II also does not hold strong.
20. (e) Clearly, a good behavior may at some point of time lead to mutual discussions and peaceful settlement of issues in the long run. So, argument I holds strong. However, such a behavior may be mistaken for our weakness and it would be difficult to continue with it if the other country doesn't stop its sinister activities. Hence, II also holds.
21. (a) Clearly, independent judiciary is necessary for impartial judgement so that the Executive does not take wrong measures. So, only argument I holds.
22. (a) Clearly, every person must be free to work wherever he wants and no compulsion should be made to confine one to one's own country. So, argument I is vague. However, talented scientists can be of great benefit to the nation and some alternatives as special incentives or better prospects may be made available to them to retain them within their motherland. So, argument II also does not hold.
23. (e) Both the arguments are strong enough. The conditions have to be agreed to, in order to save the life of the victims, though actually they ought not to be agreed to, as they encourage the sinister activities of the kidnappers.
24. (b) For the all-round progress of the nation, all the students, especially the talented and intelligent ones, must avail of higher education, even if the government has to pay for it. So, only argument II holds.
25. (a) Clearly, 15 year old vehicles are not Euro-compliant and hence cause much more pollution than the recent ones. So, argument I holds. Argument II is vague since owners of these vehicles need not shift themselves. They might sell off their vehicles and buy new ones – a small price which every citizen can afford for a healthy environment.

Concept Builder

1. (d) I is weak because it is superfluous, it does not go into the reason for population control. II is an argument by example and hence weak.
2. (a) I is strong because female foeticide is undesirable. II is weak.
3. (e) I is true on Humane Ground and II on economic ground.
4. (b) I is weak because it is not relevant to "complete ban", II is a strong argument because banning mining in such a scenario will lead us into great trouble.
5. (e) I is strong as improved ambience is desirable. II is strong because regimentation of adults is undesirable.
6. (a) I is strong as growth of the economy is desirable. II is not strong because Saturdays and Sundays are meant for this very intermittent rest". This purpose is not served by holidays.
7. (e) I is strong because it is desirable to help the needy students. II is also strong because compromising on quality takes away from the purpose of education.
8. (b) I is weak because it gives undue weightage to nuclear power. Hydel power etc also help reduce air pollution. II is strong because safety is a very important criterion.
9. (d) I is weak because it lacks in substance. Merely calling something a "nuisance" is simplistic. II is weak because it wrongly assumes that those people can't contribute to the nation otherwise.
10. (a) I is strong because performance should definitely be a criterion for "national sport" status. II is irrelevant one fails to see the harm in two nations sharing a national sport. Besides, if every nation decided to have a different national sport, we would run out of sports as there would be just too many countries.

Concept Cracker

1. (b) Though the reserves of coal are limited, yet stopping its use till alternate sources of energy have been discovered, is no solution to conserve it. So, I is not strong. It is true that we haven't till date found a renewable source of energy which is available in plenty and can substitute coal. So, II holds strong. Further, stopping coal mining would surely throw the engaged workers out of employment. So, III also holds strong.
2. (a) Clearly, none of the arguments provide a substantial reason either for or against the given statements. So, none of the arguments holds strong.
3. (d) Clearly, a policy to select deserving candidates cannot be abolished just because of the expenditure it entails. So, argument I does not hold. Also, students who are intelligent enough to secure good marks in academic exams have no reason not to perform well in entrance tests. So, II also does not hold. Further, the students passed out from different universities are assessed on different patterns and hence a common entrance test would put the candidates to uniform test and assessment. So, only III holds strong.
4. (e) Only argument II is strong. The students cannot be enrolled in the courses just on the basis of their interests, but their compatibility with the same also matters. So, I does not hold. Besides, lack of institutes is no criteria to deny post-graduate courses to students. So, argument III also does not hold. II provides a genuine reason and thus holds strong.
5. (d) ours is a secular state does not mean that religion and religious values should be eradicated. In fact,
6. these inculcate moral values. So, argument I is vague while argument II is strong. Also, teaching religion can in no way hinder the students' capability to face the challenges of the 21st century.
7. (a) The security of the investor's money is not related to the size of the bank. Besides, even after consolidation, the number of investors, their amounts and hence the duties shall remain the same and so no employees will be redundant. Reducing the number of smaller banks will also not affect the mutual competition among the banks. Thus, none of the arguments holds strong.
8. (c) clearly, if the income of farmers is not adequate, they cannot be brought under the net of taxation as per rules governing the Income Tax Act. So, I is not strong. Besides, a major part of the population is dependent on agriculture and such a large section, if taxed even with certain concessions, would draw in huge funds into the government coffers. Also, many big landlords with substantially high incomes from agriculture are taking undue advantage of this benefit. So, both arguments II and III hold strong.
9. (e) Only I and II are strong. Clearly, both I and II hold strong, as they provide very convincing reasons, for a single tax system would help get rid of multifarious taxes on a product. Besides, the idea of imitation of other countries in the implementation of a certain policy holds no relevance. So, argument III does not hold strong.

Concept Deviator

1. (a) clearly, the government can pool up resources to run such institutes, if that can benefit the citizens. So, I does not hold strong. II does not provide any convincing reason. Also, it is not obligatory that government control over the institute would ensure better education than that at present. So, both III and IV also do not hold.
2. (c) The use of 'only' in I makes it invalid. Also, it is the duty of the government to save its citizens from intake of any harmful products, even if they like them. So, II does not hold strong. Besides, a product must not be banned unless its harmful effects have been proved. So, III holds strong. Lastly, we cannot blindly follow the decisions taken by other countries. So, IV also does not hold.
3. (d) Clearly, our constitution considers youngsters above 18 years of age, mature enough to exercise their decisive power in Government by voting. This implies that such individuals can also judge what is good or bad for them. Thus, argument I holds strong. However, at such places, youngsters may be lead astray by certain indecent guys and swayed from the right path into bad indulgences. So, IV also holds strong. Hiking the entry fees is no way to disallow them, and also the idea of imitating the western countries holds no relevance. So, neither II nor III holds strong.

4. (a) The reservation of jobs in the private sector too would surely increase opportunities for weaker sections improve their economic plight. Thus, argument I is strong enough. Also, private sector companies work on a good profit margin and they can and will have to accommodate such a policy if implemented. So, neither II nor IV holds strong. Further, just imitating other countries holds no relevance. So, argument III also does not hold.
5. (c) Young children of class IV ought to be taught the basic fundamentals of subjects in a gradual process via practical examples and practice in a playful manner. They need not be made to study through compulsion and their age is not such as to bear the tension and burden of examinations. So, both II and IV hold strong. However, facing examinations at this stage shall prepare them to tackle the competitions in later life. So, III also holds. However, holding examinations cannot motivate such young and immature students, neither is it a way to make them learn more. So, I does not hold strong.
6. (d) The issue discussed in the statement is nowhere related to increase in unemployment, as the number of vacancies filled in will remain the same. Also, in a working place, it is the performance of the individual that matters and that makes him more or less wanted, and not his educational qualifications. So,
7. (c) Clearly, a person committing a heinous crime like murder or rape should be so punished as to set an example for others not to attempt such acts in future. So, argument III holds strong. Argument I is vague while the use of the word 'only' in argument II makes it weak. Also, it cannot be assured whether a criminal is really repentant of his acts or not, he may also exhibit so just to get rid of punishment. So, argument IV also does not hold.
8. (c) Clearly, the rule has been devised for the safety of two-wheeler riders, as majority of two-wheeler accidents result in direct fall of the rider, leading to head injury and finally death. And the objective of a rule cannot be fulfilled until it is followed by all and this requires strict enforcement. Thus, both I and IV hold strong, while III does not. Besides, it is the basic duty of the Government to look after the safety of the citizens and it ought not leave it to the discretion of the individuals. So, argument II does not hold strong.

Chapter

15

Statement and Course of Action

Section	Level	No. of Questions
Concept Applicator	Very Easy	10
Concept Builder	Easy	15
Concept Cracker	Moderate	5
Concept Deviator	Difficult	10

THEORY

A course of action is "a step or step taken by administration for improvement or further action with regard to the problem.

In this type of questions, a statement is given followed by two or three courses of action I, II or III. The candidates have to grasp the statement and have to decide which course of action is logically follow.

A course of action is the particular step or action or decision to be taken for improvement of problem."

EXAMPLE

Statement: The ground water in the locality has been found to contain high level of arsenic making it dangerous to drink.

Course of action: I. The people living in the area should be shifted to another area to avoid a catastrophic situation.
II. The Government should make arrangement for supply of safe drinking water.

Solution: Clearly it is understand that shifting of people to other areas on immediate basis is not possible, the best possible course of action must be step II.

1. CONCEPT APPLICATOR

Directions (Qs. 1-10): In each question below is given a statement followed by two course of action number I and II. A course of action is a step or administrative decision to be taken for improvement follow-up further action in regard to the problem policy, etc. on the basis of information given in the statement to be true then decided which of the suggested courses of action logically follow(s) for pursuing.

Give answer:

- (a) if only course of action I is follows.
 - (b) if only course of action II is follows.
 - (c) if either course of action I or II is follows.
 - (d) if neither course of action I nor II is follows.
 - (e) if both course of action I and II are follows.
1. **Statement:** The Officer Incharge of a company had a hunch that some money was missing from the safe.
Courses of action: I. He should get it recounted with the help of the staff and check it with the balance sheet.
II. He should inform the police
 2. **Statement:** The ground water in the locality has been found to contain high level of arsenic making it dangerous to drink.
Courses of action: I. The people living in the area should be shifted to another area to avoid a catastrophic situation.
II. The government should make arrangements for supply of safe drinking water. [BANK. PO]
 3. **Statement:** A large number of employees have gone on a mass casual leave in protest against the company's new recruitment policy.
Courses of action: I. The company should immediately withdraw the recruitment policy.
II. All these employees should immediately suspended from their service. [Agriculture Officers]
 4. **Statement:** A large cache of live ammunition has been found in the scrap yard of a local steel factory.
Courses of action: I. The steel factory should immediately be closed down till all these ammunitions are located and shifted to safe places.
II. The government should immediately set up an enquiry to unearth the details and take corrective measures to avoid such incidence in future. [BANK PO]
 5. **Statement:** A group of school students was reported to be enjoying at a picnic sport during school hours.

Courses of action: I. The Principal of the school should contact the parents of those students and inform them with a real warning for future.

II. Some disciplinary action must be taken against those students for the awareness of all the other students. [RRB]

6. **Statement:** There has been a significant drop in the water level of all the lakes supplying water to the city.

Courses of action: I. The water supply authority should impose a partial cut in supply to tackle the situation.

II. The government should appeal to all the residents through mass media for minimal use of water.

7. **Statement:** As many as ten coaches of a passenger train have derailed and blocked both pairs of the railway tracks.

Courses of action: I. The railway authorities should immediately send men and equipment to the spot to clear the railway tracks

II. All the trains running in both the directions should be diverted to other routes. [BANK PO]

8. **Statement:** India has been continuously experiencing military threats from its neighbouring countries.

Courses of action: I. India should engage into an all out war to stop the nagging threats.

II. India should get the neighbours into a serious dialogue to reduce the tension at its borders.

[SBI PO]

9. **Statement:** There has been less than forty percent voter turn out in the recent assembly elections.

Courses of action: I. The election commission should cancel the entire election process as the votes cast are not adequate to represent people.

II. The election commission should take away the voting rights of those who did not exercise their rights. [BANK PO]

10. **Statement:** Many medical and engineering graduates are taking up jobs in administrative services and in banks

Courses of action: I. All the professionals should be advised to refrain from taking up such jobs.

II. The government should appoint a committee to find out the reasons for these professionals taking up such jobs and to suggest remedial measures

[BANK PO]

2 CONCEPT BUILDER

Directions (Qs. 1-5): In each question below is given a statement followed by two course of action number I and II. A course of action is a step or administrative decision to be taken for improvement follow-up further action in regard to the problem policy, etc. on the basis of information given in the statement to be true then decided which of the suggested courses of action logically follow(s) for pursuing.

[Andhra Bank (PO)]

Give answer:

- (a) if only course of action I is follows.
 - (b) if only course of action II is follows.
 - (c) if either course of action I or II is follows.
 - (d) if neither course of action I nor II is follows.
 - (e) if both course of action I and II are follows.
1. **Statement:** Drinking water supply to many parts of town has been disputed due to loss of water because of leakage in pipes supplying water.
- Course of action:** I. The government should order an enquiry into the matter.
- II. The civic body should set up a fact-finding team to access the damage and take effective steps.
2. **Statement:** There is an alarming increase in the number of people suffering from malaria in many part of the city
- Course of action:** I. The Municipal Corporation has advised all the govt. hospitals to store adequate supply of malaria drugs
- II. The Municipal Corporation has urged people to use mosquito repellants and keep their premises clean.
3. **Statement:** Many people have encroached should take immediate steps to remove all unauthorised
- Course of action:** I. The Municipal Corporation has advised all the govt. hospitals to store adequate supply of malaria drugs
- II. All the encroached should immediately be put behind bars and also be slapped with a hefty fine.
4. **Statement:** The meteorological department has predicted normal rainfall throughout the country the current monsoon

Course of action: I. The govt. should reduce the procurement price of food grains for the current years

II. The govt. should reduce subsidy on fertilizers for the current years

5. **Statement:** The number of dropouts in govt. schools has significantly increased in the urban area over the past years

Course of action: The govt. should immediately close down all such schools in the urban area where the dropout goes beyond 20 percent

II. The parents of all the students who dropped out of govt. schools in urban areas should be punished.

Directions (Qs. 6-10): In each question below is given a statement followed by two course of action number I and II. A course of action is a step or administrative decision to be taken for improvement follow-up further action in regard to the problem policy, etc. on the basis of information given in the statement to be true then decided which of the suggested courses of action logically follow(s) for pursuing.

[Corporation Bank (PO)]

Give answer:

- (a) if only I follows.
 - (b) if II follows.
 - (c) if either I or II follows.
 - (d) if neither I nor II follows.
 - (e) if both I and II follow.
6. **Statement:** A very large number of people gathered outside the local police station to submit a memorandum on behalf of the residents highlighting police inaction in curbing incidents of theft and burglary in the neighbourhood for the past few month.
- Course of action:** I. The police authority should form a team of officers to talk to the representatives of the residents and assure them that proper steps will be taken to stop the menace.
- II. The police authority should advise the people gathered outside the police station to disperse and promise them quick action.
7. **Statement:** At least five students were killed due to a stampede in one city school as the student tried to leave the school building, fearing short circuit.

- Course of action:** I. The principal of the school should be arrested immediately.
- II. The Govt. should immediately order closure of the school permanently.
8. **Statement:** Two local passenger train collided while running of opposites directions on the same track as the signalling system failed for a brief period.
- Course of action:** I. The services of the motormen of the train should immediately be terminated.
- II. The Govt. should immediately constitute a task force to review the functioning of the signalling system
9. **Statement:** Almost ninety per cent of the flights of one of the private airline companies were cancelling for the fourth consecutive day as the pilots refused to join their duties in protest against sacking of two of their colleagues by the airline management.
- Course of action:** I. The management of the airline companies should be ordered by the Govt. to immediately reinstate the sacked pilots to end the crisis.
- II. The Govt. should immediately take steps to end the impasse between the management and the pilots to help the hapless passengers.
10. **Statement:** A major part of the local market in the city was gutted due to a short circuit causing extensive damage to goods and property.
- Course of action:** I. The Govt. should issue strict guidelines for all established regarding installation and maintenance of electrical fittings.
- II. The Government should relocate all the markets to the outskirts of the city.
- Direction (Qs. 11-15):** In each question below is given a statement followed by two course of action number I and II. A course of action is a step or administrative decision to be taken for improvement follow-up further action in regard to the problem policy, etc. on the basis of information given in the statement to be true then decided which of the suggested courses of action logically follow (s) for pursing.
- [Syndicate Bank (PO)]

Give answer:

- (a) if only I follows.
 - (b) if only II follows.
 - (c) if either I or II follows.
- (d) if neither I nor II follows.
- (e) if both I and II follow.
11. **Statement:** An increasing number of farmers prefer to avail loans from local money leaders instead of the bank owing to complicated paperwork involved in banks.
- Course of action I:** Local money leaders who charge interest rates lower than the bank should be punished
- II. Bank should simplify the procedure to avail of loans so as to suit the farmers.
12. **Statement:** A major river in the city was reduced to a polluted and dirty canal after tonnes of sewage made way into it over the years.
- Course of action I:** All those who dumped garbage and sewage into the river should be penalized.
- II. The Government should modify the sewage system and find an alternate way to dump the city's waste.
13. **Statement:** Water table in most part of the State has gone down to such a level that its extraction for irrigation purpose is not economical any more.
- Course of action I:** Extraction of ground water for any purpose in the state should be banned for some time in order to replenish the water table.
- II. The Government should make provisions for alternative method of irrigation so that the farmers are not compelled to use ground water.
14. **Statement:** A university librarian reported increase cases of theft of books from the library.
- Course of action I:** Stricter security arrangements should be put in place in order to prevent such incidents.
- II. All the students in the university should be made to pay a hefty fine in order to replace the lost books.
15. **Statement:** Indigenous tribes living near Amazon forest are cutting down the trees to cover their basic needs, thus severely affecting the ecological balance in the computer.
- Course of action:** I. All the tribes living near Amazon rain forest should be forced to shift to urban areas of the country.

3. CONCEPT CRACKER

Direction (Qs. 1-5): In each question below is given a statement followed by two course of action number I II and III. A course of action is a step or administrative decision to be taken for improvement follow-up further action in regard to the problem policy, etc. on the basis of information given in the statement to be true then decided which of the suggested courses of action logically follow (s) for pursuing.

[RBI Grade B Officer]

1. **Statement:** The member belonging to two local club occasionally fight with each other on the main road and block traffic movement.

Course of action: I. The local police station should immediately deploy police personnel round the clock on the main road.

- II. Those involved in fighting should be indentified and put behind bars
 - III. The local administration should disband the management of the clubs with immediate effect.
- (a) Only I and II follow (b) Only II and III follow
 (c) Only I and III follow (d) All I, II and III follow
 (e) None of these

2. **Statement:** Many students of the local school fell ill for the fourth time in a row in the last six months after consuming food prepared by the school canteen.

Course of action: I. The schools management should immediately terminate the contract of the canteen and ask for compensation

- II. The schools management should advice all the students not to eat food articles from the canteen.
 - III. The owner of the canteen should immediately be arrested for negligence
- (a) None follows (b) Only II follows
 (c) Only III follows (d) Only I and II follow
 (e) Only II and III follow

3. **Statement:** Many schools buses fitted have CNG kit without observing the safety guidelines property. This result into some instances of these buses catching fire due to short circuit and endangering the lives of the school children.

Course of action: I. The regional transport authority should immediately carry out checks of all the schools buses fitted with CNG kit.

- II. The management of all the schools should stop hiring buses fitted with CNG kit.

- III. The govt. should issue a notification banning school buses for the use of CNG kit.

- (a) Only I follow (b) Only II follow
 (c) Only III follow (d) Only I and II follow
 (e) None of these

4. **Statement:** A sudden cloud burst over the island city resulted into unpredicted rainfall causing flood-like situation in the entire area. A large number of people were caught unaware and were stranded on the road.

Course of action: I. The local administration should immediately put in place an action plan for a avoiding such a situation in future

- II. The local administration should immediately deploy personnel to help the stranded people to move to safer place
 - III. The local administration should advice all the citizens not to venture out on the road till the situation improves.
- (a) Only I follows (b) Only II follows
 (c) Only III follows (d) Only II and III follow
 (e) All I, II and III follow

5. **Statement:** It is reported that during the last fortnight there has been three cases of near-miss situation involving two aircraft came perilously close to each other and could avoid collision as the pilots acted just in time.

Course of action: I. The pilots of all the six aircraft involved in this incident should be de-rostered immediately

- II. Some flight should be diverted to other airports for the next few month to decongest the sky over the city airport
 - III. The traffic controllers of the city should be sent the refresher courses in batches to prepare themselves to handle such a pressure situation.
- (a) Only I follow
 (b) Only II follow
 (c) Only III follow
 (d) Only II and III follow
 (e) None of these

4. CONCEPT DEVIATOR

Directions (Qs. 1-5): Each of these questions has a statement followed by three suggested courses of Action numbered I, II and III. Assume everything in the statement to be true, and decide which of the given Courses of action logically follows for pursuing.

1. Statement: Drinking water supply to New Bombay has been suspended till further orders from Maharashtra pollution Control Board following pollution of patal ganga river, caused by discharge of effluents from some chemical industries.

Courses of Action:

- I. The industries responsible for discharging effluents into the river should be asked to close down immediately.
 - II. The river water should immediately be treated chemically before resuming supply.
 - III. The pollution Control Board should check the nature of effluents being discharged into the river by industries at regular intervals.
 - (a) All follow
 - (b) Only II and III follow
 - (c) Only I follows
 - (d) Only III follows
 - (e) none of these

2. **Statement:** The Department of Education has recommended that the primary level admission to Government and Government aided schools should be done purely random selection and not by admission tests. This is necessitated as the number of admission seekers are much more than the available seats.

Courses of Action:

Courses of Action:

4. **Statement:** Due to cancellation of a huge export order for not adhering to the frame the company is likely to get into incurring losses in the current financial year.

Courses of Action:

- I. The officer –in-charge of the production should be immediately suspended.
 - II. The goods manufactured for the export order should be sold to other party.
 - III. The company should change its machinery to maintain the time frame.
 - (a) None follows
 - (b) Only I and II follow
 - (c) Only II and III follows
 - (d) All follow
 - (e) None of these

5. **Statement:** A devastating earthquake has ravaged the city killing hundreds of people and rendering many more homeless.

Courses of Action:

- I. The entry of outsiders into the city should be stopped
 - II. The civic administration should immediately make alternate temporary houses in arrangement for the victims.
 - III. The affected people should immediately be shifted to a safer place.
 - (a) Only I follows
 - (b) Only II follows
 - (c) Only II and III follow
 - (d) Either II or III follows
 - (e) All follows

Directions (6-10): In each question, statement is followed by three course of action numbered I, II and III. Assume everything in the statement to be true. Decide which of the three given suggested course of actions logically follows for pursuing.

6. **Statement:** In one of the worst accidents on a railway level crossing, fifty people died when a bus carrying them collided with a running train.

Courses of Action:

- I. The train driver should immediately be suspended.
 - II. The driver of the bus should be tried in court for negligence on his part.
 - III. The railways authorities should be asked to man all its level crossings.
- (a) None crossing (b) Only II follows
 (c) Only I and II follow (d) Only II and III follow
 (e) None of these

7. **Statement:** There was a spurt in criminal activities in the city during the recent festival season.

Course of action:

- I. The police should immediately investigate into the cause of this increase.
 - II. In future the police should take adequate precautions to avoid recurrence of such a situation during festivals.
 - III. The known criminals should be arrested before any such person.
- (a) None follows (b) Only II and III follows
 (c) Only I and II follows (d) All follow
 (e) Only I follows

8. **Statement:** A mass mortality of shrimps in ponds on entire Andhra coast has recently been reported due to the presence of a virus.

Course of Action:

- I. The water of the ponds affected should immediately be treated for identifying the nature of the virus.

- II. The catching of shrimps from the ponds should temporarily be stopped.

- III. The fishermen should be asked to watch for the onset of such phenomenon in nature.

- (a) Only I follows (b) All follows
 (c) Only I and II follows (d) Only II and III follow
 (e) None of these

9. **Statement:** The weather bureau has through a recent bulletin forecast heavy rainfall during the next week which may cause water logging in several parts of the city.

Course of Action:

- I. The bulletin should be given wide publicity through the mass media.
 - II. The civic authority should keep in readiness the pumping system for removal of water from these parts.
 - III. The people should be advised to stay indoors during the period.
- (a) None follows
 (b) Only II follows
 (c) Only I and II follows
 (d) Only II and III follow
 (e) All follows

10. **Statement:** Nuclear power cannot make a country secure.

Course of Action:

- I. We must stop further expenses on increasing our nuclear power.
 - II. We must destroy our nuclear capability.
 - III. We must concentrate on improving our diplomatic relations.
- (a) only II follows
 (b) only I and II follows
 (c) only III follows
 (d) Only I follows
 (e) None follows

Answer with Solution

Concept Applicator

1. (a) Clearly, a suspicion first needs to be confirmed and only when it is confirmed, should an action be taken. So, only course I follows.
2. (b) Clearly, the contamination of ground water doesn't provide sufficient grounds to shift people to other areas. The problem demands creating awareness among people of the dangers of drinking contaminated water and arranging to provide them safe drinking water. Thus, only course II follows.
3. (d) Here, the problem is one of mutual disagreement. So, extreme measures as getting rid of the policy or employees protesting against it, won't help. It can best be solved by finding a middle path via mutual talks. Thus, neither I nor II follows.
4. (e) Clearly, such a finding demands a probe into the matter along with sealing of the premises for further checks to avoid any mishap. Thus, both the courses of action I and II follow.
5. (e) Clearly, such students who bank schools should be punished so that other students do not indulge in the same. Also, their parents should be informed about the same so that they are not let free in future. Thus, both I and II follow.
6. (e) The situation can be tackled by periodic cuts in supply, and urging people to conserve water. O, both the courses follow.
7. (e) The situation demands first diverting other trains to different routes so as to avert any accident, and then clearing the tracks as soon as possible. Thus, both the courses follows.
8. (b) clearly, war is the last resort. First, peaceful talks and negotiations should be indulged in, to settle the issues of dispute. So, only course II follows.
9. (d) Re-election would demand repeated expenses and following course II would reduce the voter base permanently. Instead, an awareness should be created among the people to use their right to vote effectively. So, neither I nor II follows.
10. (b) Following course I would be an infringement of the right to freedom of individuals. However, if the lackening of their respective fields are found out and removed, the professionals would surely give up the idea of opting for other jobs. Hence, only course II follows.

Concept Builder

Solution for 1 to 5

1. (b) The first course of action does not match the scale of the problem. The problem is not so big as to merit a govt enquiry. It is enough that the civic body take action and hence II follows.
2. (e) I will help in cure while II will help in prevention.
3. (a) II is an extreme action and hence does not follows. I is a proper course of action. Note that taking immediate steps is not the same immediate removal of the constructions. Which may again have been considered to be extreme course of action.
4. (d) if the rainfall is normal. It does not mean we would deprive the farmers of his due. The action may be deemed to be correct only if we know that they are the reversal of policies which has been framed during crisis years.
5. (d) Both are extreme courses of action.

Solution for 6 to 10

6. (b) II is the immediate course of action while I can be implemented a bit later.
7. (d) Both of these are extreme action.
8. (b) Motormen should not be made the scapegoat for the failure of the signalling system.
9. (b) If the govt goes for I, it would impinge on the autonomy of the private sector.
10. (a) I follows as a measure of caution. But II won't solve the problem: poor electrical fittings would wreak havoc wherever the market be.

Solution for 11 to 15

11. (b) I is simply absurd. II follows as a solution to be complicated paperwork.
12. (b) I is easier said than done. Even I makes sense only when the govt goes for II.

13. (b) I is impractical...Water is essential for life to go on. II is sensible, especially when using ground water is proving to be uneconomical.
14. (a) I is the obvious course of action. But II is absurd punishment for thieves in understandable. But how can you punish "all the student"?
15. (d) I is simply absurd. But even II is not the solution.

Concept Cracker

Solution for 1 to 5

1. (e) A proper course of action would be serving notices to these clubs to behave themselves. Even police personnel may be deployed, but only during the sensitive hours.
2. (b) I and III would be too harsh. II is absurd efforts should be made to supervise the quality of the food prepared by the canteen

3. (a) I is the right course. I and III would create a bigger problem. Viz pollution.
4. (d) II is for the immediate future, III is for some time ahead I does not follow because of the word "immediately"
5. (a) I would be punishing the brave. II is absurd, how can city fights be diverted" only III makes sense.

Concept Deviator

1. (a) All are feasible to resolve the problem.
2. (b) since the basic problem is that number of admission seekers are much more than the available seats hence course of action I and II will help to reduce the problem.
3. (c) Actions I and III will create another problems action II is the effective way to reduce the problem.
4. (c) Suspension of officer-in charge does not immediately help the situation nor does the charge

- of machinery help in any way to tackle the present situation. Only II can solve the present crisis.
5. (d) Clearly either II or III action solve the problem.
6. (c)
7. (b)
8. (c)
9. (d)
10. (c) besides having nuclear capability we must develop and strength our diplomatic relations.

Chapter

16

Syllogism

Section	Level	No. of Questions
Concept applicator	Basic	15
Concept builder	Level -1	14
Concept cracker	Level -2	19
Concept deviator	Level -3	29

INTRODUCTION

Syllogism is one of the very important chapter for any aptitude exam. In these type of questions premise has generally two statement on the basis of which a deduction has to be made for conclusion. And then that conclusion we have to select from the given options

We may have a case where from the given premise, no conclusion can be drawn

There are two methods to solve these type of questions:

- (i) Venn Diagram
- (ii) Rules of deduction

Now we will see how to derive conclusion from the given premise from these two methods but before that lets have a look at the different components of the premise and for that take two example of premise.

All Rats are Hats ... (i)

All Hats are Pats ... (ii)

- (i) The premises normally start with qualifiers or quantifiers e.g the word All, No, some and Some – Not. The word “All” has its synonyms as – Every, Any, Each, whereas the word “Some” can also be replaced by Many, Few, A little, Most of, Much of, More, etc.
- (ii) A premise consists of a subject and a predicate wherein the first term [e.g. “Rats” in statement (i)] is the subject and the second term [e.g. “Hats” in statement (i)] the predicate. Similarly, in statement (ii), ‘Hats’ is called the subject and “Pats” is the predicate.
- (iii) The word that occurs in both the premises is known as the ‘middle term’ (in this example since “Hats” is in both the premise hence it is called middle term).
- (iv) The “conclusion” of the premise middle term should not appear and conclusion should consist of the other two words (“Rats” and “Pats” in the above example) and the.

The premises can be divided into 2 types (Based on qualifier)

- (A) Universal statements [if the qualifier used in the premise is **“All”, “Every”, “Any”, “Each”**]
- (B) Particular statements [if the qualifier used in the premise is **“Some”, Many, Few, A little, Most of, Much of, More, etc**]

The premises can be divided into 2 types (Based on type of statement):

Positive (affirmative) statements [if premise has no negation]

Negative statements [If premise has a negative term like **“not”** or **“no”**]

The combination of the two different categories of classifications leads to four different premises as given in Table below.

	Universal/ Particular	Affirmative/ Negative
"All", "Every", "Any", "Each"	Universal	Affirmative
"No", "Not" "None"	Universal	Negative
Some, Many	Particular	Affirmative
Some not, Many not	Particular	Negative

The subject or the predicate can be either distributed or not distributed in the given premise.

The subject and the predicate are either distributed (indicated as yes) or not distributed (indicated as no) depending on what kind of a statement it is . Table below shows the distribution pattern of the subject and the predicate.

	Example	Subject	Predicate
Universal affirmative	"All", "Every", "Any", "Each"	Yes	No
Universal negative	"No", "Not" "None"	Yes	Yes
Particular affirmative	Some, Many	No	No
Particular negative	Some not, Many not	No	Yes

Please note that:

- (i) Subject is distributed only in Universal statements.
- (ii) Predicate is distribute in Negative statement.

RULES FOR DEDUCTIONS

1. Every deduction should contain three and only three distinct terms.
2. The middle term must be distributed at least once in the premises.
3. If one premise is negative, then the conclusion must be negative.
4. If one premise is particular, then the conclusion must be particular.
5. If both the premises are negative, no conclusion can be drawn.
6. If both the premises are particular, no conclusion can be drawn.
7. No term can be distributed in the conclusion, if it is not distributed in the premises.

Now lets take few examples to understand this:

Example 1: Find the conclusion of

- (i) All Rats are Pats
- (ii) All Pats are Cats

Solution: Now look at the minute details of each premise

- (i) Here the first statement starts with "**All**" which is Universal affirmative hence it is a universal affirmative statement, and the subject (Rats) is distributed but the predicate (Pats) is not distributed.
- (ii) The second statement is also Universal affirmative, the subject Pats is distributed and the predicate Cats is not distributed .
- (iii) Here the middle term is Pats as it occurs in both the premises.
- (iv) Middle term is Pats is distributed once in the premises (In this example Premise ii) hence it satisfies Rule [2] hence we can find a conclusion.
- (v) Conclusion will have two terms and these terms are "Rats" and "Cats"
- (vi) As "Rats" is distributed in the 1st premises and "Cats" is not distributed,
- (vii) In final conclusion "Rats" is distributed but "Cats" is not distributed.

Conclusion: All Rats are Cats

Note of Caution: The conclusion can not be All Cats are Rats as in this case we have distributed the

Let Us Study the various possible cases along with Venn Diagram with all possible inferences.

Case 1. All fruits are flowers. All flowers are leafs

Statement/ premises	Converse of statement
All m are n	Some n are m
All Fruits are Flowers	Some Flowers are Fruits
All Flowers are Leafs	Some Leafs are Flowers

Venn Diagram	Inference
	1. All fruits are Leafs 2. Some Leafs are flowers 3. Some Leafs are Fruits 4. Some Flowers are Fruits

Case 2. ALL P are Q. ALL R are Q.

Statements	Inference	Venn Diagram
1. All P are Q 2. All R and Q	1. Some Q are P 2. Some Q are R 3. Either Some P are R (or) No P are R.	

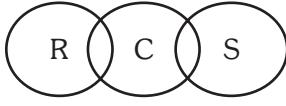
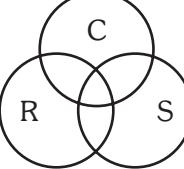
Case 3. All K are M. Some M are S.

Statements	Inference	Venn Diagram
1. All K are M 2. Some M are S	1. Some M are K 2. Some S are M 3. Either No K is S (or) Some K are S.	

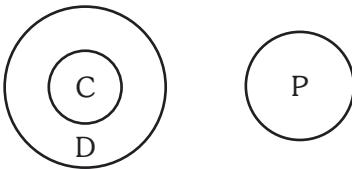
Case 4. All Bs are Ts. Some Bs are Cs.

Statements	Inference	Venn Diagram
1. All B are T 2. Some B are C	1. Some T are B 2. Some C are B 3. Some T are C	

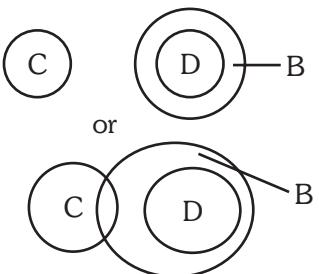
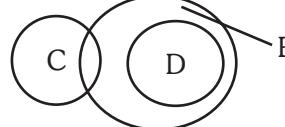
Case 5. Some Rs are Cs. Some Cs are S.

Statements	Inference	Venn Diagram
1. Some R are C 2. Some C are S	1. Some C are R 2. Some S are C 3. Either some R are S or No R is S.	 or 

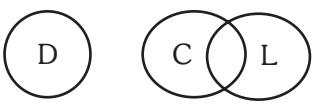
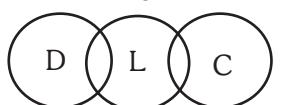
Case 6. All C are D. No D is P.

Statements	Inference	Venn Diagram
1. All C are D 2. No D is P	1. Some D are C 2. No P is D 3. No C is P 4. No P is C	

Case 7. No C is D. All D are B

Statements	Inference	Venn Diagram
1. No C is D 2. All D are B	1. Some B are D 2. No D is C 3. Some B are not C 4. Either some C are B or No C is B.	 or 

Case 8. No C is D. Some C are L

Statements	Inference	Venn Diagram
1. No C is D 2. Some C are L	1. No D is C 2. Some L are C 3. Either some L are D or No L is D	 or 

1. CONCEPT APPLICATOR

Direction (Qs. 1-15): In each of the question below are two statements following by two conclusions numbered I and II. You have to take the three given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusion logically follows from the two statements disregarding commonly known fact.

Give answers:

- (a) if conclusion I follows
- (b) if conclusion II follows
- (c) if either conclusion I or II follows
- (d) if neither conclusion I nor II follows
- (e) if both conclusion I and II follows

1. **Statements:** All men are dogs. All dogs are cats.
(R.R.B)

Conclusions: I. All men are Cats.

II. All cats are men.

2. **Statements:** All pen are roads. All roads are houses.
(Bank Clerk)

Conclusions: I. All Houses are pens,

II. Some houses are pens

3. **Statements:** All pens are chalks. All chairs are chalks.
(Bank clerk)

Conclusions: I. Some pens are Chalks.

II. Some chalks are pens.

4. **Statements:** Every Minister is a student. Every student is inexperienced.

Conclusions: I. Every Minister is inexperienced.

II. Some inexperienced are students.

5. **Statements:** All jungles are tigers. Some tigers are horses.
(Bank PO)

Conclusions: I. Some horses are jungles.

II. No horse is jungles.

6. **Statements:** All birds are tall. Some tall are hens.

Conclusions: I. Some birds are hens.

II. Some hens are tall.

7. **Statements:** Some hens are cows. All cows are horses.

Conclusions: I. Some horses are hens.

II. Some hens are horses.

8. **Statements:** Some KINGS are queens. All queens are beautiful.

Conclusions: I. ALL kings are beautiful.

II. All queens are kings.

9. **Statements:** No bat is ball. No ball is wicket.

Conclusions: I. No bat is wicket.

II. All wickets are bats.

10. **Statements:** No women teacher can play. Some women teachers are athletes. (GBO)

Conclusions: I. Male athletes can play.

II. Some athletes can play.

11. **Statements:** Many scooters are trucks. All trucks are trains.

Conclusions: I. Some Scooters are trains.

II. No truck is a Scooter.

12. **Statements:** Some doctors are fools. Some fools are rich.

Conclusions: I. Some doctors are rich.

II. Some rich are doctors.

13. **Statements:** Most teachers are boys. Some boys are students.

Conclusions: I. Some students are boys.

II. Some teachers are Students.

14. **Statements:** Raman is always successful. No fool is always successful. (IHM)

Conclusions: I. Raman is a fool.

II. Raman is not a fool.

15. **Statements:** Some papers are pens. Angle is a paper. (RBI)

Conclusions: I. Angle is not a pen.

II. Angle is a pen.

2 CONCEPT BUILDER

Directions (Qs. 1 -15): In each of the question below are three statements following by two conclusions numbered I and II. You have to take the three given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusion logically follows from the three statements disregarding commonly known fact.

Give answers:

- (a) if conclusion I follow
- (b) if conclusion II follows
- (c) if either conclusion I or II follows
- (d) if neither conclusion I nor II follows
- (e) if both conclusion I and II follows

1. **Statement:** Some desks tents. Some tents are rivers. All rivers are ponds.

Conclusions: I. Some ponds are tents.

(Union Bank of India PO)

II. Some ponds are desks.

2. **Statement:** All chairs are pens .Some pens are knife. All Knives are rats

Conclusions: I. Some rats are chairs.

(Union Bank of India PO)

II. Some rats are pen

3. **Statement:** Some forests are huts .Some huts are walls. Some walls are nets

Conclusions: I. Some nets are forests.

II. Some nets are huts.

4. **Statement:** All tables are windows. All windows are rooms. All rooms are buses.

Conclusions: I. Some buses are tables.

II. Some rooms are tables.

5. **Statement:** Some trees are boxes. All boxes are bricks. All bricks are dogs.

Conclusions: I. Some dogs are trees.

II. Some bricks are trees.

6. **Statement:** All goats are flowers. No flower is branch. Some branches are roots.

Conclusions: I. Some roots are goats.

II. No roots are goat.

7. **Statement:** All pots are rings. All bangles are rings. All rings are paints.

Conclusions: I. Some paints are pots.

II. Some bangles are paints.

8. **Statement:** All pictures are paintings. All paintings are photographs.

Some photographs are designs.

(Bank of Baroda PO)

Conclusions: I. Some paintings are designs.

II. Some photographs are movies.

9. **Statement:** Some tablets are capsules. All capsules are syrups.

Some syrups are medicines

Conclusions: I. Some syrups are powders.

II. Some syrups are tablets.

10. **Statement:** All benches are cots. No cot is lamp. Some lamps are candles.

Conclusions: I. Some cots are benches.

(Andhra Bank PO)

II. Some candles are cots.

11. **Statement:** Some cats are dogs. All dogs are goats. All goats are walls.

Conclusions: I. Some walls are dogs.

II. Some walls are cats.

12. **Statement:** Some buildings are benches. Some sofas are benches.

Some benches are sofas.

Conclusions: I. Some tables are sofas.

II. No table is sofa.

13. **Statement:** All rats are bats. Some bats are desks. All desks are chairs.

Conclusions: I. Some desks are rats.

II. Some chair are rats

14. **Statement:** Some roads are ponds. All ponds are stores. Some stores are bags.

Conclusions: I. Some bags are ponds.

II. Some stores are roads.

3 CONCEPT CRACKER

Direction (Qs. 1-19): In each of the question below are three statements following by three conclusions numbered I, II and III. You have to take the three given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusion logically follows from the two statements disregarding commonly known fact.

1. **Statement:** All pins are rods. Some rods are chains. All chains are hammers.

- Conclusions:**
- I. Some pins are hammers.
 - II. Some hammers are rods
 - III. No pin is hammer.
- (a) Only I follows
 (b) Only II follows
 (c) Only III follows
 (d) Only either I or III & II follows
 (e) None of these

2. **Statement:** Some books are papers. Some papers are desks. All desks are chairs.

- Conclusions:**
- I. Some books are desks.
 - II. Some papers are chairs.
 - III. Some books are chairs.
- (a) None follows
 (b) Only I follows
 (c) Only II follows
 (d) Only III follows
 (e) Only I and III follows

3. **Statement:** Some pots are buckets. All buckets are tubs. All tubs are drums.

- Conclusions:**
- I. Some drums are pots.
 - II. All tubs are buckets.
 - III. Some drums are buckets.
- (a) Only I and II follows
 (b) Only I and III follows
 (c) Only II and III follows
 (d) All follows
 (e) None of these

4. **Statement:** All pins are bags. All chalks are bags. All needles are bags.

- Conclusions:**
- I. Some needles are pins.
 - II. Some chalks are needles.
 - III. No needle is pin.

- (a) Only I follows
 (b) Only III follows
 (c) Only either I or III follows
 (d) Only either I or III and II follows
 (e) None of these

5. **Statement:** Some buses are trucks. Some trucks are boats. No boat is jeep.

- Conclusions:**
- I. Some jeeps are buses.
 - II. Some boats are buses.
 - III. Some jeeps are trucks.
- (a) None follows
 (b) Only I follows
 (c) Only II follows
 (d) Only III follows
 (e) Only II and III follows

6. **Statement:** All flowers are trees. All trees are jungles. No jungle is hill.

- Conclusions:**
- I. No flower is hill.
 - II. No tree is hill.
 - III. Some jungles are flowers.
- (a) None follows
 (b) Only I and II follows
 (c) Only I and III follows
 (d) Only II and III follows
 (e) All follow

7. **Statement:** All tables are sofas. All sofas are beds. All beds are mats.

- Conclusions:**
- I. Some mats are sofas.
 - II. Some beds are tables.
 - III. Some mats are tables.
- (a) None follows
 (b) Only II follows
 (c) Only I and III follows
 (d) Only II and III follows
 (e) All follow

8. **Statement:** Some desks are chairs. Some chairs are pens. Some pens are drawers.

- Conclusions:**
- I. Some drawers are desks.
 - II. Some drawers are chairs.
 - III. No drawer is chair.
- (a) None follows

- (b) Only II follows
 (c) Only III follows
 (d) Only either II or III follow
 (e) Only I and either II or III follow
9. **Statement:** All flowers are trees. Some trees are houses. All houses are wheels.
- Conclusions:** I. Some wheels are trees.
 II. Some trees are flowers.
 III. Some wheels are flowers.
 (a) Only I and II follow
 (b) Only I and III follow
 (c) Only II and III follow
 (d) All I, II and III follow
 (e) None of these
10. **Statement:** All windows are doors. All buildings are doors. All doors are boats.
- Conclusions:** I. All windows are boats.
 II. All buildings are boats.
 III. Some boats are doors.
 (a) Only I and II follow
 (b) Only I and III follow
 (c) Only II and III follow
 (d) All follow
 (e) None of these
11. **Statement:** Some radios are telephones. All telephones are mirrors. All mirrors are desks.
- Conclusions:** I. Some radios are desks.
 II. Some radios are mirrors.
 III. Some desks are telephones.
 (a) Only I and II follow
 (b) Only I and III follow
 (c) Only II and III follow
 (d) All follow
 (e) None of these
12. **Statement:** All furniture are jungles. No jungle is road. Some roads are hills.
- Conclusions:** I. Some roads are furniture.
 II. Some jungles are furniture.
 III. Some hills are jungles.
 (a) Only I follow
 (b) Only II follow
 (c) Only III follow
 (d) Only I and III follow
 (e) None of these
13. **Statement:** All brick are stones. Some stones are rocks. All rocks are mountains.
- Conclusions:** I. Some mountains are stones.
 II. Some mountains are bricks.
 III. Some stones are bricks.
 (a) Only I follow
 (b) Only III follow
 (c) Only I and III follow
 (d) All follow
 (e) None of these
14. **Statement:** Some bags are plates. Some plates are chairs. All chairs are tables.
- Conclusions:** I. Some tables are plates.
 II. Some chairs are bags.
 III. No chair is bag.
 (a) Only I follows
 (b) Only either II or III follows
 (c) Only I and either II or III follow
 (d) Only III follows
 (e) None of these
15. **Statement:** All desks are rooms. Some rooms are halls. All halls are leaves.
- Conclusions:** I. Some leaves are desks.
 II. Some halls are desks.
 III. Some leaves are rooms.
 (a) None follows
 (b) Only I follows
 (c) Only II follows
 (d) Only III follows
 (e) Only II and III follows
16. **Statement:** All buildings are mirrors. Some mirrors are pens. No pen is paper.
- Conclusions:** I. Some papers are buildings.
 II. Some pens are buildings.
 III. Some papers are mirrors.
 (a) None follow
 (b) Only I follow
 (c) Only II follow
 (d) Only III follow
 (e) Only II and III follow
17. **Statement:** Some books are trees. All trees are roads. All roads are wheels.
- Conclusions:** I. Some wheels are books.
 II. Some roads are books.

- III. Some wheels are trees.
 (a) Only I and II follow
 (b) Only II & III follow
 (c) Only I and III follow
 (d) All follow
 (e) None of these
18. **Statement:** All stones are rivers. All rivers are cars. Some cars are trains.
- Conclusions:** I. Some trains are stones.
 II. Some cars are stones.
 III. Some trains are rivers.
 (a) None follows
 (b) Only I follows
- (c) Only II follows
 (d) Only III follows
 (e) Only II and III follows
19. **Statement:** Some rivers are hills. No hill is taxi. All taxis are buses.
- Conclusions:** I. Some buses are rivers.
 II. Some taxis are rivers.
 III. No bus is river.
 (a) None follows
 (b) Only I follows
 (c) Only III follows
 (d) Only II follows
 (e) Only either I or III follows

4. CONCEPT DEVIATOR

Direction (Qs. 1-29) : In each of the question below are Four statements following by Four conclusions numbered I ,II, III and IV. You have to take the Four given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusion logically follows from the two statements disregarding commonly known fact.

1. **Statement:** Some doctors are lawyers. All teachers are lawyers. Some engineers are lawyers. All engineers are businessmen.

Conclusions: I. Some teachers are doctors.
 II. Some businessmen are lawyers.
 III. Some businessmen are teachers.
 IV. Some lawyers are teachers.
 (a) None follows
 (b) Only II follows
 (c) Only III follows
 (d) Only II and IV follow
 (e) None of these

2. **Statement:** All plastics are glasses.

Some sponges are glasses.
 All sponges are clothes
 All clothes are liquids.

Conclusions: I. All liquids are sponges.
 II. Some plastics are clothes.
 III. All glasses are plastics.
 IV. All liquids are clothes.
 (a) None follows

- (b) Only either II or IV follows
 (c) Only IV follows
 (d) Only II and IV follow
 (e) None of these

3. **Statement:** All sands are beaches. All shores are beaches. Some beaches are trees. All trees are hotels.

Conclusions: I. Some shores are hotels.
 II. All beaches are shores
 III. Some beaches are hotels.
 IV. Some sands are trees.
 (a) None follows
 (b) Only II follows
 (c) Only either I or III follows
 (d) Only IV follows
 (e) None of these

4. **Statement:** All parrots are pigeons. Some crows are pigeon. Some sparrows are crow. All sparrows are koels.

Conclusions: I. Some koels are crows.
 II. Some parrots are crows.
 III. Some sparrows are pigeons.
 IV. No crow is a parrot.
 (a) None follows
 (b) Only I follow
 (c) Only II follows
 (d) Only III follows
 (e) Only II and III follows

5. **Statement:** All chairs are tables. All tables are cushions. Some cushions are trolleys. All trolleys are lamps.
- Conclusions:** I. Some lamps are tables.
 II. Some trolleys are chairs.
 III. Some cushions are lamps.
 IV. All chairs are cushions.
 (a) Only I follows
 (b) Only III and IV follow
 (c) Only either II or II follows
 (d) All follows
 (e) None of these
6. **Statement:** Some roses are flowers. Some flowers are buds. All buds are leaves. All leaves are plants.
- Conclusions:** I. Some plants are flowers.
 II. Some roses are buds.
 III. No leaves are roses.
 IV. No roses are buds.
 (a) Only I follows
 (b) Only I & II follows
 (c) Only I and either II or IV follows
 (d) Only either II and IV follows
 (e) None of these
7. **Statement:** Some books are journals. All journals are papers. Some papers are Cards. All cards are boards.
- Conclusions:** I. Some papers are books.
 II. Some papers are boards.
 III. Some boards are journals.
 IV. Some boards are books.
 (a) Only I & II follows
 (b) Only I follows
 (c) Only I, II & III follows
 (d) All follow
 (e) None of these
8. **Statement:** Some grapes are apples. Some apples are bananas. All bananas are guavas.
 No guava is pomegranates..
- Conclusions:** I. No grapes are pomegranates.
 II. Some guavas are grapes.
 III. Some guavas are apples.
 IV. No bananas are pomegranates.
 (a) None follows
 (b) Only I & III follows
 (c) Either II or III follows
9. **Statement:** Some doors are walls. All walls are floors. All floors are rooms. Some rooms are windows.
- Conclusions:** I. All walls are rooms.
 II. Some rooms are doors.
 III. Some rooms are doors.
 IV. Some floors are doors.
 (a) None follows
 (b) Only I & II follows
 (c) Only II & III follows
 (d) Only I, III & IV follows
 (e) All follow
10. **Statement:** Some spoons are forks. Some forks are bowls. All bowls are plates. Some plates are utensils.
- Conclusions:** I. Some utensils are forks.
 II. Some plates are forks.
 III. Some plates are spoon.
 IV. Some utensils are .spoons
 (a) Only I follows
 (b) Only II follows
 (c) Only I & III follows
 (d) Only II & IV follow
 (e) None of these
11. **Statement:** All chairs are tables. All tables are desks. Some desks are benches. Some desks are sofas.
- Conclusions:** I. Some benches are sofas.
 II. Some sofas are tables.
 III. Some benches are tables.
 IV. No chair is bench
 (a) None follows
 (b) Only I & II follows
 (c) Only II & III follows
 (d) Only I, II & III follow
 (e) None of these
12. **Statement:** Some sweets are chocolates. Some chocolates are mints. Some mints are food. Some food is diet.
- Conclusions:** I. No sweets are diet.
 II. No food is chocolates.
 III. Some sweets are diet.
 IV. Some sweets are food.
 (a) None follows
 (b) Either I or II follows
 (c) Only III or IV follows

- (d) Only II & III follows
(e) None of these
- 13.** **Statement:** All dolls are toys. Some toys are gems. Some gems are boxes. All boxes are sticks.
Conclusions: I. Some sticks are gems.
II. Some gems are dolls.
III. Some sticks are dolls.
IV. Some toys are dolls.
(a) Only I follows
(b) Only II follows
(c) Only III and IV follow
(d) Only I and IV follow
(e) None of these
- 14.** **Statement:** Some days are nights. Some nights are weeks. Some weeks are months. All months are years.
Conclusions: I. Some years are nights.
II. Some years are days.
III. Some months are nights.
IV. Some years are weeks.
(a) Only I, II and III follow
(b) Only I, III and IV follow
(c) Only II, III and IV follow
(d) All follow
(e) None of these
- 15.** **Statement:** Some doors are handles. All handles are pins. Some pins are threats. All threats are clothes.
Conclusions: I. Some clothes are pins.
II. Some pins are doors.
III. Some clothes are handles.
IV. Some clothes are doors.
(a) Only II and III follow
(b) Only I, II and IV follow
(c) Only II, III and IV follow
(d) All follow
(e) None of these
- 16.** **Statement:** Some papers are lamps. Some lamps are bulbs. Some bulbs are tube. Some tubes are walls
Conclusions: I. Some walls are lamps.
II. Some bulbs are papers.
III. Some tubes are lamps.
IV. Some walls are papers.
(a) Only I and II follow
(b) Only III and IV follow
(c) Only I, III and IV follow
- 17.** **Statement:** All belts are rollers. Some rollers are wheels. All wheels are mats.
Some mats are cars.
Conclusions: I. Some mats are rollers.
II. Some mats are belts.
III. Some cars are rollers.
IV. Some rollers are belts.
(a) Only I and II follow
(b) Only I, III and IV follow
(c) Only I and IV follow
(d) Only II, III and IV follow
(e) None of these
- 18.** **Statement:** Some tyres are rains.
Some rains are flowers.
All flowers are jungles.
All jungles are tubes.
Conclusions: I. Some jungles are tyres.
II. Some tubes are rains.
III. Some jungles are rains.
IV. Some tubes are flowers.
(a) Only I, II and III follow
(b) Only II, III and IV follow
(c) Only I, III and IV follow
(d) All follow
(d) None of these
- 19.** **Statement:** All desks are chairs.
All chairs are tables
All tables are boxes.
All boxes are trunks
Conclusions: I. Some trunks are tables.
II. All chairs are boxes.
III. Some boxes are desks.
IV. All desks are trunks.
(a) Only I, II and III follow
(b) Only I, II and IV follow
(c) Only II, III and IV follow
(d) All follow
(e) None of these
- 20.** **Statement:** Some birds are goats. Some goats are horses. Some horses are lions.
Some lions are tigers.
Conclusions: I. Some tigers are goats.

- II. No tiger is goat.
 III. Some lions are birds.
 IV. No lion is bird.
 (a) Only either I or II follow
 (b) Only either III or IV follows
 (c) Only either I or II and either III or IV follow
 (d) Only I and III follow
 (e) None of these
- 21.** **Statement:** All papers are bottles. All bottles are cups. Some cups are jugs.
 Some jugs are plates.
Conclusions: I. Some plates are cups.
 II. Some plates are bottle
 III. Some cups are papers.
 IV. Some bottles are papers.
 (a) Only III and IV follow
 (b) Only I and II follows
 (c) Only I and III follow
 (d) Only II and IV follow
 (e) None of these
- 22.** **Statement:** All bulbs are wires. No wire is cable. Some cables are brushes. All brushes are paints.
Conclusions: I. Some paints are cables.
 II. Some wires are bulbs
 III. Some brushes are wires.
 IV. Some cables are bulbs.
 (a) None follow
 (b) Only I & II follows
 (c) Only II follow
 (d) Only III follow
 (e) Only IV follow
- 23.** **Statement:** All chairs are keys. All keys are balloons. Some balloons are mirrors. Some mirrors are desks.
Conclusions: I. Some desks are keys.
 II. Some balloons are chairs
 III. Some mirrors are balloons.
 (a) Only I follow
 (b) Only II follows
 (c) Only III follow
 (d) Only II and III follow
 (e) All I, II and III follow
- 24.** **Statement:** Some drums are posters.
 All posters are windows.
 Some windows are tablets.
 All tablets are books.
Conclusions: I. Some windows are drums.
 II. Some books are posters
 III. Some tablets are drums.
 (a) None follows
 (b) Only I follows
 (c) Only II follow
 (d) Only III follow
 (e) Only I and II follow
- 25.** **Statement:** Some trains are cars. All cars are branches. All branches are nets.
 Some nets are dresses. (SBI (PO))
Conclusions: I. Some dresses are cars
 II. Some nets are trains.
 III. Some branches are trains
 IV. Some dresses are trains.
 (a) Only I and III follow
 (b) Only II and III follow
 (c) Only I and IV follow
 (d) Only II III and IV follow
 (e) None of these
- 26.** **Statement:** some pencils are kites.
 Some kites are desks.
 All desks are jungles.
 All jungles are mountains.
Conclusions: I. Some mountains are pencils.
 II. Some jungles are pencils.
 III. Some mountains are desks
 IV. Some jungles are kites.
 (a) Only I and III follow
 (b) Only I, II and III follow
 (c) Only III and IV follow
 (d) Only II, III and IV follow
 (e) None of these
- 27.** **Statement:** All papers are clips. Some chips are boards. Some boards are lanes.
 All lanes are roads.
Conclusions: I. Some roads are boards.
 II. Some lanes are chips
 III. Some boards are papers
 IV. Some roads are chips.
 (a) Only I and II follow
 (b) Only I and III follow

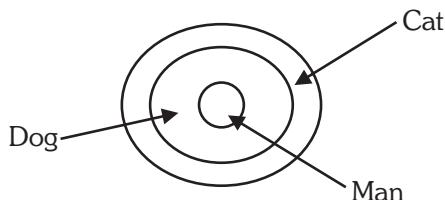
- (c) Only I, II and III follow
(d) Only II, III and IV follow
(e) None of these
28. **Statement:** All pens are clocks. Some clocks are tyres. Some tyres are wheels.
Some wheels are buses.
- Conclusions:** I. Some buses are tyres.
II. Some wheels are clocks.
III. Some wheels are pens
IV. Some buses are clocks.
(a) None follows
(b) Only I follows
(c) Only II follows
(d) Only III follows
(e) Only IV follows
29. **Statement:** All stones are hammers. No hammer is a ring. Some rings are doors.
All doors are windows.
- Conclusions:** I. Some windows are stones.
II. Some windows are rings
III. No window is a stone.
IV. Some rings are stones.
(a) Only I follows
(b) Only II follows
(c) Only III follows
(d) Only either I or III follows
(e) Only either I or III and II follows

Answer with Solution

Concept Applicator

1. (a) Since both the premises are universal and affirmative, the conclusion must be universal affirmative. However, conclusion II, being an A-type proposition, distributes the term 'goats'. Since the term 'goats' is distributed in II, it is not being distributed in any of the premises, so conclusion II cannot follow. Thus, only I follows.
4. (e) 'Every' is equivalent to 'All'. Thus, since both the premises are universal and affirmative, the conclusion must be universal affirmative and should not contain the middle term. So, I follows. II is the converse of the second premise and thus it also holds.

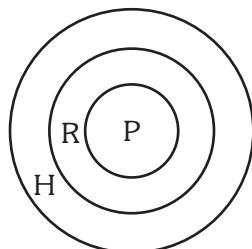
Venn Diagram :



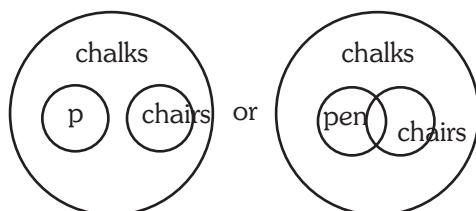
Hence , Only I follows.

2. (b) Since both the premises are universal and affirmative, the conclusion must be universal affirmative and should not contain the middle term. So, it follows that 'All pens are houses'. II is the converse of this conclusion and so it holds. Since the term 'houses'. II is the converse of this conclusion and so it holds. Since the term 'houses' is distributed in I without being distributed in any of the premises, so I does not follow.

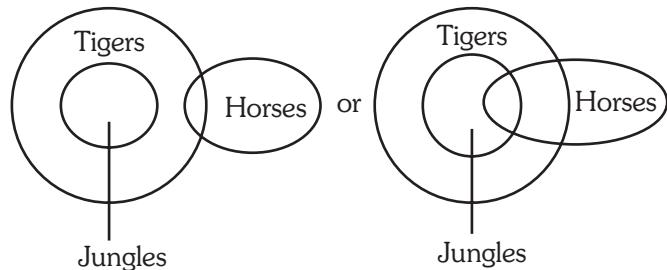
Venn Diagram:



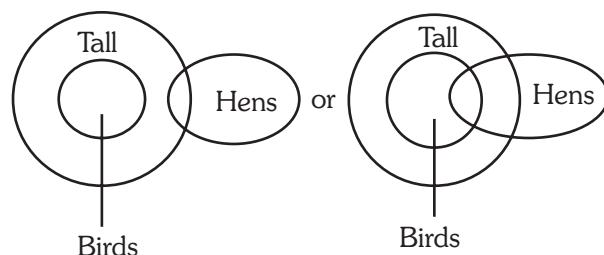
3. (b) Since the middle term 'chalks' is not distributed even once in the premises, no definite conclusion follows. However, II is the converse of the first premise and so it holds.



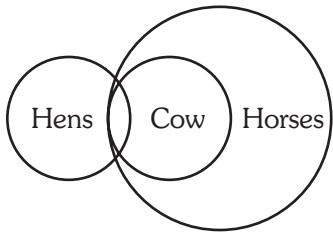
5. (c) Since the middle term 'tigers' is not distributed even once in the premises, no definite conclusion follows. However, I and II involve only the extreme terms and form a complementary pair. So, either I or II follows.



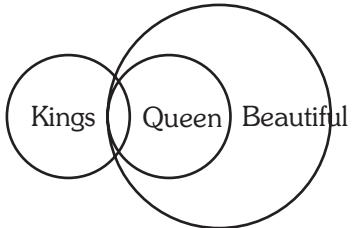
6. (b) Since the middle term 'tall' is not distributed even once in the premises, no definite conclusion follows. However, II is the converse of the second premise and so it holds.



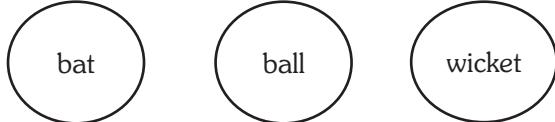
7. (e) Since one premise is particular, the conclusion must be particular and should not contain the middle term. So, II follows. I is the converse of II and so it also holds.



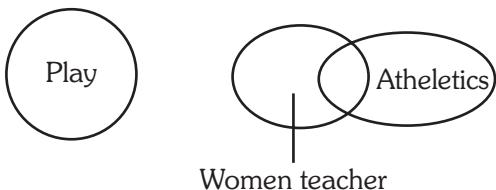
8. (d) Since one premise is particular, the conclusion must be particular. So, neither I nor II follows.



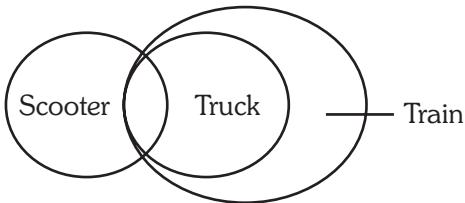
9. (d) Since both the premises are negative, no definite conclusion follows.



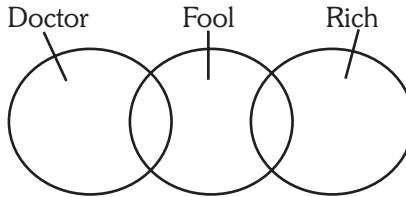
10. (d) Since one premise is negative, the conclusion must be negative. So, neither conclusion follows.



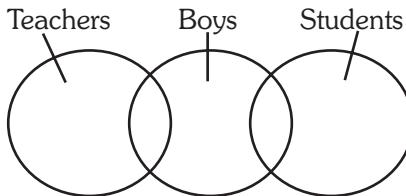
11. (a) Since the first premise is particular, the conclusion must be particular and should not contain the middle term. Thus, only I follows.



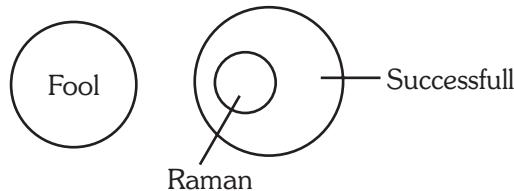
12. (d) Since both the premises are particular, no definite conclusion follows.



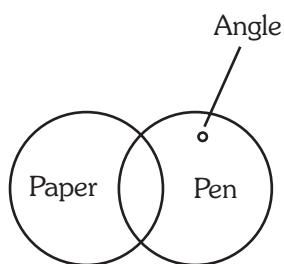
13. (a) Since both the premises are particular, no definite conclusion follows. However, I is the converse of the second Premise and thus it holds.



14. (b) Since both the premises are universal and one premise is negative, the conclusion must be universal negative and should not contain the middle term. So, only II follows.

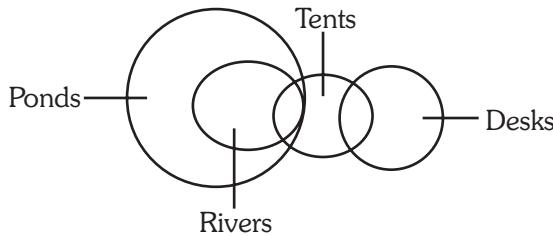


15. (c) Since the middle term 'papers' is not distributed even once in the premises, no definite conclusion follows. However, I and II involve only the extreme terms and form a complementary pair. Thus, either I or II follows.

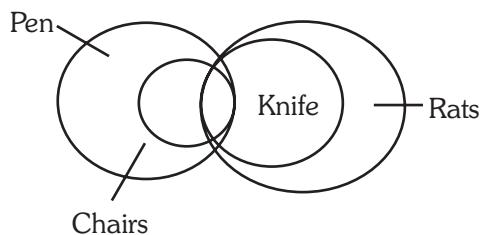
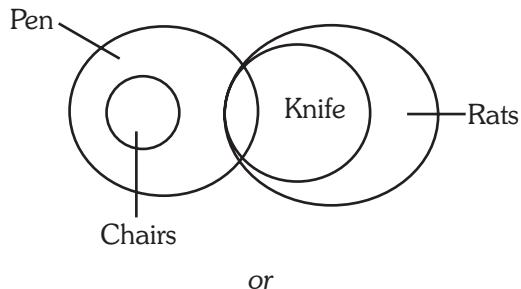


Concept Builder

1. (a) Some tents are rivers + All rivers are ponds = I + A = I = Some tents are ponds → conversion → Some ponds are tents (1) Hence I follows But some desks are tents + Some tents are ponds = 1 + A = No Conclusion Hence II does not follow.

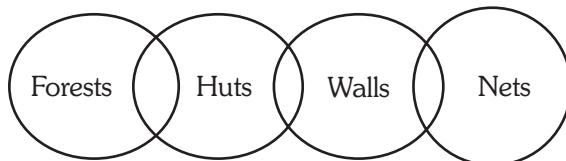


2. (b) Some pens are knives + All knives are rats 1 + A = 1 = Some pens are rats → conversion → Some rats are pens (1) Hence 1 follows But All chairs are pens + Some pens are rats = 1 + A = No Conclusion Hence I does not follow.



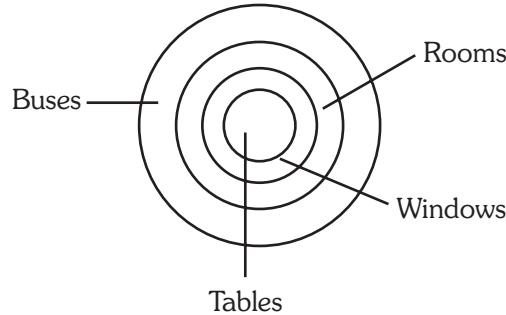
Some rats are chairs , that's may or may not be possible but some rats are pen is confirm. Hence option (b).

3. (d) I-type statements can't be combined.

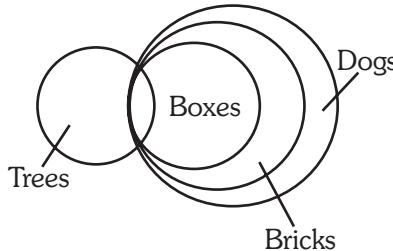


4. (e) All tables are windows + All windows are rooms = A + A = All tables are rooms → conversion →

Some rooms are tables Hence II follows. Again, All tables are rooms + All rooms are buses = A + A = All tables are buses → conversion → Some buses are tables Hence I follows



5. (e) Some trees are boxes + All boxes are bricks = 1 + A = 1 = Some trees are bricks → conversion → Some bricks are trees + All bricks are dogs = 1 - A = 1 = Some trees are dogs → conversion → Some dogs are trees Hence 1 follows



6. (c) All goats are flowers + No flower is branch = I + A = E = E = No goat is branch + Some branches are roots = E + 1 = 0* = Some roots are not goats. Hence neither I nor II definitely follows However, since the two from a complementary I-E pair, either of the two must follow.

7. (e) All pots are rings + All rings are paints = A + A = A = All pots are paints → conversion → Some paints are pots (I) Hence I follows. All bangles are rings + All rings are paints = A + A = A = All bangles are paints → implication → Some bangles are paints (I) Hence II follows.

8. (d) All paintings are photographs + Some photographs are designs = A + I = No conclusion Hence I does not follow. Some photographs are designs + Some designs are movies = I + I = No conclusion Hence II does not follows.

9. (e) Some syrups are medicines + All medicine are powder = I + A + I = Some syrups are powders. Hence I follows. Some tablets are capsules + All capsules are syrups = I + A + I = Some tablets are

- syrups → conversion → Some syrups are tablets (I). Hence II follows.
10. (a) All benches are cots (A) → conversion → Some cots are benches (I) Hence follows. No cot is lamp + Some lamps are candles = I + E = O* = Some candles are not cots Hence II does not follow
 11. (e) All dogs are goats + All goats are walls = A + A = A = All dogs are walls. (I) Hence I follows. Some cats are dogs + All dogs are walls = I + A = I = Some cats are wall → conversion → Some walls are cats. (I) Hence II follows.
 12. (c) Some sofas are benches + Some benches are tables = I + I = No conclusion. Hence I and II do

not follow by combination. However, since they make a complementary E-I pair, either of the two must follow.

13. (d) All rats are bats + Some bats are desks = I + A = No conclusion Hence I and subsequently II do not follow.
14. (b) All ponds are stores + Some stores are bags = I + A = No conclusion Hence I does not follow. Some roads are ponds + All ponds are stores = I + A = I = Some roads are stores → conversion → Some stores are roads (I) Hence II follows.

Concept Cracker

1. (d) All pins are rods + Some rods are chains = A + I = No conclusion Hence I and III does not follow. However, the two a complementary I-E pair, Hence either I or III follows. Some rods are chains + All chains are hammers = I + A + I = Some rods are hammers → conversion → Some hammers are rods (I). Hence II follows.
2. (a) I-type statements can't be combined.
3. (b) All buckets are tubs(A) → conversion ⇒ Some tubs are buckets (I) Hence II does not follow. All buckets are tubs + All tubs are drums A + A = A = All buckets are drums → conversion → Some drums are buckets + All buckets are drums = A + A + I + = Some drums are pots(I). Hence II follows.
4. (c) All pins are bags (A) → conversion → Some bags are pins (I). All needles are bags + Some bags are pins = A + I = No conclusion Hence I and III do not follow by combination. However, they form an complementary E-I pair, either I or III follows. Again, All chalks are bags + conversion of All needles are bags = A + I = No conclusion Hence II do not follow
5. (a) Some buses are trucks + Some trucks are boats = I + I = No conclusion Hence II and consequently do not follow Some trucks are boats + No boat is jeep = I + E = O = Some trucks are not jeeps. Hence III does not follow.
6. (d) All flowers are trees + All trees are jungles = A + A = A = All flowers are jungles → conversion → Some jungles are flowers Hence III follows. All trees are jungles + No jungle is hill = A + E = E = No tree is hill. Hence III follows. All flowers are trees + No tree is hill. Hence II follows. All flowers are trees + No tree is hill = A + E = E = No flower is hill.
7. Hence I follows.
(e) All sofas are beds + All beds are mats = A + A = A = All sofas are mats → conversion → Some mats are sofas (I). Hence I follows. All tables are sofas + All sofas are beds = A + A = A = All tables are beds → conversion → Some beds are tables (I). Hence II follows. All tables are beds + All beds are mats = A + A = A = All tables are mats → conversion → Some mats are tables (I). Hence III follows.
8. (d) I-type statements can't be combined no conclusion follow by combined But II and III make a complementary I-E pair, Hence either I or III follows.
9. (a) Some trees are houses + All houses are wheels = I + A = I = Some trees are wheels → (I) conversion → Some wheels are trees (I). Hence I follows. All flowers are trees → (A) conversion → Some trees are flowers (I). Hence II follows. But II and III can't, be combined as they are I-type statements Hence III does not follow.
10. (d) All windows are doors + All doors are boats = A + A = A = All windows are boats. Hence I follows. All buildings are doors + All doors are boats = A + A = A = All buildings are boats. Hence II follows. All doors are boats (A) → conversion → Some boats are doors(I). Hence III follows.
11. (d) Some radios are telephones + All telephones are mirrors = I + A = I = Some radios are mirrors Hence II follows Some radios are mirrors + All mirrors are desks = I + A = I = Some radios are desks Hence I follows. All telephones are mirrors + All mirrors are desks = A + A = All telephones are desks → conversion → Some desks are telephones (I). Hence III follows.

12. (b) All furniture are jungles + No jungle is road = A + E = E = No furniture is road → conversion → No road is furniture (E) Hence I does not follow. All furniture are jungles (A) → conversion → Some jungles are furniture (I). Hence II follows. No jungle is road + Some roads are hills = E + I = O* = Some hills are not jungles Hence III does not follow.
13. (c) Some stones are rocks + All rocks are mountains = I + A = I = Some stones are mountains → conversion → Some mountains are stones (I). Hence II follows. All brick are stones + Some stones are mountains = A + I = No conclusion Hence II does not follow. All brick are stones (A) → conversion → Some stones are bricks(I). Hence III follows.
14. (c) Some plates are chairs + All chairs are tables = I + A = I = Some plates are tables → conversion → Some tables are plates(I). Hence I follows. Some bags are plates + Some plates are chairs = I + I = No conclusion Hence II and III do not follow. By combination. However, the two form a complementary E-I pair, Hence either I or III follows.
15. (d) Some rooms are halls + All halls are leaves = I + A = I = Some rooms are leaves → conversion → Some leaves are rooms(I) Hence III follows. All desks are rooms + Some rooms are halls = A + I =
- No conclusion Hence II and consequently I do not follow.
16. (a) Some mirrors are pens + No pen is paper = I + E = O* = Some mirrors are not papers Hence III does not follow. All buildings are mirrors + Some mirrors are pens = A + I = No conclusion Hence II and consequently I do not follow.
17. (d) Some books are trees + All trees are roads = I + A = I = Some books are roads (I) Hence II follows. Some books are trees + All roads are wheels = I + A = I = Some books are wheels → conversion → Some wheels are books (I) Hence I follows. All trees are roads + All roads are wheels = A + A = A = All trees are wheels → conversion → Some wheels are trees (I) Hence III follows.
18. (c) All stones are rivers + All rivers are cars = A + A = A = All stones are cars → conversion → Some cars are stones (I) Hence II follows. All rivers are cars + Some cars are trains = I + A = No conclusion Hence II and consequently I do not follow.
19. (e) Some rivers are hills + No hill is taxi = I + E = O = Some rivers are not taxis Hence II does not follow. Again, since O-type statements can't be combined, neither I nor III follows. But the two form a complementary E-I pair, Hence either I or III follows.

Concept Deviator

1. (d) All teachers are lawyers (A) → conversion → Some lawyers are teachers (I). Hence IV follows. Now, Some doctors are lawyers + Some lawyers are teachers = I + I = No conclusion Hence I does not follow. Some engineers are lawyers (I) → conversion → Some lawyers are engineers + All engineers are businessmen = I + A = I = Some lawyers are businessmen → conversion Some businessmen are lawyers Hence II follows. But, All teachers are lawyers + Some lawyers are businessmen = A + I = No conclusion Hence III does not follow.
2. (a) All sponges are clothes + All clothes are liquids = A + A = All sponges are liquids → conversion → Some liquids are sponges (I). Hence I does not follow. All plastics are glasses + conversion of Some sponges are glasses = A + I = No conclusion Hence II does not follow. All plastics are glasses (A) → conversion → Some glasses are plastics (I) Hence III does not follow. All clothes are liquids(A) conversion Some liquids are clothes (I) Hence IV does not follow.
3. (e) Some beaches are trees + All trees are hotels = I + A = I = Some beaches are hotels Hence III follows. Now, All shores are beaches + Some beaches are hotels = A + I = No conclusion Hence I does not follow. All shores are beaches (A) → conversion → Some beaches are shores (I). Hence II does not follow. All sands are beaches + Some beaches are trees = A + I = No conclusion Hence IV does not follow.
4. (c) Some sparrows are crows + Some crows are pigeons = I + I = No conclusion Hence III does not follow. Some crows are pigeons (I) → conversion → Some pigeons are crows (I) Now, All parrots are pigeons + Some pigeons are crows = A + I = No conclusion Hence II does not follow. Nor does IV follow. However, conversion II form an I-E complementary pair with IV, Hence either I or IV follows. Some sparrows are crows (I) → conversion → Some crows are sparrows + All sparrows are koels → conversion → Some koels are crows (I). Hence I.
5. (b) Some cushions are trolleys + All trolleys are lamps = I + A = I = Some cushions are lamps Hence III follows. All chairs are tables + All tables are cushions

- $= A + A = A =$ All chairs are cushions Hence IV follows
 All tables are cushions + Some cushions are trolleys $= A + I =$ No conclusion Hence I does not follow.
 All chairs are cushions + Some cushions are trolleys $= A + I =$ No conclusion Hence II does not follow.
6. (c) Some flowers are buds + All buds are leaves + All leaves are plants $= (I + A) + A = I =$ Some flowers are plants \rightarrow conversion \rightarrow Some plants are flowers (I). Hence I follows. Some roses are flowers + Some flowers are buds $= I + I =$ No conclusion Hence II and IV do not follow by combination. Nor can III follow. However, II and IV form a complementary I-E pair, Hence either II or IV follows.
7. (a) Some books are journals + All journals are papers $= I + A = I =$ Some books are papers \rightarrow conversion \rightarrow Some papers are books(I). Hence I follows. Some papers are Cards + All cards are boards $= I + A = I =$ Some papers are boards. Hence II follows. All journals are papers + Some papers are boards $= A + I =$ No conclusion Hence III does not follow. Some books are papers + Some papers are boards. $= I + I =$ No conclusion Hence IV do not follows.
8. (d) Some grapes are apples + Some apples are bananas $= I + I =$ No conclusion So we can't move any further for 'grape' and this rules out I and II. Some apples are banana + All banana are guava $= I + A = I =$ Some apples are guavas \rightarrow conversion \rightarrow Some guavas are apples (I). Hence III follows All bananas are guavas + No guava is pomegranate $= A + E = E =$ No bananas are pomegranates. Hence IV follows.
9. (d) All walls are floors + All floors are rooms $= A + A = A =$ All walls are rooms Hence I follows. Some doors are walls + All walls are floors $= I + A = I =$ Some doors are rooms \rightarrow conversion \rightarrow Some rooms are doors (I). Hence II follows. Conversion of I gives us III. Some doors are walls + All walls are floors $= I + A = I =$ Some doors are floors \rightarrow conversion \rightarrow Some floors are doors (I) Hence IV follows
10. (b) Some forks are bowls + All bowls are plates $= I + A = I =$ Some forks are plates \rightarrow conversion \rightarrow Some plates are forks (I). Hence II follows. Some forks are plates + Some plates are utensils $= I + I =$ No conclusion Hence I does not follow. Some spoons are forks + Some forks are plates $= I + I =$ No conclusion Hence III and IV do not follow.
11. (a) Some desks are benches \rightarrow (I) conversion \rightarrow Some benches are desks (I) + Some desks are sofas $= I + I =$ No conclusion Hence I does not follow.
 All tables are desks + Some desks are sofas $= A + I =$ No conclusion Hence II does not follow. All tables are desks + Some desks are benches $= A + I =$ No conclusion Hence III does not follow. For the same reason IV too does not follow.
12. (b) I-type statements can't be combined. However, I and III form a complementary I-E pair, Hence either I or III follows.
13. (d) Some gems are boxes + All boxes are sticks $= I + A = I =$ Some gems are sticks \rightarrow Conversion \rightarrow Some sticks are gems (I) Hence I follows All dolls are toys + Some toys are gems No conclusion Hence II and consequently III do not follow. All toys are dolls (A) \rightarrow conversion \rightarrow Some toys are dolls (I) Hence IV follows.
14. (b) Some nights are weeks + All weeks are months $= I + A = I =$ Some nights are month \rightarrow conversion \rightarrow Some months are nights (I) Hence III follows. = Some nights are month + All months are years $= I + A = I$ Some nights are years \rightarrow conversion \rightarrow Some years are nights (I) Hence I follows. All weeks are months + All months are years $= A + A = A =$ All weeks are years \rightarrow conversion \rightarrow Some years are weeks (I) Hence IV follows. Some days are nights + Some nights are years $= I + I =$ No conclusion Hence II does not follow.
15. (e) Some pins are threats + All threats are clothes $= I + A = I =$ Some pins are clothes \rightarrow conversion \rightarrow Some clothes are pins (I) Hence I follows. Some doors are handles + All handles are pins $= I + A = I =$ Some doors are pins \rightarrow conversion \rightarrow Some pins are doors (I) Hence II follows. All handles are pins + Some pins are clothes $= I + A =$ No conclusion Hence III does not follow. Nor does IV follow consequently.
16. (e) I-type statements can't be combined.
17. (c) Some rollers are wheels + All wheels are mats $= I + A = I =$ Some rollers are mats \rightarrow conversion \rightarrow Some mats are rollers (I) Hence I follows. Some rollers are mats + Some mats are cars $= I + I =$ No conclusion Hence III does not follow. All belts are rollers (A) \rightarrow conversion \rightarrow Some rollers are belts (I) Hence IV follows. All belts are rollers + Some rollers are mats $= I + A =$ No conclusion Hence II does not follow.
18. (b) All flowers are jungles + All jungles are tubes $= A + A = A =$ All flowers are tubes \rightarrow conversion \rightarrow Some tubes are flowers (I) Hence IV follows. Some

- rains are flowers + All flowers are tubes = I + A = I
 \Rightarrow Some rains are tubes \rightarrow conversion \rightarrow Some tubes are rains (I) Hence II follows. Some rains are flowers + All flowers are jungles = I + A = I = Some rains are jungles \rightarrow conversion \rightarrow Some jungles are rains (I) Hence III follows. Some tyres are rains + Some rains are jungles = A + I = No conclusion Hence I does not follow.
19. (d) All tables are boxes + All boxes are trunks = A + A = A = All tables are \rightarrow trunks \rightarrow conversion
 Some trunks are tables (I) Hence I follows. All chairs are tables + All tables are boxes = A + A = A = All chairs are boxes Hence II follows. All desks are chairs + All chairs are boxes = A + A = A = All desks are boxes \rightarrow conversion \rightarrow some boxes are desks (I) Hence III follows. All desks are boxes + All boxes are trunks = A + A = A = All desks are trunks Hence IV follows.
20. (c) I-type statements can't be combined. However, II and III form a complementary I-E pair. So do III and IV Hence either I or II and either III or IV follows.
21. (a) Some cups are jugs + Some jugs are plates. = I + I = No conclusion Hence I does not follow. Nor does II follow
 All papers are bottles + All bottles are cups = A + A = A = All papers are cups \rightarrow conversion \rightarrow Some cups are papers (I) Hence III follows. All papers are bottles (A) \rightarrow conversion \rightarrow Some bottle are papers (I) Hence IV follows.
22. (b) Some cables are brushes + All brushes are paints = I + A = I = Some cables are paints \rightarrow conversion \rightarrow Some paints are cables (I) Hence I follows. All bulbs are wires (A) \rightarrow conversion \rightarrow Some wires are bulbs (I) Hence II follows. No wire is cable + Some cables are brushes = I + E = O* = Some brushers are not wires Hence III does not follow. All bulbs are wires + No wire is cable = A + E = E = No bulbs is cable \rightarrow conversion \rightarrow No cable is bulb (E) Hence IV does not follow.
23. (d) All keys are balloons + Some balloons are mirrors = A + I = No conclusion Hence I does not follow.
 All chairs are keys + All keys are balloons = A + A = A = All chairs are balloons \rightarrow conversion \rightarrow
- Some balloons are chairs (I) Hence II follows. Some balloons are mirrors (I) \rightarrow conversion \rightarrow Some mirrors are balloons (I) Hence III follows.
24. (b) Some drums are posters + All posters are windows = I + A = I = Some drums are windows \rightarrow conversion \rightarrow Some windows are drums (I) Hence I follows. All posters are windows + Some windows are tablets = A + I = No conclusion Hence neither I or III follows.
25. (b) All branches are nets + Some nets are dresses = A + I = No conclusion Hence I and IV does not follow. Some trains are branches \rightarrow conversion \rightarrow Some branches are trains (I) Hence III follows. Some trains are branches + All branches are nets = I + A = I = Some trains are nets \rightarrow conversion \rightarrow Some nets are trains (I) Hence II follows.
26. (c) Some kites are desks + All desks are jungles. = I + A = I = Some kites are jungles \rightarrow Conversion \rightarrow Some jungles are kites (I) Hence IV follows.
 Some pencils are kites + Some jungles are kites = I + I = No conclusion Hence I and II does not follow.
 All desks are jungles + All jungles are mountains = A + A = A = All desks are mountains \rightarrow Conversion \rightarrow Some mountains are desks (I). Hence III follows.
27. (e) Some boards are lanes + All lanes are roads = I + A = I = Some boards are roads \rightarrow Conversion \rightarrow Some roads are boards (I). Hence I follows. Some chips are boards + Some boards are lanes = I + I = No conclusion Hence II and IV does not follow. All papers are clips + Some chips are boards = I + A = No conclusion Hence II and IV does not follow.
28. (a) A + I and I + I both result is no conclusion.
29. (e) Some rings are doors + All doors are windows = I + A = I = Some rings are windows \rightarrow Conversion \rightarrow Some windows are rings(I) Hence II follows. All stones are hammers + No hammer is a ring = A + E = E No stones is a ring \rightarrow conversion \rightarrow No ring is a stone (E) Hence IV does not follows. No stones is a ring + Some rings are doors = E + I = O* = Some windows are not stones Hence either I or II follows as they form a complementary I-E pair.

Chapter

17

Clocks

Section	Level	No. of Questions
Concept Applicator	Very Easy	10
Concept Builder	Easy	15

SALIENT FEATURES OF A CLOCK

- (i) A clock has 12 divisions (equally spaced) hence each division is $360/12 = 30^\circ$.
- (ii) A clock has two hands, smaller hand is called short hand or hour hand. While larger hand is called long hand or minute hand.
- (iii) Angle traced by minute hand in 60 minutes are 360 that means speed of minute hand is $6^\circ/\text{min}$.
- (iv) Angle traced by hour hand in 12 hours = 360° that means speed of minute hand is $\frac{1}{2}^\circ/\text{min}$.
- (v) Relative speed between Minute hand and hour hand is $(6 - \frac{1}{2}) = 11\frac{1}{2}^\circ/\text{min}$
- (vi) Both hands of clock coincides in one hour
- (vii) In each 60 minutes, the minute hand gains 55 minutes on the hour hand
- (viii) When both the hands are at right angle, they are 15 minutes space apart
- (ix) Both hands are in straight line when they are opposite to each other or coincident to each other.
- (x) Clock hands coincide 11 times in every 12 hours, as they coincides only one time between 11 and 1, at 12 o'clock.
Hence, Both hands coincides 22 times in 24 hours or in a day.
- (xi) In 12 hours both hands are in straight line (either coincides or in opposite direction) 22 times. Hence in 24 hours both hands are in straight line 44 times.
- (xii) In 12 hours both hands are at right angled 22 times and 44 times in a day (as in the case of coincide)
- (xiii) In 12 hours both hands are in opposite direction 11 times, between 5 to 7, they are opposite at 6 o'clock only.
Hence in a day they are 22 times in opposite directions.

Since relative speed between minute hand and hour hand is $11\frac{1}{2}^\circ$ per min or in other words minute hand will travel $11\frac{1}{2}^\circ$ more than hour hand. Lets these two hands are together, they will again be together when minute hand will travel 360° more than hour hand i.e after $(360)/(11\frac{1}{2}) = 720/11$ or after $65\frac{5}{11}$ minute.

So we can conclude that after every $65\frac{5}{11}$ minute these two hands will be together.

In a day i.e 12 hours or 12×60 minute $(12 \times 60)/(720/11) = 11$ times these two hands will be together.

Angle between two hands: Let we have to find angle between minute hand and hour hand at 'P hours and Q minutes'. Consider from 12:00 when these two hands are together. Total time passed since 12:00 to P hour Q minute is $(60P + Q)$ Minute. In this time angle moved by Hour hand is $(60P + Q)/2$ degrees.

And angle moved by minute is $6Q$ (From the 12:00 position) hence angle between them is

$$6Q - (60P + Q)/2 = 11/2Q - 30P$$

Angle between two hands at P hours Q Minute is given by $\frac{11Q}{2} - 30P$

Example: Find the angle between minute hand and hour hand at 4:40PM

Solution: From the formula angle between these two hands is $11 \times 40/2 - 30 \times 4 = 220 - 120 = 100^\circ$

Example: Find the angle between minute hand and hour hand at 4:15 PM

Solution: From the formula angle between these two hands is $11 \times 15/2 - 30 \times 4 = 82.5 - 120 = -37.5^\circ$ ignoring the negative sign the required angle is 37.5° .

1. CONCEPT APPLICATOR

1. Find the angle between minute hand and hour hand at 6:30 AM
 - (a) 25°
 - (b) 22.5°
 - (c) 15°
 - (d) None of these
2. Find the angle between minute hand and hour hand at 11:50 AM
 - (a) 55°
 - (b) 22.5°
 - (c) 15°
 - (d) None of these
3. Find the angle between minute hand and hour hand at 4:20 AM
 - (a) 10°
 - (b) 12.5°
 - (c) 15°
 - (d) None of these
4. Find the angle between minute hand and hour hand at 1:40 AM
 - (a) 180°
 - (b) 190°
 - (c) 175°
 - (d) None of these
5. Find the angle between minute hand and hour hand at 10:10 AM
 - (a) 245°
 - (b) 195°
 - (c) 175°
 - (d) None of these
6. At what time between 3PM to 4PM minute hand and hour hand will coincide?
 - (a) $3:16 \frac{4}{11}$
 - (b) $3: 15 \frac{4}{11}$
 - (c) $3:17 \frac{4}{11}$
 - (d) None of these
7. At what time between 3PM to 4PM minute hand and hour hand will be opposite to each other?
 - (a) $3:47 \frac{1}{11}$
 - (b) $3: 48 \frac{1}{11}$
 - (c) $3:49 \frac{1}{11}$
 - (d) None of these
8. At what time between 4PM to 5PM minute hand and hour hand will be at right angle to each other?
 - (a) $4:7 \frac{5}{11}$
 - (b) $4: 4 \frac{5}{11}$
 - (c) $4:9 \frac{5}{11}$
 - (d) None of these
9. At what time between 9PM to 10PM minute hand and hour hand will coincide?
 - (a) $9:49 \frac{1}{11}$
 - (b) $9: 48 \frac{1}{11}$
 - (c) $9:44 \frac{1}{11}$
 - (d) None of these
10. At what time between 9PM to 10PM minute hand and hour hand will be opposite to each other?
 - (a) $9:15 \frac{4}{11}$
 - (b) $9: 16 \frac{4}{11}$
 - (c) $9:12 \frac{4}{11}$
 - (d) None of these

2. CONCEPT BUILDER

1. At what time between 2PM and 3PM the angle between minute hand and hour hand is 100° .
 - (a) $2:14 \frac{6}{11}$
 - (b) $2:12 \frac{6}{11}$
 - (c) $2:18 \frac{6}{11}$
 - (d) None of these
2. Find the angle between minute hand and hour hand at 2:18 AM
 - (a) 100
 - (b) 200
 - (c) 250
 - (d) None of these
3. Find the percentage change in angle between minute hand and hour hand from 2PM to 6PM.
 - (a) 37°
 - (b) 33°
 - (c) 39°
 - (d) None of these

4. Find the angle between minute hand and hour hand at 2:45
 (a) 180° (b) 190°
 (c) 175° (d) None of these
5. At what time between 9 and 10 o'clock will the hands of a clock be in the same straight line but not together?
 (a) $9:16 \frac{4}{11}$ (b) $9: 15 \frac{4}{11}$
 (c) $9:17 \frac{4}{11}$ (d) None of these
6. At what time between 8 and 9 o'clock will the hands of a clock be at right angle?
 (a) $8:16 \frac{3}{11}$ (b) $8: 27 \frac{3}{11}$
 (c) $8:17 \frac{3}{11}$ (d) None of these
7. By how many degrees does the minute hand move in the same time, in which the hour hand move by 28 ?
 (a) 168 (b) 336
 (c) 196 (d) 376
8. At what time between 1'O clock and 2'O clock the hands of the clock are opposite to each other.
 (a) $34(6/11)$ past 1'Oclock
 (b) $38(2/11)$ past 1'Oclock
 (c) $56(8/11)$ past 1'Oclock
 (d) $64(9/11)$ past 1'Oclock
9. How many times in a day (24 Hrs), are the hands of a clock in straight line but opposite in direction?
 (a) 20 (b) 22
 (c) 24 (d) 48
10. How many times in a day (24 Hrs) are the hands of a clock coincide?
 (a) 20 (b) 22
 (c) 24 (d) 48
11. How many times in a day (24 Hrs) are the hands of a clock are in a straight line?
 (a) 20 (b) 22
 (c) 44 (d) 48
12. How many times in a day (24 Hrs) are the hands of a clock are in a perpendicular to each other?
 (a) 20 (b) 22
 (c) 44 (d) 48
13. A watch, which gains uniformly, is 2 min, slow at noon on Sunday, and is 4 min 48 seconds fast at 2 p.m on the following Sunday when was it correct ?
 (a) 2:00 pm on Tuesday
 (b) 12 noon on Monday
 (c) 2:00 am on Tuesday
 (d) None of these
14. A clock is set at 10 a.m. The clock loses 16 minutes in 24 hours. What will be the true time when the clock indicates 3 a.m. on 4th day?
 (a) 9 p.m (b) 10 p.m
 (c) 11 p.m (d) 12 p.m
15. A watch which gains uniformly is 2 minutes slow at noon on Sunday and is 4 min. 48 sec fast at 2 p.m. on the following Sunday. When it has shown the correct time ?
 (a) 2 p.m. on Monday
 (b) 2 p.m. on Tuesday
 (c) 3 p.m. on Wednesday
 (d) 1 p.m. on Thursday

Answer with Solution

Concept Applicator

1. (c) At 6 : 30 A.M. from the formula here $P = 6$ and $Q = 30$ so required angle is $11 \times 30/2 - 30 \times 6 = 165 - 180 = -15$ or ignoring the negative sign the required angle is 15°
2. (a) At 11 : 50 A.M. from the formula here $P = 11$ and $Q = 50$ so required angle is $11 \times 50/2 - 30 \times 11 = 275 - 330 = -55$ or ignoring the negative sign the required angle is 55°
3. (a) At 4 : 20 A.M. from the formula here $P = 4$ and $Q = 20$ so required angle is $11 \times 20/2 - 30 \times 4 = 110 - 120 = -10$ or ignoring the negative sign the required angle is 10°
4. (b) At 1 : 40 from the formula here $P = 1$ and $Q = 40$ so required angle is $11 \times 40/2 - 30 \times 1 = 220 - 30 = 190$ the required angle is 190°
5. (a) At 10 : 10 from the formula here $P = 10$ and $Q = 10$ so required angle is $11 \times 10/2 - 30 \times 10 = 55 - 300 = -245$ the required angle is 245°
6. (a) Consider exactly at 3 : 00, minute hand is at position '12' and hour hand is at '3' hence angle between these two hands at 3 : 00 is 90° .
Since relative speed between them is $11/2^\circ$ per minute or every minute the minute hand will travel $11/2^\circ$ more than the hour hand.
They will be together when the minute hand will travel 90° more than the hour hand. And time taken for this is $(90)/(11/2) = 180/11$ or $16\frac{4}{11}$ minute.
Hence they will coincide at 3 : 16 minute : 21.81 second
7. (c) Consider exactly at 3 : 00, minute hand is at position '12' and hour hand is at '3' hence angle between these two hands at 3 : 00 is 90° .
Since relative speed between them is $11/2^\circ$ per minute or every minute the minute hand will travel $11/2^\circ$ more than the hour hand.
They will be opposite to each other when the minute hand will travel $(90 + 180) = 270^\circ$ more than the hour hand. And time taken for this is $(270)/(11/2) = 540/11$ or $49\frac{1}{11}$ minute.
8. Hence they will be opposite to each other at 3 : 49 minute : 0.09 second
(d) Consider exactly at 4 : 00, minute hand is at position '12' and hour hand is at '4' hence angle between these two hands at 4 : 00 is 120° .
Since relative speed between them is $11/2^\circ$ per minute or every minute the minute hand will travel $11/2^\circ$ more than the hour hand.
They will be perpendicular to each other when the minute hand will travel $(120 - 90) = 30^\circ$ more than the hour hand. And time taken for this is $(30)/(11/2) = 60/11$ or $5\frac{5}{11}$ minute.
Hence they will be perpendicular to each other at 4 : 11 minute : 45.45 second
9. (c) Consider exactly at 9 : 00, minute hand is at position '12' and hour hand is at '9' hence angle between these two hands at 9 : 00 is 270° .
Since relative speed between them is $11/2^\circ$ per minute or every minute the minute hand will travel $11/2^\circ$ more than the hour hand.
They will be together when the minute hand will travel 270° more than the hour hand. And time taken for this is $(270)/(11/2) = 540/11$ or $49\frac{1}{11}$ minute.
Hence they will be opposite to each other at 9 : 49 minute : 0.09 second
10. (c) Consider exactly at 9 : 00, minute hand is at position '12' and hour hand is at '9' hence angle between these two hands at 9 : 00 is 270° .
Since relative speed between them is $11/2^\circ$ per minute or every minute the minute hand will travel $11/2^\circ$ more than the hour hand.
They will be together when the minute hand will travel $(270 - 180) = 90^\circ$ more than the hour hand. And time taken for this is $(90)/(11/2) = 180/11$ or $16\frac{4}{11}$ minute.
Hence they will be opposite to each other at 9 : 49 minute : 21.81 second

Concept Builder

1. (a) Same as previous question Option A is correct.
2. (c)
3. (b) At 2PM angle between minute hand and hour hand is 60° and that at 6PM is 180° hence percentage change is 200%.
4. (d) From the formula the required angle is 187.5°
5. (a)
6. (b) Consider exactly at 8 : 00, minute hand is at position '12' and hour hand is at '8' hence angle between these two hands at 8 : 00 is 240° .
Case (i) when minute hand is behind Hour hand then required time is $(240 - 90)/(11/2) = 150/(11/2) = 300/11 = 27 \frac{3}{11}$ minute
Case (ii) when minute hand is ahead of hour hand then required time is $(240 + 90)/(11/2) = 330/(11/2) = 330 \times 2/11 = 60$ minute i.e at 9 : 00 PM.
7. (b) $28 \times 2 \times 6 = 336$ degree
8. (b) The minutes hand to coincide with the hour hand it should trace at first 5 minute spaces and then the hands of the clocks to be opposite to each other minute hand should trace 30 minute spaces i.e. totally it should gain $5 + 30 = 35$ minute spaces to be opposite to that of hour hand.
We know that, Minute hand gains 55 minute spaces over hour hand in 1 hour. Therefore, Minute hand gain 40 minute spaces over hour hand in $35 \times (60/55) = 38(2/11)$.
Hence the hand of the clock will minutes be opposite to each at $38(2/11)$ past 1'O clock. Therefore, Correct option is B.
9. (b) The hands of a clock point in opposite directions (in the same straight line) 11 times in every 12 hours. (Because between 5 and 7 they point in opposite directions at 6 o' clock only). So, in a day, the hands point in the opposite directions 22 times.
10. (b)
11. (c) In 12 hours both hands are in straight line (either coincides or in opposite direction) 22 times. Hence in 24 hours both hands are in straight line 44 times.
12. (c)
13. (a) From Sunday noon to the following Sunday at 2 p.m there are 7 days 2 hours or 170 hours. The watch gains $2 + 4\frac{4}{5}$ min in 170 hrs. Therefore, the watch gains 2 min in 2×170 hrs i.e., 50 hours $6\frac{4}{5}$. Now 50 hours = 2 days 2 hrs. Therefore, 2 days 2 hours from Sunday noon = 2 p.m on Tuesday.
14. (c) Time from 10 a.m on a day to 3 a.m on 4th day = $24 \times 3 + 17 = 89$ hours.
Now 23 hrs 44 min. of this clock = 24 hours of correct clock.
Or $356 / 15$ hrs of faulty clock = 24 hours of correct clock.
 89 hrs of faulty clock = $(24 \times 15/356 \times 89)$ hrs = 90 hrs.
So, the correct time is 11 p.m
15. (b) Time from 12 p.m. on Sunday to 2 p.m. on the following Sunday = 7 days 2 hours.
 $= 24 \times 7 + 2 = 170$ hours.
The watch gains = $(2 + 4 \times 4/5)$ min = $34/5$ minute in 170 hrs.
Since, $34/5$ min are gained in 170 hrs.
2 min are gained in $(170 \times 5/34 \times 2)$ hrs = 50 hours i.e 2 days 2 hrs. after 12 p.m. on Sunday i.e., it will be correct at 2 p.m. on Tuesday.

Chapter 18

Cubes

Section	Level	No. of Questions
Concept Applicator	Very Easy	20
Concept Builder	Easy	50

INTRODUCTION

The questions based on cubes, test the ability of the students to visualize and deal with the multidimensional problems/situations.

If you consider all the exams together, CAT/XAT/IIFT/FMS/JMET/CET/SNAP/MAT you will get at-least one question from this topic.

In a cube:

Number of vertices $V = 8$

Number of Faces $F = 6$

Number of Edges $E = 12$

We know the Euler's formula $F + V = E + 2$

If we make a cut in one plane then we divide the cube in two parts (as shown in fig 1) , if we make 2 cuts in same plane then we will get $2 + 1 = 3$ pieces (as shown in fig 2) similarly if we make ' p ' cuts in one plane then we will get ' $p + 1$ ' pieces as shown in Fig 3.

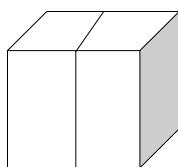
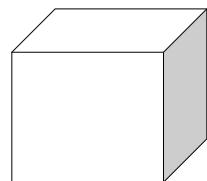


Fig. 1

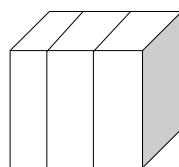


Fig. 2

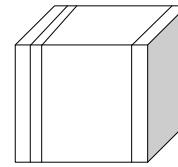


Fig. 3

- If we make a cut in 2^{nd} plane then we divide the cube in $2(p + 1)$ parts (as shown in fig 4) , if we make 2 cuts in same plane then we will get $(2 + 1)(p + 1)$ pieces (as shown in fig 5) similarly if we make ' q ' cuts in 2^{nd} plane then we will get ' $(p + 1)(q + 1)$ ' pieces as shown in Fig 6.

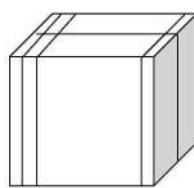


Fig. 4

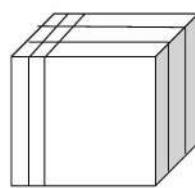


Fig. 5

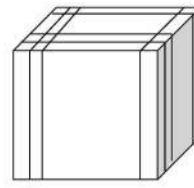


Fig. 6

- If we make a cut in 3rd plane then we divide the cube in $2(p + 1)(q + 1)$ parts (as shown in fig 7), if we make 2 cuts in same plane then we will get $(2 + 1)(p + 1)(q + 1)$ pieces (as shown in fig 8) similarly if we make 'q' cuts in 3rd plane then we will get ' $(p + 1)(q + 1)(r + 1)$ ' pieces as shown in Fig 9.

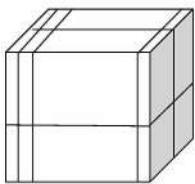


Fig. 7

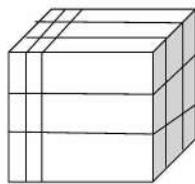


Fig. 8

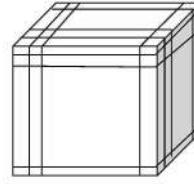


Fig. 9

To summarize: 'a' Number of cuts in one plane gives $(a + 1)$ pieces, while 'b' cuts in another plane gives $(b + 1)$ pieces, and 'c' cuts in 3rd plane gives $(c + 1)$ pieces. Therefore a, b and c cuts in three dimensions will give $(a + 1)(b + 1)(c + 1)$ pieces.

If number of cuts is given then maximum number of pieces can be obtain when $a = b = c$ or these three are as close as possible while for minimum number of pieces can be obtain when all the cuts are made is in one plane.

Example 1: If total number of cuts is 10 then find the minimum and maximum number of pieces that can be obtained.

Solution: When all the cuts are in one plane then total number of pieces = 11

For maximum number of pieces a = 4, b = 3 and c = 3 then total number of pieces = $5 \times 4 \times 4 = 80$

Example 2: If total number of pieces are 45 then find the possible number of cuts.

Solution: Since $45 = 1 \times 1 \times 45 = 1 \times 3 \times 15 = 1 \times 9 \times 5 = 3 \times 3 \times 5$, and hence corresponding value of (a, b, c) = (0, 0, 44), (0, 2, 14), (0, 8, 4) & (2, 2, 4) and hence total number of cuts = 44, 16, 12 or 8

- If all 6 faces of cube are painted with 6 different colours and then it was cut in 125 smaller cubes then:
 - Number of smaller cubes that has 3 faces painted = 6 (as there are 6 vertices an these will give us 6 cubes with 3 faces painted).
 - Number of smaller cubes that has 2 faces painted = $12 \times 3 = 36$ (From each edge we will get 3 cubes that has 2 faces painted and we have total 12 edges)
 - Number of cubes that has only one face painted- $6 \times 3^2 = 6 \times 9 = 54$ (From each face we will get 3^2 or 9 cubes that has only one face painted and total number of faces = 6)
 - Number of cubes that has no face painted- $(5 - 2)^3 = 3^3 = 27$

- If a big cube is painted and cut in to n^3 number of smaller cubes then:

Number of cubes with 3 face painted is = 8 (Same as number of vertices)

Number of cubes with 2 face painted is = $12(n - 2)$ (since 12 is the number of edges)

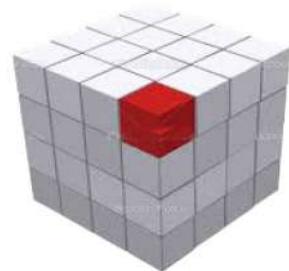
Number of cubes with 1 face painted is = $6(n - 2)^2$ (since 12 is the number of edges)

Number of cubes with 2 face painted is = $(n - 2)^3$

From algebraic formula we will get $n^3 = (n - 2)^3 + 6(n - 2)^2 + 12(n - 2) + 8$

Removal of a corner cube: If a corner cube is removed and then all the exposed surface painted then changes due to the removal of a corner cube is as follows: (Lets take an example of $4 \times 4 \times 4$ cube)

- Total surface area will remain unchanged.
- Total number of cubes
- Number of cubes whose three face is painted will increase by 2 so number of such cubes is 10
- Number of cubes whose two face is painted will decrease by 3 so number of such cubes is 21
- Number of cubes whose 1 face is painted will remain unchanged
- Number of cubes whose no face is painted will remain unchanged



1. CONCEPT APPLICATOR

1. If total number of cuts is 10 then find the minimum number of pieces that can be obtained.
 - (a) 10
 - (b) 11
 - (c) 25
 - (d) None of these
 2. If total number of cuts is 10 then find the maximum number of pieces that can be obtained.
 - (a) 80
 - (b) 48
 - (c) 120
 - (d) None of these
 3. If total number of cuts is 20 then find the ratio of maximum and minimum number of pieces that can be obtained.
 - (a) 448:63
 - (b) 446:21
 - (c) 122:21
 - (d) None of these
 4. If total number of pieces (Smaller cubes/cuboids) is 45 then find the possible number of cuts.
 - (a) 18 or 16
 - (b) 8 or 12
 - (c) 12 or 18
 - (d) None of these
 5. Find the maximum number of cuts required to get 50 pieces.
 - (a) 50
 - (b) 51
 - (c) 49
 - (d) None of these
 6. Find the minimum number of cuts required to get 50 pieces.
 - (a) 10
 - (b) 11
 - (c) 9
 - (d) None of these
- Direction (Qs. 7-10) :** 216 cubes of similar size are arranged in the form of a bigger cube (6 cubes on each side, i. e., $6 \times 6 \times 6$) all the exposed surfaces are painted.
7. How many of the cubes have 0 faces painted?
 - (a) 64
 - (b) 125
 - (c) 27
 - (d) None of these
 8. How many of the cubes have 2 faces painted?
 - (a) 144
 - (b) 125
 - (c) 96
 - (d) None of these
 9. How many of the cubes have at most faces painted?
 - (a) 208
 - (b) 144
 - (c) 210
 - (d) None of these
 10. How many of the cubes have at least 2 faces painted?
 - (a) 104
 - (b) 144
 - (c) 120
 - (d) None of these

Direction (Qs. 11-15) : 343 cubes of similar size are arranged in the form of a bigger cube (7 cubes on each side, i. e., $7 \times 7 \times 7$) and kept at the corner of a room, all the exposed surfaces are painted then:

11. How many of the cubes have 0 faces painted?
 - (a) 64
 - (b) 125
 - (c) 240
 - (d) None of these
12. How many of the cubes have 2 faces painted?
 - (a) 14
 - (b) 18
 - (c) 16
 - (d) None of these
13. How many of the cubes have at most faces painted?
 - (a) 208
 - (b) 244
 - (c) 342
 - (d) None of these
14. How many of the cubes have at least 2 faces painted?
 - (a) 19
 - (b) 144
 - (c) 120
 - (d) None of these
15. How many of the cubes have 3 faces painted?
 - (a) 0
 - (b) 3
 - (c) 5
 - (d) None of these

Direction (Qs. 16-20) : 343 cubes of similar size are arranged in the form of a bigger cube (7 cubes on each side, i. e., $7 \times 7 \times 7$) and kept alongside an edge (or side) of a room, all the exposed surfaces (in this case there are 4) are painted.

16. How many of the cubes have 0 faces painted?
 - (a) 64
 - (b) 125
 - (c) 240
 - (d) None of these
17. How many of the cubes have 2 faces painted?
 - (a) 23
 - (b) 29
 - (c) 31
 - (d) None of these
18. How many of the cubes have at most faces painted?
 - (a) 341
 - (b) 244
 - (c) 342
 - (d) None of these
19. How many of the cubes have at least 2 faces painted?
 - (a) 31
 - (b) 44
 - (c) 12
 - (d) None of these
20. How many of the cubes have 3 faces painted?
 - (a) 0
 - (b) 3
 - (c) 5
 - (d) None of these

2. CONCEPT BUILDER

Direction (Qs. 1-5) : 343 cubes of similar size are arranged in the form of a bigger cube ($7 \times 7 \times 7$) and kept on the surface of a room, all the exposed surfaces (in this case there are 5) are painted.

Direction (Qs. 6-10) : 216 cubes of similar size are arranged in the form of a bigger cube (6 cubes on each side, i. e., $6 \times 6 \times 6$) one cube from a corner is removed and then all the exposed surfaces are painted.

Direction (Qs. 11-15): Four colours namely Blue, Green, Red and White are used to paint a cube such that each face is painted in exactly one colour and each colour is painted on at least one face. The cube is now cut into 120 identical pieces by making least number of cuts.

38. How many cubes are painted with red or blue but not green?
 (a) 55 or 65 (b) 72 or 66
 (c) 55 or 60 (d) None of these
39. Which of the following statement is correct
 (i) At least 1 cube is painted with red, green and blue.
 (ii) At most 1 cube is painted with red, green and blue.
 (iii) At most 6 cubes are painted with red and green.
 (iv) At least 6 cubes are painted with red and green.
 (a) Only (i) & (iii) (b) Only (ii) & (iii)
 (c) Only (ii) & (iv) (d) None of these
40. How many cubes are painted with red, blue, green and black?
 (a) 8 (b) 2
 (c) 1 (d) None of these
- Direction (Qs. 41-45) :** N^3 number of cubes of similar size are arranged in the form of a bigger cube (N cubes on each side, i. e., $N \times N \times N$) and kept at the corner of a room, all the exposed surfaces are painted with colour 1, then all the coloured smaller cubes are removed and all the exposed surfaces are painted with colour 2, then all the coloured smaller cubes are removed and all the exposed surfaces are painted with colour 3, this process is repeated 'K' number of times.
41. If number of cubes painted with colour 3 is 217 then how many cubes are painted with colour 5
 (a) 125 (b) 127
 (c) 64 (d) None of these
42. If after 7th step number of cubes painted in exactly 2 faces with colour 7 is 21, then what is the number of cubes removed in 3rd step.
 (a) 469 (b) 455
 (c) 433 (d) None of these
43. Which of the following can be the number of cubes removed from the original N^3 number of cubes.
 (i) 37 (ii) 61
 (iii) 98
44. If number of cubes painted on exactly one face with colour 1 and colour 2 is 150, then how many cubes are painted with only colour 4?
 (a) 45 (b) 72
 (c) 18 (d) 75
45. Of all the removed cubes which one of the following could be the number of cubes with exactly 2 faces painted after 3 steps?
 (a) 112 (b) 114
 (c) 116 (d) 118
- Direction (Qs. 46-50) :** A big cube is painted with three colours red, green and blue such that each of the colour is on two faces. Now this cube is cut into 105 identical cuboids.
46. If number of cuboids with exactly 2 faces painted is 44 then how many cubes are painted on exactly 1 face.
 (a) 51 (b) 57
 (c) 48 (d) None of these
47. If number of cuboids with exactly 3 faces painted is 4 then how many cubes are painted on exactly 1 face.
 (a) 51 or 65 (b) 57 or 66
 (c) 33 or 65 (d) None of these
48. If number of cuboids with exactly 2 faces painted is 36 then how many cubes are painted on exactly 1 face.
 (a) 46 or 65 (b) 57 or 66
 (c) 33 or 65 (d) None of these
49. If number of cuboids with exactly 1 face painted is 57 then how many cubes are painted on exactly 2 faces.
 (a) 46 (b) 57
 (c) 44 (d) None of these
50. If number of cuboids with exactly 1 face painted is 44 then how many cubes are painted on exactly 2 faces.
 (a) 46 (b) 57
 (c) 44 (d) None of these

Answer with Solution

Concept Applicator

1. (b) If total number of cut is 10 then minimum number of pieces is 11 when cut is made in one plane only.
2. (a) If total number of cut is 10 then for maximum number of pieces these cuts have to be well distributed in three planes. For 10 cuts, 3, 3 and 4 is the distribution of cuts.
Hence total number of pieces is
 $(3 + 1)(3 + 1)(4 + 1) = 4 \times 4 \times 5 = 80$
3. (b) For maximum number of pieces cuts has to be 6, 7 and 7 and maximum number of pieces is $(6 + 1)(7 + 1)(7 + 1) = 7 \times 8 \times 8 = 448$.
Minimum number of pieces is $20 + 1 = 21$.
Hence required ratio is 448: 21
4. (b) If $45 = 1 \times 1 \times 45$ then we require only 44 cuts in one plane.
If $1 \times 3 \times 15$ then we require 2 cuts in one plane and 14 cuts in other plane so total number of cuts is $2 + 14 = 16$.
If $1 \times 5 \times 9$ then we require 4 cuts in one plane and 8 cuts in other plane so total number of cuts is $4 + 8 = 12$
If $3 \times 3 \times 5$ then we require 2 cuts in one plane, 2 cuts in 2nd plane and 4 cuts in 3rd plane so total number of cuts is $2 + 2 + 4 = 8$.
5. (a) For maximum number of cuts it has to be in one cut only, so number of cuts is 49
6. (c) For minimum number of cuts we will get 50 from $2 \times 5 \times 5$ and cuts is $1 + 4 + 4 = 9$

Solution for 7–10:

Since total number of cubes is hence in the formula we will substitute $n = 6$

7. (a) Number of the cubes with 0 faces painted is
 $(6 - 2)^3 = 4^3 = 64$
8. (c) Number of the cubes with 2 faces painted is
 $6(6 - 2)^2 = 6 \times 16 = 96$
9. (a) At most 2 faces painted means number of cubes with 0 face painted + number of cubes with 1 face painted + number of cubes with 2 face painted = $64 + 48 + 96 = 208$
10. (b) At least 2 faces painted means number of cubes with 2 face painted + number of cubes with 3 face painted = $96 + 8 = 104$.

Solution for 11–15:

Out of 6 faces of 3 faces are exposed and those were painted.

Number of vertices with three faces exposed (Painted) is 1

Number of vertices with 2 faces exposed (Painted) is 3

Number of vertices with 1 faces exposed (Painted) is 3

Number of vertices with 0 faces exposed (Painted) is 1

Number of sides with 2 sides exposed (Painted) is 3

Number of sides with 1 sides exposed (Painted) is 6

Number of sides with no sides exposed (Painted) is 3

From the above observation

Number of cubes with 3 faces Painted is 1

Number of cubes with 2 faces Painted is given by sides which is exposed from two sides and there are 3 such sides and from one side we will get 6 such cubes hence required number of cubes is $6 \times 3 = 18$

Number of cubes with 1 face Painted is given by faces which is exposed from one sides and there are 3 such faces hence required number of cubes is $36 \times 3 = 108$

Number of cubes with 0 face Painted is given by difference between total number of cubes – number of cubes with at least 1 face painted = $343 - 1 - 18 - 108 = 216$

In other words number of cubes with 0 painted is $(7 - 1)^3 = 216$.

11. (d) From the above explanation number of the cubes with 0 faces painted is 216.
12. (b) From the above explanation number of the cubes with 2 faces painted is 18.
13. (c) From the above explanation number of the cubes with at most 2 faces painted is $216 + 108 + 18 = 342$.
Or else $343 - 1 = 342$
14. (a) From the above explanation number of the cubes with at least 2 faces painted is $18 + 1 = 19$.
15. (d) From the above explanation number of the cubes with 3 faces painted is 1.

Solution for 16–20:

Out of 6 faces of 4 faces are exposed and those were painted.

Number of vertices with three faces exposed (Painted) is 2
 Number of vertices with 2 faces exposed (Painted) is 4
 Number of vertices with 1 faces exposed (Painted) is 2
 Number of vertices with 0 faces exposed (Painted) is 0
 Number of sides with 2 sides exposed (Painted) is 5
 Number of sides with 1 sides exposed (Painted) is 6
 Number of sides with no sides exposed (Painted) is 1

From the above observation:

Number of cubes with 3 faces Painted is 2

Number of cubes with 2 faces Painted is given by sides which is exposed from two sides and required number of cubes is $6 \times 4 + 1 \times 5 = 29$ since there are 4 edges will give us 6 cubes from 1 edge and 1 edge (between two vertices which are painted or exposed from 3 sides) will give us only 5 cubes.

Number of cubes with 1 face Painted is given by faces which is exposed from one sides and required number of cubes is $36 \times 2 + 30 \times 2 = 132$

Number of cubes with 0 face Painted is given by difference between total number of cubes – number of cubes with at least 1 face painted = $343 - 2 - 29 - 132 = 180$

In other words number of cubes with 0 painted is $6 \times 6 \times 5 = 180$

16. (d) From the above explanation number of the cubes with 0 faces painted is 180.
17. (b) From the above explanation number of the cubes with 2 faces painted is 29.
18. (a) From the above explanation number of the cubes with at most 2 faces painted is $180 + 132 + 29 = 341$.
Or else $343 - 2 = 341$
19. (a) From the above explanation number of the cubes with at least 2 faces painted is $29 + 2 = 31$.
20. (d) From the above explanation number of the cubes with 3 faces painted is 2.

Concept Builder

Solution for 1–5:

Out of 6 faces of 5 faces are exposed and those were painted.

Number of vertices with three faces exposed (Painted) is 4

Number of vertices with 2 faces exposed (Painted) is 4

Number of vertices with 1 faces exposed (Painted) is 0

Number of vertices with 0 faces exposed (Painted) is 0

Number of sides with 2 sides exposed (Painted) is 8

Number of sides with 1 sides exposed (Painted) is 4

Number of sides with no sides exposed (Painted) is 0

From the above observation:

Number of cubes with 3 faces Painted is 4

Number of cubes with 2 faces Painted is given by sides which is exposed from two sides, out of 8 such edges 4 vertical edges will give us 6 cubes per edge and 4 edges from top surface will give us 5 such cubes from each edge and required number of cubes is $6 \times 4 + 4 \times 5 = 44$.

Number of cubes with 1 face Painted is given by faces which is exposed from one sides four vertical faces will give us $6 \times 5 = 30$ cubes per face and top face will give us $5 \times 5 = 25$ and required number of cubes is $30 \times 4 + 25 \times 1 = 145$

Number of cubes with 0 face Painted is given by difference between total number of cubes – number of cubes with at least 1 face painted = $343 - 4 - 44 - 145 = 150$

In other words number of cubes with 0 painted is $6 \times 5 \times 5 = 150$

1. (b) From the above explanation number of the cubes with 0 faces painted is 150.
2. (c) From the above explanation number of the cubes with 2 faces painted is 44.
3. (a) From the above explanation number of the cubes with at most 2 faces painted is $150 + 145 + 44 = 339$.
Or else $343 - 4 = 339$
4. (a) From the above explanation number of the cubes with at least 2 faces painted is $44 + 4 = 48$.
5. (d) From the above explanation number of the cubes with 3 faces painted is 4.

Solution for 6–10:

Let us see the changes due to removal of 1 cube from corner-

Number of vertices with three faces exposed (Painted) is $7 + 3 = 10$

Number of Cubes with 2 sides exposed (Painted): In general one edge give us 4 ($n - 2$ in general case) cubes with two face painted but in this case out of 12 edges only 9 edges will give us 4 cubes in one edge and remaining 3 edges will give us 3 cubes from one edge, hence total number of edge is $9 \times 4 + 3 \times 3 = 45$

Number of Cubes with 1 side exposed (Painted): It will remain same as normal case i.e $6(4^2) = 96$

Number of Cubes with no sides exposed (Painted) is $4^3 = 64$

From the above observation:

6. (a) From the above explanation number of the cubes with 0 faces painted is 64.
7. (c) From the above explanation number of the cubes with 2 faces painted is 45.
8. (a) From the above explanation number of the cubes with at most 2 faces painted is $64 + 96 + 45 = 205$.
Or else $215 - 10 = 205$
9. (a) From the above explanation number of the cubes with at least 2 faces painted is $45 + 10 = 55$.
10. (d) No cubes are with 4 face painted.

Solution for 11–15:

For least number of cuts $120 = 4 \times 5 \times 6$ i.e number of cuts must be 3, 4 and 5 in three planes in this case number of cubes on a face is either $6 \times 5 = 30$ or $6 \times 4 = 24$ or $4 \times 5 = 20$ cubes. And number of cuboids on an edge is 4 or 5 or 6

11. (a) Number of cuboids with no face painted is $(4 - 2)(5 - 2)(6 - 2) = 2 \times 3 \times 4 = 24$
12. (a) To satisfy this case all the cuboids on the edges and corners must have more than one colour on them. And in that case opposite faces must have painted in the same colour.

In that case number of cuboids with 3 colours on them = 8

In that case number of cuboids with 2 colours on them = $4 \times (2 + 3 + 4) = 36$

Hence number of cuboids with at least 1 colour on them is $120 - 36 - 8 = 76$

13. (c) In this case when k is maximum, one particular colour is used on three faces such that any two faces are adjacent to each other. Required number of cuboids will come from edges but not from vertex = $3 + 4 + 5 + 1 = 13$

14. (b) Maximum number of cuboid with red colour is possible when cube is painted with red colour in 3 sides with minimum number of common edges (which is equal to 2)

Hence required maximum value is $6(5 + 5 + 4 - 2) = 72$

For minimum number of such cuboid Red colour is used only once and minimum number of cubes in that case is 20

Hence required ratio is $72: 20 = 18: 5$

15. (b) In this case we have to use red and green twice and same colour should be on opposite faces then required cube is given by 4 edges (but not corner), maximum number of cubes from one edge is $6 - 2 = 4$ so required number of cubes is $4 \times 4 = 16$

Solution for 16–20:

16. (c) Total no. of cubes = $5^3 = 125$,
Some cubes from different corners are removed and the number removed cubes are 2, 3, 4 and 4.

Remaining number of small cubes:

$$= 125 - 2 - 3 - 4 - 4 = 125 - 13 = 112$$

17. (c) In any plane, leave 4 sides cube and select $(3 \times 3 \times 3)$ intersection. But the cubes $2 \times 2 \times 1$ give 2 less cube because that part we are already removed.
No. of cubes = $(3 \times 3 \times 3) - 2 = 25$.

18. (a) Only two faces are coloured is when cubes are at the edges (baring the corner cubes)
If no cubes have been removed then on each edges we will get 3 cubes that has exactly 2 faces coloured, hence total number of such cubes = $12 \times 3 = 36$, because we have 12 edges.
Out of these 3 cubes are removed hence required number of cubes = $36 - 3 = 33$

19. (b) Each has Red faces on top layer = all edges cube = $2 + 2 + 2 + 2 = 8$
20. (c) Number of cubes with 3 face coloured = 4 (Bottom cubes) + 8 top cubes + 4 (column cubes) = 16

Solution for 21–25:

Initial total number of cubes = 343,

Number of cubes removed = 27

Smaller 27 cubes painted blue

Exposed faces of original big cube (3 faces with 9 cube on each face i.e total 27 cubes) painted with black

21. (c) Since 7 corner (Vertices) of bigger cube is untouched hence they are painted with three faces.

Now consider the corner from where we have removed $3 \times 3 \times 3$ cubes,

After removal 3 new corners of the bigger cube will be generated that will be painted with 3 faces and 8 corners from smaller cube of $3 \times 3 \times 3$ painted with 3 faces.

So the such total number of such cubes is $7 + 3 + 8 = 18$.

22. (b) In original big cube number of faces with one colour is $3(6 - 2)^2 = 48$ (here we have considered only 3 untouched faces of big cube)

But here we have removed a cubes of the form of $3 \times 3 \times 3$ and again put it back so out of three new exposed faces of big cube we will have 4 cubes in each face that is painted with one colour hence number of cubes from these three surfaces is $3 \times 4 = 12$

Now consider out of $3 \times 3 \times 3$ cubes we will have 6 cubes (one in each face) which are painted only one face.

Hence total number of cubes = $48 + 12 + 6 = 66$

23. (a) Without any changes number of cubes with no face colour is given by $(6 - 2)^3 = 64$

Now because of removal of $3 \times 3 \times 3$ cubes from one of the corner from each face that were not painted earlier got exposed and will get painted, so from $3 \times 3 \times 3$ cubes $4 \times 3 = 12$ cubes got painted, and a similar number from 3 exposed faces of big cube got painted.

Total number of cubes with no face painted is $64 - 12 - 12 = 40$

24. (c) Out of 27 small cubes from $3 \times 3 \times 3$, outer 26 cubes are 1st painted with blue and then it is kept back with original cube and painted with yellow so out of 26 cubes only 5 edges will give us cubes with both the colours and number of such cubes are 12

25. (d) Out of 12 cubes in previous question there are 4 cubes with 2 faces yellow so number of cubes painted two faces only one with yellow and one with blue is $12 - 4 = 8$

Solution for 26–30:

26. (d) Number of cubes removed from top face = 16

Number of cubes removed from bottom face = 4

Number of cubes left = $125 - (16 + 4) = 105$

27. (a) Number of cubes with three coloured face on the top side = 4

Number of cubes with three coloured face on the 2nd from top side = 4

Number of cubes with three coloured face on the bottom side = 12

Total number of such cubes = $12 + 8 = 20$

28. (b) Number of cubes with two face painted from the top side (Which is a square of $3 \times 3 = 9$ cubes) is 4.

Number of cubes with two face painted from the 2nd from top side (Which has four edges and each edge has 3 such cubes) is $4 \times 3 = 12$.

Number of such cubes from vertical edges is $4 \times 1 = 4$

Number of such cubes from bottom face is $4 \times 1 = 4$

Hence total such cubes is $4 + 12 + 4 + 4 = 24$

29. (a) From top face (out of 3×3 square face) only one cube is with one face painted.

From 4 vertical faces each face will give us 6 cubes hence total number of cubes from vertical faces is $6 \times 4 = 24$.

From bottom face we will get $3 \times 3 = 9$ cubes

So total number of cubes with one face painted is $1 + 24 + 9 = 34$

30. (d) Number of cubes with no face painted is

$$105 - 34 - 24 - 20 = 27$$

Or else all the $3 \times 3 \times 3$ inner cubes will remain coloured.

Solution for 31–35:

Here we have following cases:

Case (i): When same colour is on opposite face.

Case (ii): When two red colours are on opposite face and blue & green on adjacent faces

Case (iii): When two green colours are on opposite face and blue & red on adjacent faces.

Case (iv): When two blue colours are on opposite face and red & green on adjacent faces.

Case (v): When same colours are on adjacent faces.

31. (a) We will evaluate the value of 'K' in each and every case:

Case (i): In this case number of cubes is given by 4 common edges except all 8 corner ones so number of cubes is $5 \times 4 = 20$

Case (ii): In this case number of cubes is given by 4 common edges (From one edge we will get 5 cubes with 2 face painted) except 6 corner ones (2 corner cubes are painted with only red and blue) so number of cubes is $5 \times 4 + 2 = 22$

Case (iii): In this case number of cubes is given by 2 common edges (From one edge we will get 5 cubes with 2 face painted) so number of cubes is $5 \times 2 = 10$.

Case (iv): In this case number of cubes is given by 4 common edges (From one edge we will get 5 cubes with 2 face painted) except 6 corner ones (2 corner cubes are painted with only red and blue) so number of cubes is $5 \times 4 + 2 = 22$

Case (v): In this case number of cubes is given by 3 common edges (From one edge we will get 5 cubes with 2 face painted) except 6 corner ones (2 corner cubes are painted with only red and blue) so number of cubes is $5 \times 3 + 2 = 17$

Hence option (A) gives the all possible value of 'K'

32. (c) We will evaluate the value of 'K' in each and every case:

Case (i): In this case number of cubes is all 8 corner ones so number of cubes is 8

Case (ii): In this case number of cubes is 4 corner ones so number of cubes is 4

Case (iii): In this case number of cubes is 4 corner ones so number of cubes is 4

Case (iv): In this case number of cubes is 4 corner ones so number of cubes is 4

Case (v): In this case number of cubes is 2 corner ones so number of cubes is 2

Hence option (C) gives the all possible value of 'K'

33. (b) We will evaluate the value of 'K' in each and every case:

Case (i): In this case number of cubes is given by 4 common edges so number of cubes is $7 \times 4 = 28$

Case (ii): In this case number of cubes is given by 4 common edges, out of these 4 edges there are 2 corner cubes common with these 4 edges so number of cubes is $7 \times 4 - 2 = 26$

Case (iii): In this case number of cubes is given by 2 common edges so number of cubes is $7 \times 2 = 14$.

Case (iv): In this case number of cubes is given by 4 common edges, out of these 4 edges there are 2 corner cubes common with these 4 edges so number of cubes is $7 \times 4 - 2 = 26$

Case (v): In this case number of cubes is given by 3 common edges, out of these 3 edges there are 2 corner cubes common with these 4 edges so number of cubes is $7 \times 3 - 3 = 18$

Hence option (b) gives the all possible value of 'K'

34. (a) We will evaluate the value of 'K' in each and every case:

Case (i): In this case number of cubes is given by 25 cubes from 1 face so number of cubes is $25 \times 2 = 50$

Case (ii): In this case number of cubes is given by 25 cubes from 1 face so number of cubes is $25 \times 2 = 50$

Case (iii): In this case number of cubes is given by 25 cubes from 1 face and 5 cubes from common edge so number of cubes is $25 \times 2 + 5 = 55$

Case (iv): In this case number of cubes is given by 25 cubes from 1 face and 5 cubes from common edge so number of cubes is $25 \times 2 + 5 = 55$

Case (v): In this case number of cubes is given by 25 cubes from 1 face and 5 cubes from common edge so number of cubes is $25 \times 2 + 5 = 55$

Hence option (a) gives the all possible value of 'K'

35. (c) From the solution of previous question required number of cubes is $3 \times 50 = 150$ or $3 \times 55 = 165$

Solution for 36–40:

Here on each face $6 \times 6 = 36$ cubes that are painted with one colour.

36. (b) Case (i): When red and blue are adjacent to each other then from one face we will get $6 \times 6 = 36$ cubes but out of them 6 cubes from common edge is common so number of cubes are $2 \times 6 \times 6 - 6 = 66$

Case (ii): When red and blue are opposite to each other then required number of cubes is $2 \times 6 \times 6 = 72$

37. (a) Case (i): when these three colour are adjacent to each other then from one face we will get $6 \times 6 = 36$ cubes but out of them $6 \times 3 = 18$ cubes from common edge is common so number of cubes are $3 \times 6 \times 6 - 6 \times 3 = 90$

Case (ii): When red and blue are opposite to each other (or any two of the given three) then required number of cubes is $3 \times 6 \times 6 - 2 \times 6 = 96$

38. (c) Case (i): When red and blue are opposite to each other then from one face we will get $6 \times 6 = 36$ cubes but out of them 2×6 cubes from common edge with green painted face is common so number of cubes are $2 \times 6 \times 6 - 2 \times 6 = 60$

Case (ii): When red and blue are adjacent to each other then green is either adjacent to these or opposite to any one of red or blue, in 1st condition number of cubes is $2 \times 6 \times 6 - 2 \times 6 - 11 = 55$ cubes or in 2nd condition $2 \times 6 \times 6 - 6 - 6 = 60$, required number of cubes is 55 or 60

39. (b) From solution of previous questions statements (ii) and (iii) are correct.

40. (d) None of the cubes can be painted in four faces.

Solution for 41–45:

Consider the 1st step, initial number of cubes N^3 after removal of 1st set of coloured cubes number of cubes left out is $(N - 1)^3$ hence number of cubes removed in 1st step (i.e with colour 1) is

$$N^3 - (N - 1)^3 = 3N^2 - 3N + 1$$

Similarly number of cubes removed in 2nd step (i.e with colour 2) is

Similarly number of cubes removed in 3rd step is (i.e with colour 3) and so on.

$$= 3(N - 1)^2 - 3(N - 1) + 1$$

Number of cubes remaining after 1st step is $(N - 1)^3$

Number of cubes remaining after 2nd step is $(N - 2)^3$ and so on.

41. (b) From the given condition

Number of cubes removed in 3rd step (i.e with colour 3) is $= 3(N - 2)^2 - 3(N - 2) + 1 = 217$ hence $N = 11$

So number of cubes with colour 5 is $= 3(N - 4)^2 - 3(N - 4) + 1 = 127$

42. (a) Total number of Cubes left after 7th step in $(N - 7)^3$ in the form of $(N - 7) \times (N - 7) \times (N - 7)$ cubes. And out of these number of cubes whose two sides are painted is given by three edges with each edge has $(N - 8)$ so total number of cubes is $3 \times (N - 8)$

From the given information $3(N - 8) = 21$ or $N = 15$

Number of cubes removed in 3rd step (i.e with colour 3) is $= 3(N - 2)^2 - 3(N - 2) + 1 = 469$

43. (c) The required number of cubes must be equal to difference between two positive integer

Since $64 - 27 = 37$

$$125 - 27 = 98$$

$$125 - 64 = 61$$

44. (c) Number of cubes with only face is painted with colour 1 is $3(N - 2)(N - 1) = 3N^2 - 9N + 6$

Number of cubes with only face is painted with colour 2 is $3(N - 3)(N - 2) = 3N^2 - 15N + 18$

From the given condition $(3N^2 - 9N + 6) + (3N^2 - 15N + 18) = 6N^2 - 24N + 24 = 150$ from this we will get $N = 7$.

Number of cubes left after step 3 is $4 \times 4 \times 4 = 64$

When all the exposed faces are painted with colour 4 then number of cubes with only one face painted is $3 \times 2 \times 3 = 18$

From the observation for 1st step we have seen that number of cubes is $3(N - 2)(N - 1)$ or in other words 3 times the product of 2 consecutive integer that is satisfied only by 18 which is 3 times of 2×3 .

45. (b) After step 1 number of cubes with exactly 2 face painted is $4(N - 1) + (N - 2) = 5N - 6$

Similarly after 2nd step number of cubes with exactly 2 face painted is $5(N - 1) - 6 = 5N - 11$

And after 3rd step number of cubes with exactly 2 face painted is $5(N - 2) - 6 = 5N - 16$

So total number of such cubes is $15N - 33$ out of the given options only option B satisfy the given condition.

Solution for 46–50:

If C3 means number of cuboids with 3 face painted, C2 means number of cubes with 2 face painted and so on:

Case	P =	Q =	R =	C3	C2	C1	C0
(i)	$1 \times 1 \times 105$	0	0	104	2	102	0
(ii)	$1 \times 3 \times 35$	0	2	34	4	68	33
(iii)	$1 \times 5 \times 21$	0	4	20	4	44	57
(iv)	$1 \times 7 \times 15$	0	6	14	4	36	65
(v)	$3 \times 5 \times 7$	2	4	6	8	36	46

46. (b) From the table condition is same as that of case (iii) then number of cubes painted with 1 face is 57

47. (c) From the table condition is same as that of case (ii), (iii) or (iv) then number of cubes painted with 1 face is either 33 or 57 or 65

48. (a) From the table condition is same as that of case (iv) or (v) then number of cubes painted with 1 face is either 46 or 65

49. (c) From the table condition is same as that of case (iii) then number of cubes painted with 1 face is either 46 or 65

50. (d) From the table we can say that no such exists so data is inconsistency.

Chapter 19

Calender

Section	Level	No. of Questions
Concept Applicator	Very Easy	10
Concept Builder	Easy	10
Concept Cracker	Moderate	10
Concept Deviator	Difficult	10

THEORY

It takes the earth about 8765.8128 Hrs (365.2422 days) to go around the sun, but in a normal calendar year we have only 365 days. That means we are leaving 0.2422 days (5.8128 Hrs) every year uncounted. The extra fraction of a day 0.2422 days (5.8128 Hrs) adds up for four calendar years would be 9688 days (23.2512 hrs) is almost a whole day, so every four years we add an extra day to our calendar, February 29. We call that year leap year. To make things easier, leap years are always divisible by four: 1992, 1996 and 2008 are leap years.

For hundreds of years, people used a calendar called the Julian calendar that followed this rule, adding a leap year every four years. However, because .9688 isn't exactly a whole day, the Julian calendar slowly began to disagree with the real seasons. In 1582, Pope Gregory fixed this problem by ordering everyone to use a new set of rules. These rules are named the Gregorian calendar, after him. They work like this:

Rule	Examples
If numerical value of year is divisible by 4 then it is a leap year.	2004, 2008, and 2012 are leap years.
If numerical value of century is divisible by 400 then it is a leap year	1900 and 2100 are <i>not</i> leap years. But 2000, 1600 are leap years

How do I find the day of the week for any date?

Method 1. Zeller's Rule

The following formula is named Zeller's Rule after a Reverend Zeller. [x] means the greatest integer that is smaller than or equal to x. e.g [2.1] = 2, [3.7] = 3, [499] = 4 and so on

$$f = k + \frac{13 \times m - 1}{5} + D + \left[\frac{D}{4} \right] + \left[\frac{C}{4} \right] - 2 \times C.$$

- k is the day of the month. Let's take 25th June 2013 as an example. For this date, k = 25.
- m is the month number. Months have to be counted specially for Zeller's Rule: March is 1, April is 2, and so on to February, which is 12. (This makes the formula simpler, because on leap years February 29 is counted as the last day of the year) Because of this rule, January and February are always counted as the 11th and 12th months of the previous year.

Means for January 2011 we will use month m = 11 but year we will take as 2010, as new year will begin from March 2011.

In our example, $m = 4$.

- D is the last two digits of the year, $D = 13$.
- C stands for century: it's the first two digits of the year. In our case, $C = 20$.

Now let's substitute our example numbers into the formula.

$$f = k + \left[\frac{13 \times m - 1}{5} \right] + D + \left[\frac{D}{4} \right] + \left[\frac{C}{4} \right] - 2 \times C.$$

$$f = 25 + \left[\frac{13 \times 4 - 1}{5} \right] + 13 + \left[\frac{13}{4} \right] + \left[\frac{20}{4} \right] - 2 \times 20.$$

$$f = 25 + \left[\frac{51}{5} \right] + 13 + [3.25] + [5] - 40.$$

$$F = 25 + 10 + 13 + 3 + 5 - 40 = 16$$

Now divide this value of $f = 16$ by 7 remainder is 2.

A remainder of 0 corresponds to Sunday, 1 means Monday, etc

Here remainder 2 means Tuesday.

In this formula we may get value of f as negative if this is the case then we will add multiple of 7 to make it positive e.g if $f = -17$ then $f = -17 + 3 \times 7 = 4$ so $f = -17$ is same as that of 4.

Method 2: The Key Value Method:

In this method we have to memorize few codes but this method is quick and fast in calculation. We'll take an example of December 20, 1984 as an example.

- Take the last 2 digits of the year. In this case it is 84.
- Divide it by 4, and find quotient, since $[84/4] = 21$
- Add the day of the month. In our example, $20 + 20 = 40$.
- Add the month's key value, from the following table.

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	4	4	0	2	5	0	3	6	1	4	6

- The month for our example is December, with a key value of 6. Hence $40 + 6 = 46$.
- If month is January or February of a leap year, subtract 1. We're using December, so it is not applicable here.
- Add the century code from the following table.

1700s	1800s	1900s	2000s
4	2	0	6

- Our example year is 1984, and the and get the code 6. Now we add this to our running total: $42 + 6 = 48$.
- Add the last two digits of the year. $48 + 82 = 130$.
- Divide by 7 and take the remainder. This time, 1 means Sunday, 2 means Monday, and so on. A remainder of 0 means Saturday. $130 / 7 = 18$, remainder 4, so December 16, 2482 will be on the fourth day of the week--Wednesday.

SOME MORE INTERESTING POINTS:

A month has either 28 (Non leap year February), 29 (Leap year February), 30 or 31 days.

If a month start with Monday, Tuesday, or Wednesday the month will have 4 Saturdays and 4 Sundays i.e total 8 weekends.

If a month start with Thursday the month will have 5 Saturdays and 4 Sundays i.e total 9 weekends.

If a month start with Friday the month will have 5 Saturdays and 4 Sundays i.e total 9 weekends if month has 28, 29

or 30 days and will have 5 Saturdays and 5 Sundays i.e total 10 weekends if month has 31 days.

If a month start with Saturday the month will have 5 Saturdays and 4 Sundays i.e total 9 weekends if month has 28 or 29 days and will have 5 Saturdays and 5 Sundays i.e total 10 weekends if month has 30 or 31 days.

If a month start with Sunday the month will have 4 Saturdays and 5 Sundays i.e total 9 weekends.

COUNTING OF ODD DAYS

1. 1 ordinary year = 365 days = (52 weeks + 1 day.)

∴ 1 ordinary year has 1 odd day.

2. 1 leap year = 366 days = (52 weeks + 2 days)

∴ 1 leap year has 2 odd days.

3. 100 years = 76 ordinary years + 24 leap years

$$= (76 \times 1 + 24 \times 2) \text{ odd days} = 124 \text{ odd days.}$$

$$= (17 \text{ weeks} + \text{days}) = 5 \text{ odd days.}$$

∴ Number of odd days in 100 years = 5.

$$\text{Number of odd days in 200 years} = (5 \times 2) \equiv 3 \text{ odd days.}$$

$$\text{Number of odd days in 300 years} = (5 \times 3) \equiv 1 \text{ odd day.}$$

$$\text{Number of odd days in 400 years} = (5 \times 4 + 1) \equiv 0 \text{ odd day.}$$

Similarly, each one of 800 years, 1200 years, 1600 years, 2000 years etc. has 0 odd days.

1. CONCEPT APPLICATOR

2. CONCEPT BUILDER

3. CONCEPT CRACKER

4. CONCEPT DEVIATOR

Answer with Solution

Concept Applicator

1. (b) Since in 1 year we have one odd day while in one leap year we have two odd days.
Number of odd days are 1 (for 2006)
1 days more than Friday means Saturday.
2. (c) Since a day of the week repeat after every 7 days, divide 59 by 7, remainder is 3 so number of odd days is 3, and 3 days after Monday is Thursday.
3. (b) Since in 1 year we have one odd day while in one leap year we have two odd days.
Number of odd days are: 1(for 2006) + 1(for 2007) + 2 (For leap year 2008) + 1(for year 2009) so total number of odd days are $1 + 1 + 2 + 1 = 5$ days. 5 days more than Friday means Wednesday.
4. (d) Number of days in June is $30 - 2 = 28$, and number of days in July is 7, total number of days is $28 + 7 = 35$, when we divide 35 by 7 remainder is 0, or number of odd days is 0 hence 7th July must be the same day as that of 2nd June i.e Saturday in this case.
5. (a) Number of years between 2001 to 2013 is 12 years ($2013 - 2001 = 12$ years)
Number of leap years between 2001 to 2013 is 3, since a year has 1 odd days and a leap year has 2 odd days, so total number of odd days is $12 + 3 = 15$ odd days.
When we divide 15 by 7 remainder is 1 or in total we have 1 odd day so 1st Jan 2013 is Tuesday.
6. (a) The century divisible by 400 is a leap year. 2100 is not divisible by 400 hence is not a leap year.
7. (d) The century divisible by 400 is a leap year. 2100 is not divisible by 400 hence is not a leap year so 2100 is not a leap year, out of remaining 1128 is divisible by 4, so 1128 is a leap year.
8. (d) On 31st December, 2005 it was Saturday.
Number of odd days from the year 2006 to the year 2009 = $(1 + 1 + 2 + 1) = 5$ days.
 \therefore On 31st December 2009, it was Thursday.
Thus, on 1st Jan, 2010 it is Friday.
9. (b) When 69 is divided by 7 we will get remainder 6 so the day will be 6 days more than Sunday i.e Saturday.
10. (d) Number of odd days between 6th March 2002 to 6th March 2003 is 1
Number of odd days between 6th March 2003 to 6th March 2004 is 2
Number of odd days between 6th March 2004 to 6th March 2005 is 1
Hence total Number of odd days between 6th March 2002 to 6th March 2005 is $1 + 2 + 1 = 4$ odd days so 6th March 2002 is 4 days before Sunday i.e Wednesday.

Concept Builder

1. (b) When we divide 79 by 7 we will get remainder 2 so we have 2 odd days, so required day must be 2 days back from today (i.e Sunday) and that day should be Friday.
 2. (a) Consider from 2nd June 2010 to 2nd June 2013 we have total 2 non leap year and one leap year so number of odd days are $1 + 1 + 2 = 4$ so 2nd June 2010 must be 4 days back from Sunday and that day is Wednesday.
- From Zeller's Formula:

$$f = k + \left[\frac{13m - 1}{5} \right] + D + \left[\frac{D}{4} \right] + \left[\frac{C}{4} \right] - 2 \times C.$$

In this case $k = 2$ (since 2nd June)

Month $m = 4$ (As March = 1, April = 2, May = 3, June = 4)

D is the last two digit of year here $D = 10$ (As year is 2010)

C is 1st two digit of century here $C = 20$ (As year is 2010)

$$f = 2 + \left[\frac{13 \times 4 - 1}{5} \right] + 10 + \left[\frac{10}{4} \right] + \left[\frac{20}{4} \right] - 2 \times 20.$$

$$f = 2 + \left[\frac{51}{5} \right] + 10 + [2.5] + [5] - 40.$$

$$f = 2 + 10 + 10 + 2 + 5 - 40 = -11$$

This - ve value of f can be made positive by adding multiple of 7

$$\text{So } f = -11 + 14 = 3$$

When divided by 7 we will get remainder 3, hence number of odd days is 3,

So 2nd june 2010 is 3 days more than Monday, i.e Wednesday.

3. (b) From Zeller's Formula:

$$f = k + \left[\frac{13 \times m - 1}{5} \right] + D + \left[\frac{D}{4} \right] + \left[\frac{C}{4} \right] - 2 \times C.$$

In this case k = 15 (since 15th August)

Month m = 6 (As march = 1, April = 2, May = 3, August = 6)

D is the last two digit of year here D = 47 (As year is 1947)

C is 1st two digit of century here C = 19 (As year is 1947)

$$f = 15 + \left[\frac{13 \times 6 - 1}{5} \right] + 47 + \left[\frac{47}{4} \right] + \left[\frac{19}{4} \right] - 2 \times 19.$$

$$f = 15 + \left[\frac{77}{5} \right] + 47 + [11.75] + [4.75] - 38.$$

$$f = 15 + 15 + 47 + 11 + 4 - 38 = 54.$$

When divided by 7 we will get remainder 5, hence number of odd days is 3,

A remainder of 0 corresponds to Sunday, 1 means Monday,

So 15th August 1947 is 5 days more than Sunday, i.e Friday.

4. (a) From Zeller's Formula

$$f = k + \left[\frac{13 \times m - 1}{5} \right] + D + \left[\frac{D}{4} \right] + \left[\frac{C}{4} \right] - 2 \times C.$$

In this case k = 18 (since 18th October)

Month m = 8 (As march = 1, April = 2, May = 3, October = 8)

D is the last two digit of year here D = 50 (As year is 2050)

C is 1st two digit of century here C = 20 (As year is 2050)

$$f = 18 + \left[\frac{13 \times 8 - 1}{5} \right] + 50 + \left[\frac{50}{4} \right] + \left[\frac{20}{4} \right] - 2 \times 20.$$

$$f = 18 + \left[\frac{103}{5} \right] + 50 + [12.5] + [5] - 40.$$

$$f = 18 + 20 + 50 + 12 + 5 - 40 = 65.$$

When divided by 7 we will get remainder 2, hence number of odd days is 2,

So 18th October 2050 is 2 days more than Sunday, i.e Tuesday.

5. (b) Here we have to find the number of odd days between, 5th march and 5th November,

Number of days in March is 26 or 5 odd days
(Here we have not included 5th march)

Number of days in April is 30 or 2 odd days

Number of days in May is 31 or 3 odd days

Number of days in June is 30 or 2 odd days

Number of days in July is 31 or 3 odd days

Number of days in August is 31 or 3 odd days

Number of days in September is 30 or 2 odd days

Number of days in October is 31 or 3 odd days

Number of days in November is 5 or 5 odd days
(Here 5th November is included)

So total number of odd days = 5 + 2 + 3 + 2 + 3 + 3 + 2 + 3 + 5 = 28 when divided by 7 gives remainder 0 hence 5th November will be same as that of 5th march.

6. (b) From Zeller's Formula we can find that 1st March 2009 is Sunday so we will have 5 Saturdays and 5 Sundays in total 10 weekends.

7. (c) January and August or October depends on leap year or non leap year. But if we find the number of odd days between March and November we will get number of odd days is 0 hence they will have same calendar.

8. (c) The year 2008 is a leap year. It has 2 odd days. The day on 14th Feb, 2008 is 2 days before the day on 14th Feb, 2009. Hence, this day is Thursday.

9. (a) Number of days in K weeks is 7K hence total number of days is 7K + K = 8k or number of days must be a multiple of 8.

10. (a) Number of days in K weeks is 7K hence total number of days is 7K + K = 8k

Similarly number of days in 2Kth day of the 2Kth week is $2k \times 7 + 2k = 16k$

Required number of days is $16K - 8K = 8k$ or number of days must be a multiple of 8.

Concept Cracker

1. (d) Lets find out 1st April from Zeller's Formula:

$$f = k + \left\lceil \frac{13m - 1}{5} \right\rceil + D + \left\lceil \frac{D}{4} \right\rceil + \left\lceil \frac{C}{4} \right\rceil - 2 \times C.$$

In this case k = 1 (since 1st April)

Month m = 2 (As march = 1, April = 2)

D is the last two digit of year here D = 01 (As year is 2001)

C is 1st two digit of century here C = 20 (As year is 2001)

$$f = 1 + \left\lceil \frac{13 \times 2 - 1}{5} \right\rceil + 01 + \left\lceil \frac{01}{4} \right\rceil + \left\lceil \frac{20}{4} \right\rceil - 2 \times 20$$

$$f = 1 + \left\lceil \frac{25}{5} \right\rceil + 01 + [0.5] + [5] - 40.$$

$$f = 1 + 5 + 01 + 0 + 5 - 40 = -28$$

This - ve value of f can be made positive by adding multiple of 7

$$\text{So } f = -28 + 28 = 0$$

So number of odd days is 0,

So 1st April 2001 is Sunday,

So 1st Friday is on 6th April, so next Fridays is 13th, 20th, 27th April.

2. (c) In a period of 100 years there are 23 or 24 leap years (as for century year it might be or might not be a leap year, as 1900 was not a leap year)

Number of days in a period of 100 years is $365 \times 100 + 23$ or $365 \times 100 + 24$.

If century year is not a leap year then number of days = $365 \times 100 + 23$, and number of weeks is 5217 and 4 odd days and for leap year it will be 5217 weeks and 5 odd days, hence number of Sundays is either 5217 or 5218.

3. (d) From Zeller's formula lets find the 1st day of 1940

$$f = k + \left\lceil \frac{13m - 1}{5} \right\rceil + D + \left\lceil \frac{D}{4} \right\rceil + \left\lceil \frac{C}{4} \right\rceil - 2 \times C.$$

In this case k = 1 (since 1st January)

Month m = 11 (As march = 1, April = 2, and hence January = 11)

D is the last two digit of year here D = 39 (As year 1940 will start from March)

C is 1st two digit of century here C = 19 (As year is 1940)

$$f = 1 + \left\lceil \frac{13 \times 11 - 1}{5} \right\rceil + 39 + \left\lceil \frac{39}{4} \right\rceil + \left\lceil \frac{19}{4} \right\rceil - 2 \times 19.$$

$$f = 1 + \left\lceil \frac{142}{5} \right\rceil + 39 + [9.75] + [4.75] - 38.$$

Or $f = 1 + 28 + 39 + 9 + 4 - 38 = 43$ when divided by 7 gives remainder 1 hence it has one odd day or 1st January 1940 was Monday

Then from next year we can make table.

Year	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Odd Day	2	1	1	1	2	1	1	1	2	1
Day of 1 st Jan	Monday	Wed	Thu	Fri	Sat	Mon	Tue	Wed	Thu	Sat

So in the range from 1940 to 1949 not a single year started with Sunday.

4. (d) Calendar of 2 years is similar if number of odd days between these two years is zero. Consider options one by one

(a) Between 1940 to 1946 we have two leap years 1940 and 1944 so number of odd days is $2 + 1 + 1 + 1 + 2 + 1 = 8$ or 1 hence calendar of these two years is not similar.

(b) Between 1977 to 1982 we have one leap years 1980 so number of odd days is $1 + 1 + 1 + 2 + 1 = 6$ calendar of these two years is not similar.

(c) Between 1912 to 1916 we have one leap years 1912 so number of odd days is $2 + 1 + 1 + 1 = 5$

hence calendar of these two years is not similar.

5. (c) Number of odd days between 2013 and 2015 is 2, so we have to find the year which will have 2 odd days between 1977 and required year.

Consider options one by one-

(a) Number of odd days between 1977 and 1981 is $1 + 1 + 1 + 2 = 5$ odd days

(b) Number of odd days between 1977 and 1985 is $1 + 1 + 1 + 2 + 1 + 1 + 1 + 2 = 10$ odd days or 3 odd days

(c) Number of odd days between 1977 and 1990 is $1 + 1 + 1 + 2 + 1 + 1 + 2 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 16$ odd days or 2 odd days, hence calendar of 1990 is the answer.

6. (b) In a year we have 53 Sundays only when year start with Sunday (For non leap year) and either with Saturday or Sunday (For leap year).

From zeller's formula 1st January 2001 was Monday
From number of odd days 1st January 2006 will start with Sunday so it had 53 Sunday

Similarly 1st January 2009 will start with Thursday.

7. (b) Let us take two cases

Case (i): When year start with Sunday then next 4 years will always have 52 Sundays hence total number of Sundays are $53 + 3 \times 52 = 209$ Sundays

Case (ii): When year start with Saturday and then we have 53 Sundays that means year is a leap year then next 4 years will always have 52 Sundays hence total number of Sundays are $53 + 3 \times 52 = 209$ Sundays.

8. (c) If month ends with Thursday then next month will start with Friday and it may have 5 Friday otherwise it may have 4 Fridays.

9. (c) Counting the number of days after 3rd November, 1994 we have:

Number of Days in November = 27 or 6 odd days.

Number of Days in December = 31 or 3 odd days.

Number of Days in January = 31 or 3 odd days

Number of Days in February = 28 or 0 odd days

Number of Days in March = 20 or 6 odd days.

So total number of odd days = $6 + 3 + 3 + 0 + 6 = 18$ when divided by 7 gives remainder 4.

Number of odd days = 4.

The day on 3rd November, 1994 is (7 - 4) days beyond the day on 20th March, 1995.

So, the required day is Thursday.

10. (b) 94 when divided by 7 gives remainder 3 hence today it must be Thursday, after 3 more days we will get a Sunday, next Sunday will be after $3 + 7 = 10$ days and so on so we will get Sunday after a day $7K + 3$ days.

Concept Deviator

1. (b) 100 years contain 5 odd days.

\therefore Last day of 1st century is Friday.

200 years contain $(5 \times 2) = 3$ odd days.

\therefore Last day of 2nd century is Wednesday.

300 years contain $(5 \times 3) = 15 = 1$ odd day.

\therefore Last day of 3rd century is Monday.

400 years contain 0 odd day.

\therefore Last day of 4th century is Sunday.

This cycle is repeated that means last day of century is Friday, Wednesday, Monday, or Sunday and it repeats the cycle.

2. (c) Count the number of odd days from the year 2011 onwards. Calendar will repeat when we will have number of odd days = 0.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Odd day	1	2	1	1	1	2	1	1	1	2	1
Total odd day	1	3	4	5	6	8 (= 1)	2	3	4	6	7

So after ending of 2021 the new year 2022 will start and that will have same calendar as that of 2011.

3. (c) If June month has 5 Mondays then dates must be 1st, 8th, 15th, 22nd, and 29th or second group of dates must be 2nd, 9th, 16th, 23rd, and 30th

Now lets find out the number of days or odd days between 1st January till 1st June.

Number of days in January: 30 or number of odd days are 2 (here we have not included 1st Jan so number of days is $31 - 1 = 30$)

Number of days in February: 28 or number of odd days: 0 (Assuming non leap Year)

Number of days in March: 31 or number of odd days 3

Number of days in April: 30 or number of odd days: 2

Number of days in May: 31 or number of odd days: 3

Number of days in June: 1 or number of odd days: 1

So total number of odd days are $2 + 0 + 3 + 2 + 3 + 1 = 11$ when divided by 7 gives remainder 4,

Hence 1st January must be 4 days back from Monday i.e Thursday. And if 2nd January is Monday then 1st January must be Friday. Now consider a leap year then number of odd days between 1st January and 1st June is 5 days hence

- in that case 1st January must be either Friday or Saturday
4. (d) If November month has 5 Mondays then dates must be 1st, 8th, 15th, 22nd, and 29th or second group of dates must be 2nd, 9th, 16th, 23rd, and 30th. Now lets find out the number of days or odd days between 1st April till 1st November

Number of days in April: 29 or number of odd days are 1 (here we have not included 1st April so number of days is $30 - 1 = 29$)

Number of days in May: 31 or number of odd days 3

Number of days in June: 30 or number of odd days 2

Number of days in July: 31 or number of odd days :- 3

Number of days in August: 31 or number of odd days 3

Number of days in September: 30 or number of odd days 2

Number of days in October: 31 or number of odd days 3

Number of days in November: 1 or number of odd days 1

So total number of odd days are $1 + 3 + 2 + 3 + 3 + 2 + 3 + 1 = 18$, when divided by 7 gives remainder 4

Hence 1st April must be 4 days back from Monday i.e Thursday. Then weekend will be 3rd, 4th, 10th, 11th, 17th, 18th, 24th, 25th. And if 2nd November is Monday then 1st April must be Friday. Then weekend will be 2nd, 3rd, 9th, 10th, 16th, 17th, 23rd, 24th and 30th total 9 weekends

Hence number of weekends may be 8 or 9

5. (d) Here we have two cases:

Case (i): If a month start with Thursday the month will have 5 Saturdays and 4 Sundays i.e total 9 weekends. In this case 31st December will be Sunday

hence 1st January will be either Sunday (For non leap year) or Saturday (For leap year) then January will have 9 or 10 weekends.

Case (ii) If a month start with Sunday the month will have 4 Saturdays and 5 Sundays i.e total 9 weekends. In this case 31st December will be Wednesday hence 1st January will be either Wednesday (For non leap year) or Tuesday (For leap year) then January will have 8 or 9 weekends.

Hence number of weekends in January will be 8 or 9 or 10.

6. (c) If there are 53 Saturday and Sunday that means year is a leap year and last day of year is Sunday so 1st day of January must be Saturday then January will have 10 weekends.

7. (a) In a period of 100 years there are 23 or 24 leap years (as for century year it might be or might not be a leap year, as 1900 was not a leap year)

Number of odd days in a period of 100 years is $100 + 23$ or $100 + 24$ or $123/124$ odd days,

Number of odd days in 100 years is when $123/124$ divided by 7, remainder is 4 or 5. So next century should start with Monday or Tuesday.

8. (b) In a period of 100 years there are 23 or 24 leap years (as for century year it might be or might not be a leap year, as 1900 was not a leap year)

Number of odd days in a period of 100 years is $100 + 23$ or $100 + 24$ or $123/124$ odd days,

Number of odd days in 100 years is when $123/124$ divided by 7, remainder is 4 or 5. So next century should start with Friday or Saturday.

9. (a) Last day of century can be Friday, Wednesday, Monday, or Sunday and it repeats the cycle. So 1st day of next century must be either Saturday, Thursday, Tuesday, or Monday and so it must not be Wednesday, Friday, & Sunday

10. (a) If previous year is leap year then calendar of May is similar to July

Chapter 20

Games and Tournament

Section	Level	No. of Questions
Concept Applicator	Very Easy	10
Concept Builder	Easy	10
Concept Cracker	Moderate	9
Concept Deviator	Difficult	47

THEORY

Questions based on games & tournament is frequently asked in CAT and other aptitude test examination. In general there are three types of questions on this topic:

- (i) Questions based on Seed or Rank (Knockout tournament)
- (ii) Questions based on scheduling of tournament or who won/lost against whom
- (iii) Questions based on goals for /goals against etc.

Let us understand these types of questions and how to handle these type of questions.

Knockout Tournament: In these type of tournament generally (not necessarily) teams or player are seed i.e ranked from top to bottom. Let us suppose 16 players are participating a knockout tournament and these players are seeded or ranked from 1 to 16, then tournament is scheduled in 4 stages:

In stage 1:

Seed 1 will play with seed 16

Seed 2 will play with seed 15

Seed 3 will play with seed 14

Seed 4 will play with seed 13

Seed 5 will play with seed 12

Seed 6 will play with seed 11

Seed 7 will play with seed 10

Seed 8 will play with seed 9

i.e total $16/2 = 8$ matches at this stage.

In general if a higher ranked (seeded) player play with a lower ranked player then higher ranked player should win but if lower ranked player wins the tournament then we call it as an upset caused by the lower ranked player.

e.g. in a match between seed 4 and seed 13, ideally seed 4 should win but if seed 13 wins the match then we call it as an Upset caused by seed 13.

Now assume that there is no upset in stage 1 then stage 2 matches will be scheduled as below:

Stage 2:

Seed 1 will play with seed 8

Seed 2 will play with seed 7

Seed 3 will play with seed 6

Seed 4 will play with seed 5

Number of matches at this stage is $8/2 = 4$

Now assume that there is no upset in stage 2 then stage 3 matches will be scheduled as below:

Stage 3 (Semifinal):

Seed 1 will play with seed 4

Seed 2 will play with seed 3

Number of matches at this stage is $4/2 = 2$

Then stage 4 or final match between seed 1 and seed 2.

So total number of matches is $16/2 + 8/2 + 4/2 + 2/2 = 15$ or in other ways since only one winner remaining 15 are looser and one match can give only one looser so we should have 15 matches (1 less than the total number of players).

In this case if you look at carefully then you will find that in stage 1 sum of seed is always 17 so if I ask you seed 6 played with whom you just have to find $17 - 6 = 11$ so seed 6 played with seed 11 in stage 1.

Round Robin Tournament: In this case each team plays with other team exactly once. Lets take an example of 6 players namely A, B, C, D, E, F in this case we have to make a table.

In this case total number of matches is ${}^6C_2 = 15$

Lets A won against D so we will represent it in 1st row as W. The same match we can also represent as D lost against A, and we will represent that in 1st column 4th row that shows D lost against A

	A	B	C	D	E	F
A	XXXX			W		
B		XXXX				
C			XXXX			
D	L			XXXX		
E					XXXX	
F						XXXX

In this way from the given information we have to fill up the table then solve the questions based on this information.

1. CONCEPT APPLICATOR

Direction (Qs. 1-5):

In a knockout tournament 64 players participated. These 64 players are seeded from 1 to 64 with seed 1 being the top seed and seed 64 being the bottom seed. The tournament is conducted in different stages.

In stage 1 seed 1 played with seed 64 and that match is named as match 1 of stage 1, seed 2 played with seed 63 and that match is named as match 2 of stage 1, and so on.

In stage 2, winner of match 1 and match 32 of stage 1 played against each other and that match is named as Match 1 of stage 2, then winner of match 2 and match 31 of stage 1 played against each other and that match is named as Match 2 of stage 2. And so on

The same procedure is followed in further stages. Now answer the following questions.

1. How many stages are in the tournament?
 - (a) 5
 - (b) 6
 - (c) 7
 - (d) None of these
2. What is the total number of matches in the tournament?
 - (a) 63
 - (b) 36
 - (c) 127
 - (d) None of these
3. If seed 9 reached final then which one of the following could play with him in final?
 - (a) 56
 - (b) 24
 - (c) 11
 - (d) None of these
4. Which lowest seeded player can win the tournament without causing an upset by him?
 - (a) 32
 - (b) 33
 - (c) 34
 - (d) None of these
5. If seed 15 won the tournament then what is the minimum number of upsets caused by him?
 - (a) 1
 - (b) 2
 - (c) 3
 - (d) None of these

2. CONCEPT BUILDER

Direction (Qs. 1-5): 1st stage of the TT tournament is a round robin stage where 8 players played against each other, after this stage it is found that 5 players won 5 matches each. After this 2nd stage is conducted in the similar fashion where again 5 players won 5 matches each. Only two players won 10 matches each. There is no tie in any match.

Direction (Qs. 6-10): 8 teams namely A, B, C, D, E, F, G and H participated in a tournament whose 1st stage is a round robin stage where each team play with other team exactly once. Following further information is known to us:

- (i) A won against B, C and E.
- (ii) Number of matches won by A, B and D is 3 each no other team won 3 matches.
- (iii) C won against B and D but lost to E.
- (iv) H won all the matches.
- (v) G won against B but lost to E.
- (vi) D lost to F and C won only 2 matches.

Now answer the following questions:

6. How many matches F won
 - (a) 2
 - (b) 3
 - (c) 4
 - (d) None of these
7. How many matches G lost?
 - (a) 2
 - (b) 3
 - (c) 4
 - (d) None of these
8. E won against which all teams?
 - (a) C and B
 - (b) C and G
 - (c) C and F
 - (d) None of these
9. Which team won minimum number of matches?
 - (a) C and B
 - (b) C and G
 - (c) C and F
 - (d) None of these
10. How many teams won 4 matches?
 - (a) 2
 - (b) 3
 - (c) 4
 - (d) None of these

1. What is the minimum number of matches won by any player.
 - (a) 0
 - (b) 5
 - (c) 6
 - (d) None of these
2. If a player won 0 matches in stage 1 then which one of the following is correct?
 - (a) There must be a player who won 3 matches.

Direction (Qs. 6-10): The world cup tournament is arranged as per the following rules:

In the beginning 16 teams enter and are divided into 2 groups of 8 teams each, where the team in any group plays exactly once with all the teams in the same group. At the end of this round top four teams from each group advance to the next round in which two teams play each other and the losing team goes out of the tournament.

3 CONCEPT CRACKER

- (a) 16
- (b) 18
- (c) 19
- (d) 25
- (e) 30

Direction (Qs. 3-4): There are five teams— Paraguay, Qatar, Russia, Spain and Turkey playing in a tournament where each team plays against every other team only once. These are the following possibilities: each match can result in a draw where each team scores two points; or a team can win where it scores three points, while the losing team scores one point

3. If Paraguay has won all the matches and Turkey has lost all the matches and all the remaining three teams score equal points, how many points have each of the three remaining teams scored?
 - (a) 5
 - (b) 7
 - (c) 8
 - (d) None of these
4. If all the five teams have an equal score, what is the number of points scored by each team?
 - (a) 5
 - (b) 6
 - (c) 7
 - (d) None of these

Direction (Qs. 5-9): Sixteen teams have been invited to participate in the ABC Gold Cup cricket tournament. The tournament is conducted in two stages. In the first stage, the teams are divided into two groups. Each group consists of eight teams, with each team playing every other team in its group exactly once. At the end of the first stage, the top four teams from each group advance to the second stage while the rest are eliminated. The second stage comprises of several rounds. A round involves one match for each team. The winner of a match in a round advances to the next round, while the loser is eliminated. The team that remains undefeated in the second stage is declared the winner and claims the Gold Cup.

The tournament rules are such that each match results in a winner and a loser with no possibility of a tie. In the first

stage a team earns one point for each win and no points for a loss. At the end of the first stage teams in each group are ranked on the basis of total points to determine the qualifiers advancing to the next stage. Ties are resolved by a series of complex tie-breaking rules so that exactly four teams from each group advance to the next stage.

5. What is the total number of matches played in the tournament?
 - (a) 28
 - (b) 55
 - (c) 63
 - (d) 35
6. The minimum number of wins needed for a team in the first stage to guarantee advancement to the next stage is:
 - (a) 5
 - (b) 6
 - (c) 7
 - (d) 4
7. What is the highest number of wins for a team in the first stage in spite of which it would be eliminated at the end of first stage?
 - (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
8. What is the number of rounds in the second stage of the tournament?
 - (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
9. Which of the following statements is true?
 - (a) The winner will have more wins than any other team in the tournament.
 - (b) At the end of the first stage, no team eliminated from the tournament will have more wins than any of the teams qualifying for the second stage.
 - (c) It is possible that the winner will have the same number of wins in the entire tournament as a team eliminated at the end of the first stage.
 - (d) The number of teams with exactly one win in the second stage of the tournament is 4

4. CONCEPT DEVIATOR

Directions (Qs. 1-4): Answer the questions on the basis of the information given below.

The year was 2006. All six teams in pool A of World Cup hockey, play each other only once. Each win earns a team three points, a draw earns one point and loss earns zero points. The two teams with the highest points qualify for

the semi-finals. In case of a tie, the team with highest goal difference (Goal For- Goals Against) qualifies.

In the opening match, Spain lost to Germany. After the second round (after each team played two matches), the pool table looked as shown below.

Pool A

Teams	Games Played	Won	Drawn	Lost	Goals For	Goals Against	Points
Germany	2	2	0	0	3	1	6
Argentina	2	2	0	0	2	0	6
Spain	2	1	0	1	5	2	3
Pakistan	2	1	0	1	2	1	3
New Zealand	2	0	0	2	1	6	0
South Africa	2	0	0	2	1	4	0

In the third round, Spain played Pakistan, Argentina played Germany, and New Zealand played South Africa. All the third round matches were drawn. The following are some results from the fourth and fifth round matches.

- (a) Spain won both the fourth and fifth round matches.
 - (b) Both Argentina and Germany won their fifth round matches by 3 goals to 0.
 - (c) Pakistan won both the fourth and fifth round matches by 1 goal to 0.
1. Which one of the following statements is true about matches played in the first two rounds?
 - (a) Germany beat New Zealand by 1 goal to 0.
 - (b) Spain beat New Zealand by 4 goals to 0.
 - (c) Spain beat South Africa by 2 goals to 0.
 - (d) Germany beat South Africa by 2 goals to 1.
 2. Which one of the following statements is true about matches played in the first two rounds?
 - (a) Pakistan beat South Africa by 2 goals to 1.
 - (b) Argentina beat Pakistan by 1 goal to 0.
 - (c) Germany beat Pakistan by 2 goals to 1.
 - (d) Germany beat Spain by 2 goals to 1.
 3. Which team finished at the top of the pool after five rounds of matches?
 - (a) Argentina
 - (b) Germany
 - (c) Spain
 - (d) Cannot be determined
 4. If Pakistan qualified as one of the two teams from Pool A, which was the other team that qualified?
 - (a) Argentina
 - (b) Germany
 - (c) Spain
 - (d) Cannot be determined

Directions (Qs. 5 -8) on the basis of the information given below:

In the table below is the listing of players, seeded from highest (#1) to lowest (#32), who are due to play in

an Association of Tennis Players (ATP) tournament for women. This tournament has four knockout rounds before the final, i.e., first round, second round, quarterfinals, and semi-finals. In the first round, the highest seeded player plays the lowest seeded player (seed # 32) which is designated match No. 1 of first round; the 2nd seeded player plays the 31st seeded player which is designated match No. 2 of the first round, and so on. Thus, for instance, match No. 16 of first round is to be played between 16th seeded player and the 17th seeded player. In the second round, the winner of match No. 1 of first round plays the winner of match No. 16 of first round and is designated match No. 1 of second round. Similarly, the winner of match No. 2 of first round plays the winner of match No. 15 of first round, and is designated match No. 2 of second round. Thus, for instance, match No. 8 of the second round is to be played between the winner of match No. 8 of first round and the winner of match No. 9 of first round. The same pattern is followed for alter rounds as well.

Seed	Name of player	Seed	Name of player
1.	Maria Sharapova	17.	Jelena Jankovic
2.	Lindsay Davenport	18.	Ana Ivanovic
3.	Amelie Mauresmo	19.	Vera Zvonareva
4.	Kim Clijsters	20.	Elena Likhovtseva
5.	Svetlana Kuznetsova	21.	Daniela Hantuchova
6.	Elena Dementieva	22.	Dinara Safina
7.	Justine Henin	23.	Silvia Farina Elia
8.	Serena Williams	24.	Tatiana Golovin
9.	Nadia Petrova	25.	Shinobu Asagoe
10.	Venus Williams	26.	Francesca Schiavone
11.	Patty Schnyder	27.	Nicole Vaidisova
12.	Mary Pierce	28.	Gisela Dulko
13.	Anastasia Myskina	29.	Flavia Pennetta
14.	Alicia Molik	30.	Anna Chakvetadze
15.	Nathalie Dechy	31.	Ai Sugiyama
16.	Elena Bovina	32.	Anna-Lena Groenefeld

Directions (Qs. 9-12): Answer the following questions based on the information given below:

In a sports event, six teams (A, B, C, D, E and F) are competing against each other. Matches are scheduled in two stages. Each team plays three matches in Stage I and two matches in Stage II. No team plays against the same team more than once in the event. Notice are permitted in any of the matches. The observations after the completion of Stage I and Stage II are as given below.

Stage 1: One team won all the three matches. Two teams lost all the matches.

D lost to A but won against C and F.

E lost to B but won against C and F. B lost at least one match.

F did not play against the top team of Stage I.

Stage II: The leader of Stage I lost the next two matches.

Of the two teams at the bottom after Stage I, one team won both matches, while the other lost both matches.

One more team lost both matches in Stage II.

Direction (Qs. 13-17): Kolkata Premier League has 16 players seeded from 1 to 16. These players are divided in 4 groups namely South Kolkata, North Kolkata, Central Kolkata and Saltlake. 16 players are divided in these groups as follows-

South Kolkata: 1, 8, 9, 16

North Kolkata: 2, 7, 10, 15

Central Kolkata: 3, 6, 11, 14

Saltlake: 4, 5, 12,13

In stage I, each player in a group plays with all the other members in their group exactly once. Two 2 from each group is selected for stage 2 based on their number of points. A player qualifying for stage II carries forward only those points that he gained stage I against the another player who qualifies for stage 2.

In stage II, total 8 players (2 from each group) advanced to stage II, where each player plays every other player except the player from same group. At the end of stage II, the top 4 players on the basis of points would qualify for the 3rd stage The Semi-Final stage.

Stage III: (Semi-Final), winners of the Semi-Final advanced to the final round and losers play for 3rd place.

The following more rules of tournament is as follows:

- (i) Points in stage I and stage II are awarded as follows:
winner 2 points, loser 0 points.
 - (ii) An ‘upset’ is caused when, in any match a lower seeded player beats a higher seeded player.
 - (iii) There is no ties at any stage.

Directions (Qs. 28-32): 8 teams namely A, B, C, D, E, F, G, H participated in a tournament. In 1st stage or qualifying stage these 8 teams are divided into 2 groups namely P and Q having 4 teams each. In qualifying match each team played 2 matches against each other in its own group. The rules are designed in such a way that there can not be a tie in any match. Top 2 teams from each group advanced to next stage that is semifinal, in each group, teams own a different number of matches i.e there is no tie in calculating rank of 4 teams in any group in 1st stage. In the 1st stage F lost both the matches against G, Number of matches won by A and G is the same and C won only 1 match and that is against D which is a team that lost maximum 1 match against other teams except 1 team. A won 1 match against top scorer of its group.

The teams who played semifinal round is B, F, G and H

28. Which one of the following is correct?

 - (a) B, H, A, E are in the same group
 - (b) B, H, C, E are in the same group
 - (c) F, G, C, A are in the same group
 - (d) F, G, D, A are in the same group

29. Which team won the 2nd highest number of matches in the 1st stage?

 - (a) B
 - (b) H
 - (c) G
 - (d) Cant be determined

30. Which team won the least number of matches?

 - (a) C
 - (b) D
 - (c) E
 - (d) A

31. A lost both the matches to which team.

 - (a) B
 - (b) H
 - (c) B and H
 - (d) None of these

32. If in semifinal round top scorer of one group played with 2nd scorer of another group and vice versa then which one of the following statement is correct?

 - (a) If F played with B in semifinal round then B lost only one match against H in stage 1

- (b) If G played with B in semifinal round then H lost both the matches against B in stage 1
 - (c) If F played with H in semifinal round then H lost 2 matches in stage 1
 - (d) None of these

Direction (Qs. 33-37): 16 players participated in world Chess Championship. These 16 players are seeded from seed 1 to seed 16 with seed 1 as the best rank. These 16 players are divided in two groups such that all the odd numbered seed are in group A and all the even numbered seed are in group B.

In each group each team plays with each other exactly once and no match ended in a tie. For a win winner awarded 2 points while looser 0 points. From each group top two players based on the points scored are advanced to the next stage i.e semifinal stage. In semifinal stage top scorer of one group plays with 2nd best scorer of the other group. Winners of the semi-final play for the final while losers play for the 3rd place.

An Upset is when a lower seeded player beat a higher seeded player.

In case of same number of points at the end of the 1st stage there is a complex tie breaker rule which is used to determine the rank.

Directions (Qs. 38-42): At MERI Kolkata students stay in different Sadans namely Bose, Diesel, Edison, Faraday, Marconi, and Rankin. Students who stay in these sadans represent their sadan in Foot Ball tournament. 1st stage of the tournament is conducted in 5 days from Monday to Friday such that everyday each team played exactly 1 match. As per the rule 3 points are awarded for a win, 0 for a loss and each team gets 1 point for a tie. On Wednesday evening due to some un avoidable reason tournament is postponed. When Officer In charge sports Mr. A B Halder asked the update of tournament he got the following information.

Directions (Qs. 43-47): Seven players Ahaskar, Bhanu, Chandan, Dripto, Eshan, Faisal and Gaurav participate in a Carrom tournament in which each player plays exactly once against each of the other six players. The tournament was held on three stages such that an equal number of matches is played on all the three stages. As per the rules of the tournament winner will get 2 points and looser will get 0 point while none of the matches ends in a draw. Points scored by all the players is distinct.

Further known about the tournament is:

Stage 1

- Gaurav loses to Bhanu but wins against Ahaskar and Chandan.
 - Dripto wins against Chandan and Eshan.
 - Faisal loses to Ahaskar and Bhanu.

Stage 2

- Faisal loses to Chandan, Dripto, Eshan and Gaurav.
 - Only one player, wins more than one match in stage 2.
 - Chandan won at most 1 match in this stage

Stage 3

- Bhanu wins against Chandan, Dripto and Eshan.
 - Eshan loses to Ahaskar and Chandan.
 - Gaurav wins exactly two matches in this stage.

Answer with Solution

Concept Applicator

Assuming there is no upset					
Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
1- 64	1-16	1-16	1-8	1-4	1-2
2-63	2-15	2-15	2-7	2-3	
3-62	3-14	3-14	3-6		
		4-13	4-5		
		5-12			
		6-11			
		7-10			
31-34	15-16	8-9			
32-33	16-17				

1. (b) Since $64 = 2^6$ hence we will have total 7th stages in the tournament with last 7th stage is the final match.
2. (a) Total number of matches is $32 + 16 + 8 + 4 + 2 + 1 = 63$
Or else since total number of players is 64 hence number of matches must be $64-1 = 63$
3. (c) Seed 9 played with seed 56 in stage 1, with seed 24 in stage 2, But seed 11 can reach the final if he beats seeds 6, 3 and 2 in stage 3 4 and 5 respectively.
4. (a) If all the matches in stage 1 is an upset except the last match where seed 32 won, then in stage 2 seed 32 is the highest seeded player who can win the tournament without causing an upset.
5. (d) From the solution of previous question we have seen that seed 32 can win the tournament without causing an upset by him. So seed 15 can also win the tournament without causing an upset by him.

	A	B	C	D	E	F	G	H	
A	XXXX	W	W	L	W	L	L	L	3
B	L	XXXX	L	W	W	W	L	L	3
C	L	W	XXXX	W	L	L	L	L	2
D	W	L	L	XXXX	W	L	W	L	3
E	L	L	W	L	XXXX	L	W	L	2
F	W	L	W	W	W	XXXX	L	L	4
G	W	W	W	L	L	W	XXXX	L	4
H	W	W	W	W	W	W	W	XXXX	7

6. (c) From the table F won 4 matches.
7. (c) From the table G lost 4 matches.
8. (b) From the table E won against C and G
9. (d) C and E won 2 matches.
10. (a) 2 teams won 2 matches each

Concept Builder

Let us represent 8 players as R1, R2 etc then result would be as follows-

	R1	R2	R3	R4	R5	R6	R7	R8
R1	XXXX	W	W	W	W	W	L	L
R2	L	XXXX	W	W	W	W	W	L
R3	L	L	XXXX	W	W	W	W	W
R4	L	L	L	XXXX			L	L
R5	L	L	L		XXXX		L	L
R6	L	L	L			XXXX	L	L
R7	W	L	L	W	W	W	XXXX	W
R8	W	W	L	W	W	W	L	XXXX

1. (b) For minimum number of matches lets take example of R4 he won 0 matches in stage 1 and 5 matches in stage II. So required minimum number is 5.
2. (c) from table option (c) is correct
3. (d) From the table any option can satisfy the given condition.
4. (a) No player can win 3 matches
5. (b) Minimum is 6 and maximum is 10 represented by option
6. (a) Number of matches in Stage 1 is $2(8C_2) = 2(7 \times 8/2) = 56$
Stage 2 will be a knockout tournament with 8 teams so in this stage number of matches will be 7.
Total number of matches is $56 + 7 = 63$
7. (b) In the 1st round in one group number of matches is $(7 \times 8/2) = 2$
8. Lets consider bottom 3 they will have 3 matches between them, so remaining $28 - 3 = 25$ matches have involvement of top 5 teams, if they won equal number of matches i.e 5 each then decision will be taken based on tie breaker rule, hence a team may be eliminated even after winning 5 matches.
9. (c) From the solution of previous question even after winning 5 matches a team can get eliminated so to be sure a team must win 6 matches.
10. (a) Consider top three team if they won maximum number of matches then points with them is $7 + 6 + 5 = 18$, remaining $28 - 18 = 10$ points can be distributed to bottom 5 teams, so even after getting 2 points or 2 wins a team can advanced to next stage by tie breaker rule.
11. (c) From the solution of previous question a team even with two wins can advanced to next stage where it has to play 3 matches so total number of matches is 5.

Concept Cracker

1. (d) From the given conditions we can form the table as follows:

	Karnataka	Punjab	Jharkhand	Gujrat	Initial Points	Minimum points	Maximum points
Karnataka	X	1	2	1	19	19	27
Punjab	1	X	2	1	29	29	37
Jharkhand	2	2	X	2	32	32	44
Gujrat	1	1	2	X	18	18	26

From the table we can conclude that Karnataka and Punjab have 1 match to play against each other. It is also given that A win can fetch 2 points, and a loss, 0 point.

The maximum points that Gujrat (with lowest point) = $18 + 5 \times 2 = 28$ and he may not be eliminated. Similarly there are certain conditions exist where every team has a chance to survive.

2. (d) Let total number of teams participated in tournament is $n + 10$

There are 10 teams in the bottom group then n teams in the top group. It is given that the bottom group gets 45 points since we have 1 point per match therefore 45 matches playing amongst themselves. Therefore they should get 45 points from their matches against the top group i.e., 45 out of the $10n$ points. The top group get nC_2 points from the matches among themselves. They also get $10n - 45$ points against the bottom group, which is half their total points.

Hence ${}^nC_2 = 10n - 45$ or $n(n + 1) = 20n - 90$ or $n^2 - 21n + 90 = 0$ hence $n = 6$ or 15

If $n = 6$, the top group would get ${}^nC_2 + 10n - 45 = {}^nC_2 + 10(6) - 45 = 30$ points, or an average of 5 points per team, while the bottom group would get $(45 + 45)/10$ or an average of 9. This is not possible. Hence $n = 15$. Then total number of teams is $10 + 15 = 25$.

3. (c) Each match has 4 points and each team plays 4 matches. Hence total number of points is 40

Paraguay wins all matches. So it scores $3 \times 4 = 12$ points.

Turkey loses all matches. So it scores $1 \times 4 = 4$ points.

16 points are scored by Turkey and Paraguay

The other teams score $40 - 16 = 24$ points

As all other teams score equal points, each team scores $24/3 = 8$ points

4. (d) The total score is 40 points. If each team scores equally, each team scores $40/5 = 8$ points

Solution for (5 to 9)

First Stage: There are two groups of 8 teams each.

In each group, each team plays with every other team and hence total number of matches are ${}^8C_2 = 8 \times 7/2 = 28$ matches

So, in both the groups the total number of matches played at the first stage are 28. And hence 56 matches are played in 1st stage

Second Stage: In this stage there are 8 teams playing in such a way that in one round 4 teams play with 4 other teams. 4 teams win and go to the next round. That is called knock out tournament. In the 1st round no of matches $8/2 = 4$, in the 2nd round no of matches = $4/2 = 2$, in the third or the last round number of match = $2/2 = 1$, so total no of matches in 2nd stage is $4 + 2 + 1 = 7$

Hence total match in the tournament = $56 + 7 = 63$

6. (d) From the given information we can complete the following table it is clear that if a team wins 5 games, then also there is no guarantee of its advancement to the next stage, since only 4 teams can go to the next stage.

Team	1	2	3	4	5
1	x	W	L	L	W
2	L	x	x	W	L
3	W	L	x	W	L
4	W	W	L	x	x
5	L	W	W	L	W
6	W	W	W	W	W
7	W	W	W	W	W
8	W	W	W	W	W

Note: In the table W → Wins, L → Loose, x → No match (as example there can not be match between 1& and 1, 2 and 2 and so on)

The above is one of such combination. Since after winning 5 matches too, there is no guarantee to advancement, so the answer must be 6, because no two teams can get 7 points each.

7. (a) The team which gets 1 point at 1st stage would be eliminated because the combination may be 6 points for the team and 2 times each for remaining. There are some more cases that supports the idea.
 8. (c) Since there are 8 teams and we know that $8 = 2^3$ hence there are 3 rounds in 2nd stage.
 9. (c) From the discussion above we can say that. It is possible that the winner will have the same number of wins in the entire tournament as a team eliminated

at the end of the first stage.

Concept Deviator

Lets see the table and try to understand the facts.

Teams	Games Played	Won	Drawn	Lost	Goals for	Goals against	Points
Germany	2	2	0	0	3	1	6
Argentina	2	2	0	0	2	0	6
Spain	2	1	0	1	5	2	3
Pakistan	2	1	0	1	2	1	3
New Zealand	2	0	0	2	1	6	0
South Africa	2	0	0	2	1	4	0

Here Goals for will denoted as G.F. and goals against as G.A.

From the goals for and goals against we can conclude that Germany has played a total of two games and has lost none, i.e., we can conclude that its two wins can be in one of the two combinations which can be given as Won 1-0/2-1 or Won 2-1/1-0 against two teams which are Spain and either Pakistan (PAK) or New Zealand (NZ) or South Africa (SA).

If Germany wins by 2-1 then Spain wins its other match by 4-0 or if 1-0 then Spain wins by 5-1 according to G.F/G.A. From the goals against only New Zealand and South Africa have greater than or equal to 4 goals.

Since South Africa has conceded 4 goals against itself hence it lost in both rounds. So we can conclude that that Spain played its second round against New Zealand and if this deduction is true then no other team can play NZ in round two.

Hence we can draw the following possibilities from the above deductions:

	Germany	Argentina	Spain	Pakistan	New Zealand	South Africa
Germany	XXXX	Draw R3	W R1 2-1 or 1-0			
Argentina		XXXX				
Spain	L R1 1-2 or 0-1		XXXX	D R3	W R2 5-1 or 4-0	
Pakistan			D R3	XXXX		
New Zealand			L R2 1-5 or 0-4		XXXX	D R3
South Africa					D R3	XXXX

In the above table W R1 represents Won in Round 1 and then goal difference is given.

Now not decided is

Germany: Round 2: vs. PAK/SA → won 2-1 or 1-0.

NZ: Round 1: vs. ARG/PAK → Lost 1-5/0-4.

But from goal for and goal against we can draw following conclusion-

PAK won round 1 by 2-0 and lost second by 0-1 (G.F/G.A. → 2/1). But NZ played Round 1 against PAK/ARG it could not have lost 1-2 (because if PAK had won 2-1 against NZ in Round 1, its second round would be a draw and Arg has conceded two goals so it cannot win against NZ by 2-1). Hence NZ won roundd. 1 against ARG by 0-1 and lost 2nd round by 1-5 against Spain.

Or we can make another table as-

Round 1	Germ-Spain (1-0)	Arg-NZ (1-0)	Pak-SA (92-0)
Round 2	Spain NZ (5-1)	Arg-Pak (1-0)	Germ-SA (2-1)
Round 3	Germ-Arg Draw	Spain-Pak Draw	Nez-SA Draw

According to the information for the fourth and fifth round matches following deductions can be made:

Germany-PAK, Loss (0-1) and NZ won (3-0)

Argentina-Spain, Loss by x goals and SA won by y goals.

Spain-Argentina, won by x goals and SA won by y goals.

PAK-Germany won (1-0) and NZ won (1-0)

NZ-Germany lost (0-3) and PAK lost (0-1)

SA-Argentina lost (0-3) and Spain lost by y goals.

Goal differences for the teams:

$$\text{Germany} + 1 + 1 + 0 - 1 + 3 = +4$$

$$\text{Argentina} + 1 + 1 + 0 - x + 3 = 5 - x = \text{Max. 4 or less.}$$

$$\text{Spain}-1 + 4 + 0 + x + y = 3 + x + y = \text{Min. 5 or more.}$$

$$\text{Pakistan} + 2 - 1 + 0 + 1 + 1 = +3$$

$$\text{New Zealand}-1-4 + 0 - 3 - y = -6 - y$$

So final situation is

	Germany	Argentina	Spain	Pakistan	New Zealand	South Africa
Germany	XXXX	Draw R3	W R1 1-0	L (0-1)	W (3-0)	W R2 2 -1
Argentina	Draw R3	XXXX		W R 2 1-0	W R1 1-0	W (3-0)
Spain	L R1 0-1		XXXX	D R3	W R2 5-1	
Pakistan	W (1-0)	L R2 0-1	D R3	XXXX	W (1-0)	W R1 2-0
New Zealand	L (0-3)	L R1 0-1	L R2 1-5	L (0-1)	XXXX	D R3
South Africa	L R2 1-2	L (0-3)		L R1 0-2	D R3	XXXX

Now from the table-

- 1 (b)
- 2 (d)
- 3 (c)
4. (d)

5. (d) 1st let us understand the concept of the tournament.

Round 1			Round 2			Round 3 (QF)			Round 4 (SF)		
Match	Seed	Sum	Match	Seed	Sum	Match	Seed	Sum	Match	Seed	Sum
1	1 + 32	33	1	1 + 16	17	1	1 + 8	9	1	1 + 4	5
2	2 + 31	33	2	2 + 15	17	2	2 + 7	9	2	2 + 3	5
3	3 + 30	33	3	3 + 14	17	3	3 + 6	9			
						4	4 + 5	9			
15	15 + 18	33	7	7 + 10	17						
16	16 + 17	33	8	8 + 9	17						

Try to understand the table, in the 1st round the sum of seed is always 33, the same for round 2 is 17 and so on considering there is no upset.

Lindsay Davenport (Seed 2) was scheduled to meet seed 7, i.e., Justine Henin in the quarter finals. But in the second round since match 7 - involving seed 7 (Justine Henin) and seed 10 (Venus Williams) - resulted in an upset and Venus Williams won the game, hence Davenport will meet Venus Williams in the quarter finals.

6. (c) Maria Sharapova, seed 1, would meet the winner of the match between seed 8 and seed 9, but it is given that Serena Williams, seed 8 lost against seed 9 Nadia Petrovain the second round. Hence Nadia Petrova (seed 9).
7. (a) All odd numbered seeds up to 15 reach the 2nd round while instead of seeds 2 to 16 the players who reach the second round are seeds 31, 29, 27, 25, 23, 21, 19 and 17.

The second round matches are between seeds 1-17, 31-15, 3-19, 29-13, 5-21, 27-11, 7-23 and 25-9. Since there are no upsets in that round the winners are seeds 1, 15, 3, 13, 5, 11, 7 and 9.

The quarter final line up would be

1-9, 15-7, 3-11 and 13-5.

If seed 13 wins her match in the quarters she will next meet seed 1, i.e. Marie Sharapova in semifinals.

8. (c) If the top eight seeds make it to quarterfinals, then from the table we can find that Sharapova being top seed will meet seed 8 in the quarterfinals, and in the semifinals she will meet the winner of the match between seeds 4 and 5. So she will not meet seeds 4, 5 or 8 in the finals.

We can sum up the given information as below:

- (ii) No team plays against the same team more than once
 (iv) No ties permitted.

As per the information given for stage I, we can conclude and draw the table that

- (a) As B lost at least one match, hence A won all the 3 matches.
- (b) The two teams who lost all the matches cannot be A (as it won all 3 matches), cannot be B (since it is given that E lost to B), cannot be D (since D won against C & F). Hence, the two teams must be C and F.
- (c) F did not play against the top team (i.e. A).

We can tabulate all the information as

	A	B	C	D	E	F
A	X	W	W	W		
B	L	X			W	W
C	L		X	L	L	
D	L		W	X		W
E		L	W		X	W
F		L		L	L	X

In the above table a blank space means there was no match in this stage (i.e. there was no match between A and E in this stage), Result of a match for a team is shown in its row,

- (d) A lost both its matches against E and F.
- (e) F won against A, hence is the bottom team (out of C and F) which won both the matches F won against C as well. This also means that C lost both its matches against B and F.
- (f) Apart from A and C, one more team lost both the matches in Stage-II. That team can neither be E (since A lost to E), nor B (since C lost to B), nor F (as F won both its matches). Hence, the team must be D.

Now we can complete the table for Stage-II.

	A	B	C	D	E	F
A	X				L	L
B		X	W	W		
C		L	X			L
D		L		X	L	
E	W			W	X	
F	W		W			X

Hence we can answer the questions now-

9. (e)
10. (b)
11. (d)
12. (e)

Solutions for 13-17 :

In stage I, in a group in total 6 matches and that will have 12 points in total. Total number of matches in this stage is $4 \times 6 = 24$

In stage II, total 8 players and they play each other except a player who comes from same group but point of their match in stage I is carried forward hence in stage II total points is $28 \times 2 = 56$.

Number of matches in stage II is $7 \times 8/2 - 4 = 24$

13. (a) In this case we have to minimize the points scored by 4th ranker (Who advanced to Semi Final). In order to minimize the points scored by Ricky Singh top three players should get maximum points. Let points achieved by top three player at the end of stage II is 14, 12 and 10 summing up to $14 + 12 + 10 = 36$ and remaining points $56 - 36 = 20$ got distributed to bottom 5 players.

To minimize the points scored by Ricky Singh, all of the bottom five got same point ($20/5 = 4$ points) and with complex tie breaker Ricky is advanced to Semifinal.

From the given information we can draw following table.

	Amit	Bhanu	Chandra	Dripto	Eshan	Firoz	Gandhi	Hemant	
Amit	X			W					7
Bhanu		X		L		W			
Chandra			X		L			W	2
Dripto	L	W		X					
Eshan			W		X		L		
Firoz		L				X		L	0
Gandhi					W		X		
Hemant			L			W		X	

14. (c) In stage 2 total points are 56.

Consider bottom 3 players, they must play three matches among themselves and hence they have minimum 6 points with them,

Remaining points $56 - 6 = 50$ if equally divided between top 5 then one would get 10 points, so to guarantee a seat in semifinal Ricky Singh has to score 12 points.

15. (d) Total number of matches are as follows:

Stage I: 24

Stage II: 24

And required ratio is 1:1

16. (c) Total number of matches are as follows-

Stage I: 24

Stage II: 24

Semifinal: 2

For 3rd place (Looser of semi final): 1

Final: 1

Total number of matches is 52 and hence total number of points is $52 \times 2 = 104$

17. (b) In stage 1 a player has to win minimum 1 match to advance to the next stage.

Now consider the different groups,

South Kolkata: 1, 8, 9, 16 [seed 9 can advance after beating seed 16 without an upset]

North Kolkata: 2, 7, 10, 15 [seed 10 can advance after beating seed 15 without an upset]

Central Kolkata: 3, 6, 11, 14 [seed 11 can advance after beating seed 14 without an upset]

Saltlake: 4, 5, 12, 13 [seed 12 can advance after beating seed 113 without an upset]

So seed 12 is the lowest seed who can advance to stage II without causing Upset in stage I, and can win the tournament [Please note here that in stage II or semifinal there may be an Upset]

Since each player got different points hence points that they got must be 7, 6, 5, 4, 3, 2, 1, and 0.

That means 1 student won all the matches while 1 student lost all the matches, the student who won all the matches must be Amit as rest all lost at least 1 match, while Firoz lost all the matches,

Since Eshan got either 5, 6 or 7 points but he already lost against Amit and Gandhi so he won 5 points.

Similarly Gandhi got 6 points

	Amit	Bhanu	Chandra	Dripto	Eshan	Firoz	Gandhi	Hemant	
Amit	X	W	W	W	W	W	W	W	7
Bhanu	L	X	W	L	L	W	L	W	3
Chandra	L	L	X	L	L	W	L	W	2
Dripto	L	W	W	X	L	W	L	W	4
Eshan	L	W	W	W	X	W	L	W	5
Firoz	L	L	L	L	I	X	I	L	0
Gandhi	L	W	W	W	W	W	X	W	6
Hemant	L	L	L	L	L	W	L	X	1

18. (a) Amit own maximum number of matches.

19. (c) Firozown least number of matches.

20. (c)

21. (b)

22. (b)

Total number of matches in stage 1 is $2(7 \times 8/2) = 56$

23. (b) If a player eliminated in 1st stage even after scoring maximum possible point then it is possible when top 5 has same point and Rajesh got eliminated with tie breaker rule. In this case bottom three got points because of matches between them.

Out of 56 matches there are 6 matches played among bottom three hence total points in remaining $56 - 6 = 50$ matches is $50 \times 3 = 150$ that is equally divided among top 5 players equally i.e 30 points each, So Rajesh can not get advanced even after getting 30 points.

24. (c) In this case top 3 players should get maximum possible points and remaining 5 should get equal points and Rajesh got advanced with tie breaker rule.

Bottom 5 players have in total $4 \times 5 = 20$ matches and each match will fetch minimum possible points when its result is tie. So minimum point in 20 matches is $20 \times 2 = 40$ when distributed equally to bottom 5 each of them will get $40/5 = 8$ points.

25. (a) Since total number of matches in the stage 1 is 56 and for minimum value let us assume that all the matches end with a tie, so total points is $56 \times 2 = 112$ and it is distributed equally among 8 players i.e each player would get $112/8 = 14$ points.

Let minimum number of matches that gave result is k then since each indecisive match give us 2 points but decisive match will give us 3 points hence total k decisive matches will increase the total number of points to $56 + k$

Here we have assumed that all the matches are draw and now if we change the result of one match then that will increase the total point of winner by 2 and decrease the total point of looser by 1.

1. win and 1 loss will increase total point of a player by 1.

2. win will increase total point of a player by 4

2. win and 1 loss will increase total points of a player by 3

3 win will increase total point of a player by 6

3 win and 1 loss will increase total points of a player by 5

For minimum points scored by the highest scorer, their points should be as follows-

Player 1: $14 + 5 = 19$ (3 win and 1 loss)

Player 2: $14 + 4 = 18$ (2 win)

Player 3: $14 + 3 = 17$ (2 win and 1 loss)

Player 4: $14 + 2 = 16$ (1 win)

Player 5: 14 (no change)

Player 6: $14 - 1 = 13$ (1 loss)

Player 7: $14 - 2 = 12$ (2 loss)

Player 8: $14 - 3 = 11$ (1 loss)

So highest point of highest scorer is 19

26. (d) From solution of previous question maximum points scored by lowest scorer is 11

27. (b) From solution of previous question number of decisive matches is 8 then indecisive matches is $56 - 8 = 48$ and required ratio is 6;1

Lets sum up the information,

The teams who played semifinal round is B, F, G and H
Given that F lost both the matches to G i.e F and G is in the same group, then B and H is in the same group.

Since number of matches won by A and G is same hence they must belong to two different groups, and C won only 1 match against D hence they must be in the same group.
So we can divide the group now-

Group 1: F, G, C, D

Group 2: B, H, A, E

In one group number of matches is $2(3 \times 4/2) = 12$ since each team won a different number of matches and total number of matches is 12 so we have following possibilities for number of matches won by 4 teams-

Case (i) 6, 4, 2, 0

Case (ii) 6, 3, 2, 1

Case (iii) 5, 4, 2, 1

Case (iv) 5, 4, 3, 0

Since number of matches won by A and G is the same but then also A eliminated so only possibility is case (ii) and (iv) and they won 3 matches.

Lets sum up the conclusion till now

Group 1: F, G, C, D and their points F = 6, G = 3, C = 1 and D = 2

Group 2: B, H, A, E and their points B and H 5 and 4 in any order and A = 3, E = 0

Now lets draw the table for Group 1

	F	G	C	D	
F	X	WW	WW	WW	6
G	LL	X	WW	WL	3
C	LL	LL	X	WL	1
D	LL	LW	LW	X	2

Now lets draw the table for Group 2

	B/H	H/B	A	E	
B/H	X	WW	LW	WW	5
H/B	LL	X	WW	WW	4
A	WL	LL	X	WW	3
E	LL	LL	LL	X	0

28. (a) option (a) is correct
29. (d) 2nd Highest is either B or H so cant determine.
30. (c) E lost the maximum number of matches.
31. (d) A lost both the matches to B or H not B and H hence option C is incorrect.

32. (b)
 33. (b) Number of matches in stage 1 is $2(7 \times 8/2) = 56$, at semifinal stage we have 3 matches (2 semifinal and 1 match for 3rd place) and 1 final match, hence total number of matches is $56 + 3 + 1 = 60$
 34. (a) Seed 9 will play with seed, 1, 3, 5, 7, 11, 13, and 15 without an upset seed 9 can win with seed 11, 13, and 15, for minimum number of upset let seed 1 won all the matches and seed 9 won against seed 3 and 5, in that case number of wins of seed 3 and 9 is 5 but with tie breaker rule seed 9 will advance to the next stage.
 35. (d) Total number of matches is 60 and out of those more than 45 matches are upset. But seed 1 need only 9 matches to win the tournament hence seed 1 may win the tournament.
 36. (b) Total number of matches in the 1st stage is $4 \times 7 = 28$, lets consider group 1 here if seed 1 won all the matches then remaining 21 matches or points can be equally distributed to 7 player (3 points each) and the lowest possible player would advance to next stage with tie breaker rule. In this stage seed 13 can get 3 points after 2 upsets caused by him. So from this group seed 1 and 13 would advance to the next stage. Similarly from 2nd group seed 2 and 14 would advance to the next stage.
Now as per the rule seed 1 will play with seed 14 and seed 2 will play with seed 13,
If seed 13 and 4 meet in the tournament then seed 13 will win with 3 upset.
 37. (a) Here only problem is stage 1, so a player has to qualify for semifinal without any upset. In previous question we have seen that with 3 points/win a team can advanced to next stage.
- Consider group 1:** Here players are seeded 1, 3, 5, 15. The player who can win 3 matches without an upset is seed 9.
- Consider group 2:** same as previous case seed 10 can advanced to next stage without causing an upset.
So seed 10 is the answer.
- Consider 1 such case semifinal round Group 1: seed 13 and 15
Group 2: seed 2 and 10
Final match: seed 10 and 15

Since total number of goals scored and goals against is same hence we can find goals against Marconi which is $(11 + 9 + 5 + 1 + 7 + 4) - (5 + 9 + 7 + 4 + 5) = 37 - 30 = 7$. Since Bose sadan scored 11 goals while goals against is 5 it is possible when all the matches are won with (3-1) (4-2) and (4-2)

Since Marconi got 4 points which is possible with 1 win (3 points) 1 draw (1 point) and 1 loss (0 point)

Similarly Rankin got 3 points and also Goals for is 4 and against is 5 so all three matches can not end with draw (It is when goals for is equal to goals against) so 3 points is possible with 1 win and 2 loss.

Faraday scored only 1 goal, goal against is 4 and won 1 match it is possible only when he won by (1-0) and lost two matches with (0-2) each[as with the combination (0-1) and (0-3) is not possible since (0-3) goal difference is 3]

Since Edison won on Wednesday with (2-0) and total goals for is 5 while against is 7, so in other two game it lost with (2-4) and (1-3)

Draw is caused only with Diesel and Marconi hence they must have played with each other and the match was tie.

On Monday Diesel played with Bose, on Tuesday Diesel played with Edison while on Wednesday Diesel played with Marconi.

On Wednesday Bose must have played with Marconi

Faraday played against Edison on Wednesday and lost with (0-2)

Marconi played against Faraday on Monday while against Bose on Tuesday.

Since Rankin scored 4 goals and conceded 5 goals result of Bose and Rankin (3-1) similarly result of Rankin and Edison (3 – 1)

Now we can conclude that Bose sadan won against Diesel and Marconi with (4-2) and (4-2)

Diesel won against Edison with (4-2)

So matches on Monday::,

So final result

Monday	Bose and Diesel (4-2)	Marconi and Faraday (2-0)	Edison and Rankin (1-3)
Tuesday	Bose and Marconi (4-2)	Diesel and Edison (4-2)	Faraday and Rankin (1-0)
Wednesday	Bose and Rankin (3-1)	Diesel and Marconi (3-3)	Edison and Faraday (2-0)

Number of points are as follows: Bose ($3 + 3 + 3 = 9$), Diesel ($0 + 3 + 1 = 4$), Edison ($0 + 0 + 3 = 3$), Faraday ($0 + 3 + 0 = 3$), Marconi ($3 + 0 + 1 = 4$), and Rankin ($3 + 0 + 0 = 3$)

38. (b) Total number of matches is 9, out these 9 matches, the matches that end with goal difference of 2 is Monday: all the three matches, Tuesday 2 matches and Wednesday 2 matches so required percentage is $7 \times 100/9 = 77.77\%$

39. (c) Out of 9 matches only 1 match end up with tie so total number of points is $8 \times 3 + 2 = 26$

40. (a) From the table Diesel team won against Edison.

41. (d) Since total number of points is 26 so number of points more than 2.6 but less than 5.2 is (i.e points 3, 4, 5) 5.

42. (b) The new condition would be:

Monday	Bose and Diesel (2-4)	Marconi and Faraday (0-2)	Edison and Rankin (3-1)
Tuesday	Bose and Marconi (2-4)	Diesel and Edison (2-4)	Faraday and Rankin (0-1)
Wednesday	Bose and Rankin (1-3)	Diesel and Marconi (3-3)	Edison and Faraday (0-2)

Initially total number of goals made by the teams are Bose (11), Diesel (9), Edison (= 5), Faraday (= 1), Marconi (= 7), and Rankin (= 4)

Now total number of goals made by the teams are Bose (5), Diesel (9), Edison (7), Faraday (4), Marconi (7), and Rankin (5)

So only Diesel and Marconi have the same number of goals.

Total number of matches is 21 when divided in 3 stages we will get 7 matches in one stage.

	Ahaskar	Bhanu	Chandan	Dripto	Eshan	Faisal	Gaurav	
Ahaskar	XXXXX	L2	W2	L2 /W2	W3	W1	L1	3 or 4
Bhanu	W2	XXXXX	W3	W3	W3	W1	W1	6
Chandan	L2	L3	XXXXX	L1	W3	W2	L1	2
Dripto	W2/L2	L3	W1	XXXXX	W1	W2	L3	4 or 3
Eshan	L3	L3	L3	L1	XXXXX	W2	L3	1
Faisal	L1	L1	L2	L2	L2	XXXXX	L2	0
Gaurav	W1	L1	W1	W3	W3	W2	XXXXX	5

43. (b)
 44. (a) he needs 6 wins
 45. (d) it can be 3 and 4
 46. (b) The new result will be as follows

	Ahaskar	Bhanu	Chandan	Dripto	Eshan	Faisal	Gaurav	
Ahaskar	XXXXX	W2	L2	L2 /W2	W3	W1	L1	3 or 4
Bhanu	L2	XXXXX	W3	W3	W3	W1	W1	5
Chandan	W2	L3	XXXXX	L1	W3	L2	L1	2
Dripto	W2/L2	L3	W1	XXXXX	W1	L2	L3	2 or 3
Eshan	L3	L3	L3	L1	XXXXX	L2	L3	0
Faisal	L1	L1	W2	W2	W2	XXXXX	W2	4
Gaurav	W1	L1	W1	W3	W3	L2	XXXXX	4

47. (a) From the table of previous question Ahaskar, Faisal and Gaurav won 4 matches then Dripto won only 2 matches.

Chapter

21

Logical Connectivity

Section	Level	No. of Questions
Concept Applicator	Very Easy	10
Concept Builder	Easy	10
Concept Cracker	Moderate	4
Concept Deviator	Difficult	16

INTRODUCTION

Questions based on logical statements and logical connectives has a wide scope and questions related to these concepts are very frequent in different aptitude test exams. These questions can be handled easily if basic funda is clear.

Logical connectives is a statement which states that an event depends on another event. The name ‘logical’ is derived from the fact that the occurrence of the second event depends only on the occurrence or non-occurrence of the first means these two statements are logically connected.

In these type of logical connectivity situations, we deal with statements that are essentially sentences in the English language. However, in logic we are not interested about the factual correctness of the sentence. We have to only check the logical ‘truthfulness’ the statements.

There are different types of questions we will see each type one by one

Type 1: “If X the Y” or “Y if X” or “When X then Y” or “Whenever X then Y”

This statement implies that:

- (i) If event X has occurred then event Y has to occur. ($X \rightarrow Y$)
- (ii) If event Y has not occur then Even X has not occur. ($\sim Y \rightarrow \sim X$)
- (iii) If event Y has occurred then event X may or may not occur. (No definite conclusion)

Type 2: “Y only if X”

This statement implies that:

- (i) If event Y has occurred then event X has to occur. ($Y \rightarrow X$)
- (ii) If event X has not occur then event Y has not occur. ($\sim X \rightarrow \sim Y$)
- (iii) If event X has occurred then event Y may or may not occur. (No definite conclusion)

Type 3: “Unless X, Y” or “Y unless X” or “X otherwise Y” or “ Either X or Y”

This statement implies that:

- (i) If event X has not occur then Even Y has to occur. ($\sim X \rightarrow Y$)
- (ii) If event Y has not occur then Event X has to occur. ($\sim Y \rightarrow X$)
- (iii) If event X has occurred then event Y may or may not occur. (No definite conclusion)
- (iv) If event Y has occurred then event X may or may not occur. (No definite conclusion)

COMPOUND STATEMENT

Type 1: "If X then Y and Z"

This statement implies that:

- (i) $(X \rightarrow Y \text{ and } Z)$
- (ii) $(\sim Y \text{ or/and } \sim Z \rightarrow \sim X)$

Type 2: "If X then Y or Z" or "Whenever X then Y or Z"

This statement implies that:

- (i) $(X \rightarrow Y \text{ or } Z)$
- (ii) $(\sim Y \text{ and } \sim Z \rightarrow \sim X)$
- (iii) $(X \text{ and } \sim Y \rightarrow Z)$
- (iv) $(X \text{ and } \sim Z \rightarrow Y)$

Type 3: "Unless X, Y and Z" or " Either X or Y and Z"

This statement implies that:

- (i) $(\sim X \rightarrow Y \text{ or } Z)$
- (ii) $(\sim Y \text{ or/and } \sim Z \rightarrow X)$

Type 4: "Only if X then Y and Z"

This statement implies that:

- (i) $(Y \text{ and } Z \rightarrow X)$
- (ii) $(\sim X \rightarrow \sim Y \text{ and /or } \sim Z)$

1. CONCEPT APPLICATOR

2. CONCEPT BUILDER

Directions (Qs. 1–5): In each of the following sentences, the main statement is followed by four sentences each. Select a pair of sentences that relate logically to the given statement.

Select the pair of sentences that relates logically to the given statement.

3. CONCEPT CRACKER

Directions (Qs. 1–4): Each question has a main statement followed by four statements labelled A, B, C and D. Choose the ordered pair of statements where the first statement implies the second, and the two statements are logically consistent with the main statement.

1. Either the orangutan is not angry, or he frowns upon the world.
 - A. The orangutan frowns upon the world.
 - B. The orangutan is not angry.
 - C. The orangutan does not frown upon the world.
 - D. The orangutan is angry.
 - (a) CB only
 - (b) DA only
 - (c) AB only
 - (d) CB and DA
 2. Either Ravana is a demon, or he is a hero.
 - A. Ravana is a hero.
 - B. Ravana is a demon.
 - C. Ravana is not a demon.
 - D. Ravana is not a hero.
 - (a) CD only
 - (b) BA only
 - (c) CD and BA
 - (d) DB and CA

4. CONCEPT DEVIATOR

Directions (Qs. 1–4):

Each question consists of a set of numbered statements. Assume that each one of these statements is individually true. Each of the four choices consists of a subset of these statements. Choose the subset as your answer where the statements therein are logically consistent among themselves:

1. A. Only if the water level in the coastal areas rises, then the people change their lifestyle.
B. People change their lifestyle only if they are rewarded.
C. If people are rewarded, then they will not change their lifestyle.
D. If the temperature rises, then the water level in the coastal areas rises.
E. Whenever the water level in the coastal area rises, then the temperature rises.

- F. Unless the people change their lifestyle, temperature rises.

G. People are rewarded.

H. Water level in the coastal areas does not rise.

(a) C, D, F, G and H (b) G, F, D, B and H

(c) E, F, G, H and B (d) None of the above

2. A. If Kumar sings, then the audiences sleep.

B. If Kumar sings, then the audiences dance.

C. Unless audience do not dance, the concert will be successful.

D. Only if the audience dance, the concert will be successful.

E. If Vina dances, then Kumar sings.

F. Kumar sings only if Vina dances.

G. Vina dances

H. The concert is successful.

(a) C, F, G, B and H (b) A, C, F, G and H

(c) E, C, G, B and H (d) Both (2) and (3)

3. Manisha will eat the orange if Rajesh does not cook.

Based on the information above which of the following must be true

- (a) Manisha will not eat the orange if Rajesh cooks.
- (b) If Manisha did not eat the orange, then Rajesh did cook.
- (c) If Manisha ate the orange, then Rajesh did not cook.
- (d) If Rajesh does not cook, Manisha will eat the orange

4. Look at the sentences given below

- (i) If the contract is valid, then X is liable.
- (ii) If X is liable, he will be bankrupt.
- (iii) If the bank loans him money, he will not go bankrupt.

Select the statement that is consistent with the above statements

- (a) The contract is valid and the bank will loan him money.
- (b) The contract is valid and the bank will not loan him money.
- (c) The contract is not valid and he will go bankrupt.
- (d) The contract is not valid and he is liable.

Direction (Qs. 5–9): If all the three statements, marked (i), (ii) and (iii) are true, then which one of the following deductions, marked (1), (2), (3) and (4) can be MOST LOGICALLY deduced:

5. (i) Whenever milk is kept in front of a child, he/she starts crying.
 (ii) Children cry if they are hungry.
 (iii) Unhappy children are hungry.
 (a) When hungry, a child likes milk.
 (b) A child crying means he/she is unhappy.
 (c) A happy child does not cry.
 (d) An unhappy child usually cries.
6. (i) Whenever there is a fire, the fire alarm goes off
 (ii) If the sprinklers do not start, the fire alarm does not go off.
 (iii) If the sprinklers start, an automatic alarm is set off at the fire department.
 (a) If an automatic alarm is set off at the fire department, that means there must be a fire.
 (b) If the sprinklers do not start, the automatic alarm at the fire department is not set off.
 (c) Whenever there is a fire, an automatic alarm is set off in the fire department.
 (d) If there is no fire, no automatic alarm is set off in the fire department.

7. (i) Doing well in CAT implies doing well in JMET.
 (ii) Good JMET results ensure that you get into one of the IITs or IISc.
 (iii) Poor CAT results do not get you an admission into any of the IIMs.
 (a) Doing poorly in CAT always implies doing poorly in JMET.
 (b) Good CAT result ensures that one gets an admission into the IIMs.
 (c) Admissions to the IITs or IISc may mean that one has done well in CAT.
 (d) Anyone getting admission in one of the IIMs is guaranteed to get admission in one of the IITs or IISc.

8. In all family photos, if Geeta is present, her two sisters are also present. A certain photo features five members of his family. Among the people in that photo are Geeta's parents with their son. Which of these statements is necessarily true?
 (a) Geeta is present in the photo
 (b) Geeta is absent from the photo
 (c) Geeta may or may not be present in the photo
 (d) The two sisters of Geeta are present in the photo

9. If a student sees a teacher in the class he would not sleep in the class. One day, a student does not see a teacher in the class. Which of the following statements is true?
 (a) The student will sleep in the class.
 (b) The student will not sleep in the class.
 (c) Can not conclude anything.
 (d) None of these

Direction (Qs. 10–16):

Compound Statement:

Type 1: “If X then Y and Z”

This statement implies that:

- (i) $(X \rightarrow Y \text{ and } Z)$
- (ii) $(\sim Y \text{ or/and } \sim Z \rightarrow \sim X)$

Type 2: “If X then Y or Z” or “Whenever X then Y or Z”

This statement implies that:

- (i) $(X \rightarrow Y \text{ or } Z)$
- (ii) $(\sim Y \text{ and } \sim Z \rightarrow \sim X)$
- (iii) $(X \text{ and } \sim Y \rightarrow Z)$
- (iv) $(X \text{ and } \sim Z \rightarrow Y)$

Type 3: “Unless X, Y and Z” or “Either X or Y and Z”

This statement implies that:

(i) $(\sim X \rightarrow Y \text{ or } Z)$

(ii) $(\sim Y \text{ or/and } \sim Z \rightarrow X)$

Type 4: "Only if X then Y and Z"

This statement implies that:

(i) $(Y \text{ and } Z \rightarrow X)$

(ii) $(\sim X \rightarrow \sim Y \text{ and/or } \sim Z)$

Each question consists of a main statement followed by 4 statements in the answer options. From the given options select the one that logically follow the main statement.

10. Only if it is a national holiday, Pioneer career is not open and employee enjoy together.

(a) Today is not a national holiday it implies that Pioneer career is not open and employee enjoy together.

(b) Employees are not enjoying together and Pioneer Career is open that implies it is not a national holiday.

(c) Today is not a national holiday it implies that Pioneer career is open or employee enjoy together.

(d) None of these

11. If it is not raining then I will not walk slow but I will walk at least 4 km.

(a) If it is raining then I will walk slow but will not walk 4 km.

(b) If it is raining then I will not walk slow but will not walk 4km.

(c) If I am walking slow or not walking for 4 kms then it is raining.

(d) None of these

12. If Ricky singh is not at Pioneer Career then he is at his sleeping or watching movie.

(a) Ricky Singh is not sleeping and not watching movie implies that he is at Pioneer Career.

(b) Ricky Singh is not sleeping or not watching movie implies that he is at Pioneer Career.

(c) Ricky Singh is at Pioneer Career it implies that he is not sleeping but watching movie.

(d) None of these

13. Unless students are agree, the class will continue and Institute will remain open.

(a) Students are agree it implies that either class will not continue or institute will not close.

(b) The class will not continue or the institute is closed implies that students are agree.

(c) Students are not agree and the class will not continue implies that institute will remain closed.

(d) None of these

14. If you study then you will pass the exam and will get a good girlfriend.

(a) You did not study then you will not pass the exam or will not get a good girlfriend.

(b) You did not pass the exam and did not get a good girlfriend implies that you did not study.

(c) You passed the exam and also got a good girlfriend implies that you have studied.

(d) None of these

15. If it is a holiday then Suvrojyoti will play cricket or will watch movie.

(a) It is not a holiday then Suvrojyoti will not play cricket and will not watch movie.

(b) If it is a holiday and Suvrojyoti is not playing cricket then he will watch movie.

(c) It is a holiday then Suvrojyoti will not play cricket and will not watch movie.

(d) None of these

16. Unless teacher is agree, the class will continue and there will be a test.

(a) Teacher is agree it implies that either class will not continue or there will not be a test.

(b) The class will not continue or there is a test implies that teacher is agree.

(c) Teacher is not agree and the class will not continue implies that there will be a test.

(d) None of these

Answer with Solution

Concept Applicator

1. (b) Let X the event that Rajesh studies for the exam. and Y the event that Rajesh passes the exam. We have been given the information that $X \rightarrow Y$. Thus $\sim Y \sim X$. means if Ram failed the exam, he did not study for it.

2. (a) The given statement is: Whenever I go in sun I feel headache. Here let us assume that X is "I go in sun" and Y is "I have headache". Then situation is "Whenever X then Y" and implications in this is $(X \rightarrow Y)$ and $(\sim Y \rightarrow \sim X)$, now lets check options one by one

Option (a) I went in sun so I have headache now. $(X \rightarrow Y)$ its right conclusion.

Option (b) I didn't go in sun so I don't have headache now. $(\sim X \rightarrow Y)$ it can not be concluded

Option (c) I m feeling headache that means I went in sun. $(Y \rightarrow X)$, it can not be concluded.

3. (c) It is the case of "Either X or Y" hence $(\sim X \rightarrow Y)$ and $(\sim Y \rightarrow X)$ hence option (C) is correct.

4. (b) The conclusion can be: The teacher gives break means Students are exhausted (as given in i and iv) Students are not exhausted hence teacher will not give a break (as given in ii and iii)

5. (a) This is the case of either X or Y the conclusion should be:

CAT is not tough (means Easy) then IIT JEE is Easy [as given in ii and iii]

IIT JEE is tough then CAT is tough [as given in iv and i]

6. (b) This is the case of "unless X, Y" so in this case negation of one statement will be followed by other statement.

7. (d) correct combination is (i) and (iii) and also (iv) and (ii)

8. (c) The correct conclusion should be:
Susmit is sad that means he met with his girlfriend [ii and iii]
Susmit didn't meet his girlfriend so he must be happy [iv and i]

9. (b) It is the case of "Unless X, Y" the conclusion is: Boss is not present means employees don't work. [ii and iv]
Employee work means boss is present. [iii and i]

10. (c) This is the case of If X then Y the conclusion should be:
You don't saved money means you will not get reward. [ii and iv]
You got reward means you saved money. [iii and i]

Concept Builder

1. (b) Sam is not drunk, so he must be ill.
 2. (c) As Ram did not lose sleep, means he did not hear of the tragedy.
 3. (d) The train is not late, so it must have derailed.
 4. (a) I did not have a nightmare, so I must not have read a horror story.
 5. (b) I did not get rashes which means I did not eat berries.
 6. (b) If Sita is not sick, means she is careless.
 7. (d) Ram does not eat hamburgers, means he does not get a swollen nose.
 8. (b) If the employees have confidence in the management, it follows that they are hostile.
 9. (d) None of the given options relates logically to the given statements.
 10. (a) As all irresponsible parents do not shout, it follows that the children cavort.

Concept Cracker

1. (d) It is an example of either a or b type:
Consider CB it implies $\neg b \rightarrow a$ that is logically correct.
DA- it implies $\neg a \rightarrow b$ that is also logically correct.
AB it implies $\neg a \rightarrow \neg b$ that is logically incorrect.
Hence both CB and DA are correct.
2. (d) It is an example of either a or b type:
CD $a \rightarrow \neg b$ that is logically incorrect.
BA $a \rightarrow b$ that is also logically incorrect.
DB $b \rightarrow a$ that is also logically correct
CA $\neg a \rightarrow b$ that is also logically correct
3. (a) Same as above AD is logically correct
4. (d) Same as above AB and CD are logically correct

Concept Deviator

1. (b) (H) Water level in the coast area does not rise
From (D) \rightarrow Temperature will not rise
From (F) \rightarrow People change their lifestyle
From (B) \rightarrow People will be rewarded, which is given in G.
2. (c) (G) \rightarrow Vina dances
From (E) \rightarrow Kumar sings
From (B) \rightarrow Audience dance
From (C) \rightarrow Concert will be successful, which is given in H.
3. (b) The conclusion should be if Manisha ate the orange, then Rajesh did not cook,
4. (b) From first two statements we can conclude: 'if the contract is valid then X would be bankrupt.' Statement 3 is 'If he goes bankrupt, then the bank will not loan him the money.' From above two statements, we have: If the contract is valid, then the bank will not loan him the money. This is reflected in option B.
5. (d) Lets eliminate options one by one-
Option A: Child is hungry. So, from (ii) child is crying, but we cannot say anything about the child liking milk or not.
Option B: A child is crying, but from this we cannot say anything regarding the child being hungry or unhappy.
Option C: The statements are not speaking about the happy child.
Option D: Unhappy children are hungry and hungry children cry. So choice (D) is most logically supported.
6. (c) Lets eliminate options one by one-
Option A: Cannot be true since we cannot infer anything if we know that an automatic alarm is set off at the fire department.
7. (d) Admission in one of the IIM's ensures good performance in CAT. This implies doing well in JMEST. This ensures that you get into one of the IITs or IISc So option D is true.
8. (b) Let X be the event that Geeta is present in the photo and event Y that her sisters are present. Given that $X \rightarrow Y$.
As per the given information in the photo already has three people (Geeta's parents with their son 3 persons so remaining can be only 2 persons). Thus, Geeta cannot be in the photo.
9. (c) Here let X be the event that the student sees a teacher. And event Y be the event that he is sleeping. We have been given that $X \rightarrow \neg Y$. However, we do not know anything about $\neg X$, and the question asks us what Y will be if $\neg X$.
 \therefore We cannot conclude anything.
10. (c) This is the situation of "Only if X then Y and Z" it implies that:
(i) $(Y \text{ and } Z \rightarrow X)$
(ii) $(\neg X \rightarrow \neg Y \text{ or/and } \neg Z)$ given in option (C)
11. (c) This is the situation of "If X then Y and Z" it implies that:
(i) $(X \rightarrow Y \text{ and } Z)$
(ii) $(\neg Y \text{ or/and } \neg Z \rightarrow \neg X)$ given in option (C)

12. (a) This is the situation of “If X then Y or Z” it implies that:
- (i) $(X \rightarrow Y \text{ or } Z)$
 - (ii) $(\sim Y \text{ and } \sim Z \rightarrow \sim X)$ given in option B
13. (b) This belongs to Type 3:- “Unless X, Y and Z”
This statement implies that:
- (i) $(\sim X \rightarrow Y \text{ or } Z)$
 - (ii) $(\sim Y \text{ or/and } \sim Z \rightarrow X)$ Given in option (B)
14. (b) This is of type 1:- “If X then Y and Z”
This statement implies that:
15. (b) This is the situation of “If X then Y or Z” it implies that:
- (i) $(X \rightarrow Y \text{ or } Z)$
 - (ii) $(\sim Y \text{ and } \sim Z \rightarrow \sim X)$
 - (iii) $(X \text{ and } \sim Z \rightarrow Y)$
 - (iv) $(X \text{ and } \sim Y \rightarrow Z)$ given in option (B)
16. (b) This belongs to Type 3: “Unless X, Y and Z”
This statement implies that:
 $(\sim X \rightarrow Y \text{ or } Z)$
 $(\sim Y \text{ or/and } \sim Z \rightarrow X)$ Given in option (B)

Chapter

22

Classification

Section	Level	No. of Questions
Concept Applicator	Very Easy	20
Concept Builder	Easy	20
Concept Cracker	Moderate	15
Concept Deviator	Difficult	15

The meaning of Classifications is to select the items from a given group on the basis of certain common qualities and which are different from the strangers.

1. CONCEPT APPLICATOR

Direction (Qs. 1–20): Choose the word which is least like the other words in the group.

- | | | | | | |
|-----|--------------|---------------|---------------|----------------|---------------|
| 1. | (a) Zebra | (b) Lion | (c) Tiger | (d) Horse | (e) Giraffe |
| 2. | (a) Boil | (b) Peel | (c) Back | (d) Fry | (e) Roast |
| 3. | (a) January | (b) February | (c) March | (d) July | (e) October |
| 4. | (a) Violet | (b) Blue | (c) Green | (d) Yellow | (e) White |
| 5. | (a) Tea | (b) Cinchona | (c) Rubber | (d) Chalk | (e) Cardamom |
| 6. | (a) Cheeta | (b) Lion | (c) Leopard | (d) Tiger | (e) Bear |
| 7. | (a) Bajra | (b) Mustard | (c) Rice | (d) Barley | (e) Wheat |
| 8. | (a) Football | (b) Kho-Kho | (c) Hockey | (d) Carom | (e) Kabbadi |
| 9. | (a) Pear | (b) Apple | (c) Guava | (d) Litchi | (e) Orange |
| 10. | (a) Hangar | (b) Dock | (c) Platform | (d) Park | (e) Bus Stand |
| 11. | (a) Chicken | (b) Swan | (c) Frog | (d) Crocodile | (e) Snake |
| 12. | (a) Tortoise | (b) Duck | (c) Snake | (d) Whale | (e) Crow |
| 13. | (a) Cumin | (b) Clove | (c) Groundnut | (d) Pepper | (e) Cinnamon |
| 14. | (a) King | (b) Queen | (c) Bishop | (d) Minister | (e) Knight |
| 15. | (a) Deck | (b) Quay | (c) Stern | (d) Bow | (e) Mast |
| 16. | (a) Feeling | (b) Joy | (c) Anxiety | (d) Anger | (e) Sorrow |
| 17. | (a) Trunk | (b) Tree | (c) Fruit | (d) Leaf | (e) Flower |
| 18. | (a) Tomato | (b) Carrot | (c) Ginger | (d) Potato | (e) Turmeric |
| 19. | (a) Flood | (b) Hurricane | (c) Avalanche | (d) Earthquake | (e) Explosion |
| 20. | (a) Physics | (b) Chemistry | (c) Botany | (d) Zoology | (e) Geography |

2 CONCEPT BUILDER

Direction (Qs. 1–20): Choose the odd-one out.

- | | | | | |
|--------------|----------|----------|----------|----------|
| 1. (a) 17 | (b) 27 | (c) 29 | (d) 37 | (e) 59 |
| 2. (a) 29 | (b) 53 | (c) 85 | (d) 125 | (e) 147 |
| 3. (a) 37 | (b) 45 | (c) 49 | (d) 65 | (e) 79 |
| 4. (a) 64 | (b) 169 | (c) 484 | (d) 315 | (e) 1225 |
| 5. (a) 120 | (b) 168 | (c) 290 | (d) 380 | (e) 728 |
| 6. (a) 1593 | (b) 3781 | (c) 7359 | (d) 9175 | (e) 9317 |
| 7. (a) 27 | (b) 64 | (c) 125 | (d) 144 | (e) 256 |
| 8. (a) 143 | (b) 133 | (c) 131 | (d) 87 | (e) 57 |
| 9. (a) 126 | (b) 217 | (c) 345 | (d) 513 | (e) 730 |
| 10. (a) 17 | (b) 13 | (c) 23 | (d) 37 | (e) 73 |
| 11. (a) 11 | (b) 13 | (c) 15 | (d) 17 | (e) 29 |
| 12. (a) 1236 | (b) 2346 | (c) 4566 | (d) 5686 | (e) 6786 |
| 13. (a) 21 | (b) 69 | (c) 81 | (d) 83 | (e) 90 |
| 14. (a) 369 | (b) 462 | (c) 761 | (d) 862 | (e) 594 |
| 15. (a) 361 | (b) 484 | (c) 566 | (d) 529 | (e) 5929 |
| 16. (a) 28 | (b) 65 | (c) 126 | (d) 215 | (e) 361 |
| 17. (a) 263 | (b) 111 | (c) 242 | (d) 551 | (e) 383 |
| 18. (a) 2 | (b) 16 | (c) 56 | (d) 128 | (e) 64 |
| 19. (a) 119 | (b) 136 | (c) 147 | (d) 153 | (e) 63 |
| 20. (a) 22 | (b) 121 | (c) 242 | (d) 363 | (e) 484 |

3 CONCEPT CRACKER

Direction (Qs. 1–15): A group of five words are given in each question. Choose the odd one out.

- | | | | | |
|---------------------|-----------------|---------------|----------------|--------------|
| 1. (a) Write | (b) Read | (c) knowledge | (d) Learn | (e) Study |
| 2. (a) Screw | (b) Hammer | (c) Needle | (d) Pin | (e) Nail |
| 3. (a) Up | (b) Down | (c) Below | (d) Above | (e) Small |
| 4. (a) Tomato | (b) Gourd | (c) Brinjal | (d) Cucumber | (e) Potato |
| 5. (a) Tuberculosis | (b) Small pox | (c) Cholera | (d) Typhoid | (e) Tetanus |
| 6. (a) Hydrogen | (b) Oxygen | (c) Iodine | (d) Nitrogen | (e) Check |
| 7. (a) Pupil | (b) Iris | (c) Cornea | (d) Medulla | (e) Retina |
| 8. (a) Sword | (b) Knife | (c) Shovel | (d) Saw | (e) Axe |
| 9. (a) Collection | (b) Compilation | (c) Cluster | (d) Assortment | (e) Assemble |
| 10. (a) Mustard | (b) Sesame | (c) Corn | (d) Olive | (e) Onion |
| 11. (a) Iron | (b) Potassium | (c) Sodium | (d) Chlorine | (e) Iodine |
| 12. (a) Wheat | (b) Rice | (c) Barley | (d) Pea | (e) Mustard |
| 13. (a) Paper | (b) Wool | (c) Wood | (d) Leather | (e) Plastic |
| 14. (a) Mars | (b) Sun | (c) Saturn | (d) Mercury | (e) Pluto |
| 15. (a) Fish | (b) Crab | (c) Octopus | (d) Crocodile | (e) Scorpion |

4. CONCEPT DEVIATOR

Direction (Qs. 1–15): A group of five words are given in each question. Choose the odd one out.

- | | | | | |
|--------------------|----------------|---------------|--------------|-------------------|
| 1. (a) Big | (b) Small | (c) Trivial | (d) Tiny | (e) Huge |
| 2. (a) Corn | (b) Wheat | (c) Cotton | (d) Jowar | (e) Millet |
| 3. (a) Kwashiorkor | (b) Cretinism | (c) Marasmus | (d) Goitre | (e) Osteomalacia |
| 4. (a) Rabbit | (b) Rat | (c) Mongoose | (d) Squirrel | (e) Cat |
| 5. (a) Tarapur | (b) Kota | (c) Kalpakkam | (d) Paradeep | (e) Narora |
| 6. (a) Plassey | (b) Haldighati | (c) Panipat | (d) Sarnath | (e) Kurukshetra |
| 7. (a) Uncle | (b) Nephew | (c) Brother | (d) Cousin | (e) Niece |
| 8. (a) Arc | (b) Diameter | (c) Diagonal | (d) Tangent | (e) Radius |
| 9. (a) Dispur | (b) Panaji | (c) Shimla | (d) Leh | (e) Aizawl |
| 10. (a) See | (b) Hear | (c) Smell | (d) Taste | (e) Think |
| 11. (a) Stick | (b) Needle | (c) Thorn | (d) Pin | (e) Nail |
| 12. (a) Rose | (b) Lotus | (c) Dahlia | (d) Marigold | (e) Lily |
| 13. (a) Epicentre | (b) Seismology | (c) Focus | (d) Crater | (e) Richter Scale |
| 14. (a) Valley | (b) Sea | (c) Tower | (d) Mountain | (e) River |
| 15. (a) Cool | (b) Warm | (c) Sultry | (d) Hot | (e) Humid |

Answer with Solution

Concept Applicator

1. (d) All animals belong to wild group except Horse (which can be domesticated)
2. (b) Peeling is different from cooking. Rest all are related to cooking processes.
3. (b) February has of 28 or 29 days, rest all have of 31 days.
4. (d) Except white all are the colours of the rainbow.
5. (d) Chalk is obtained from Stone, rest are from trees.
6. (e) Bear, rest all are of Cat family.
7. (b) Rest all are food grain or we can say staple food. While Mustard is an oil seed.
8. (d) Carom is an indoor game.
9. (e) Orange is the only citrus fruit among them.
10. (d) Except park, all are stations or Halting places.
11. (a) Chicken cannot live both on land or in water.
12. (d) All lay eggs whereas whale is a mammal.
13. (c) All are spices. Except Groundnut.
14. (d) All are chessmen, except minister.
15. (b) Rest are parts of a ship
16. (a) Feeling, rest are the types a of feeling.
17. (b) Tree, rest all are the parts of a tree.
18. (a) Rest of them grow under ground.
19. (e) Rest of them are natural calamities.
20. (e) Rest are the types of science subject.

Concept Builder

1. (b) 27 is the odd one out; rest are prime numbers.
2. (d) 125 is the only perfect cube; rest are random numbers.
3. (c) 49 is the only perfect square; rest are just random numbers.
4. (d) 315 is the odd one out as the rest all are squares of different numbers.
5. (d) Each number except 380 is either one more or one less than the square of a certain number.
6. (b) 3781 is the odd one out as other numbers contain only odd digits.
7. (d) 144 is the square of 12 whereas the rest are cube of certain numbers.
8. (c) 131 is the odd one out as it is the only prime number.
9. (c) All the numbers except 345 are one more than the cube of a certain number.
10. (c) All numbers are prime numbers but when we reverse the digits all except 23 remain prime numbers.
11. (c) All numbers are prime numbers except 15
12. (d) The unit digit remains same, and the thousand place, hundredth place and tenth place changes and follow particular pattern except in 5686.
13. (d) All are multiple of 3 except 83.
14. (c) 761 is the only prime in the group.
15. (c) 566 is the odd one out as the rest of the numbers are perfect squares.
16. (a) 28 is the only number with all even digits.
17. (e) In all the numbers except 383, the middle digit is the product of the other two digits.
18. (c) Except 56 all can be expressed as power of 2.
19. (a) Only 119 has different factors, 7 and 17 and no factors are repeated.
20. (a) Except 22 all are in the from $11^2 \times 1, 11^2 \times 2, 11^2 \times 3$ etc.

Concept Cracker

1. (c) All are required to gain knowledge.
2. (b) Except hammer all have pointed end.
3. (e) Small is adjective whereas rest are prepositions.
4. (e) Potato is the only vegetable.
5. (b) All except small pox caused by bacteria, while small pox is caused by virus.
6. (c) Iodine is liquid whereas rest are gases.
7. (d) Medulla is the part of brain, whereas others are part of eyes.
8. (c) Shovel is a tool for digging the ground. Rest are cutting tools.
9. (c) All denotes collection of selected items, except Cluster.
10. (e) All are oil seeds except onion.
11. (a) All are volatile except iron
12. (b) Rice is kharif Crop while rest are Rabi crops.
13. (e) Plastic is not biodegradable.
14. (b) All are planets, except sun.
15. (e) All except Scorpion lives in water.

Concept Deviator

1. (c) Trivial describes something which is of little value or importance whereas rest of words describe the physical size of objects.
2. (c) Cotton is fiber crop. Rest are food crop.
3. (b) Cretinism is a hormonal disease while rest are deficiency diseases.
4. (e) All are rodents or rat family, except cat.
5. (d) Paradeep is a port, while rest are atomic power station.
6. (d) All are battle grounds except Sarnath which is related to Buddha ground.
7. (c) All except brother are relation based on parent's brother and sister.
8. (c) Rest are the parts of a circle.
9. (d) All are the capitals of the states.
10. (e) All except think are functions performed by sense organs of the body
11. (a) All are prickly substances.
12. (b) Lotus grow on land.
13. (d) All are related with earthquake, except crater which is a circular depression in the ground caused by volcanic activity.
14. (c) Others are natural geographical features.
15. (a)

Part B : Non-verbal Reasoning

Chapter

1

Series Completion

Section	Level	No. of Questions
Concept Applicator	Very easy	15
Concept Builder	Easy	15
Concept Cracker	Moderate	15
Concept Deviator	Difficult	

The chapter series contain the problems based upon the continuation of question figure.

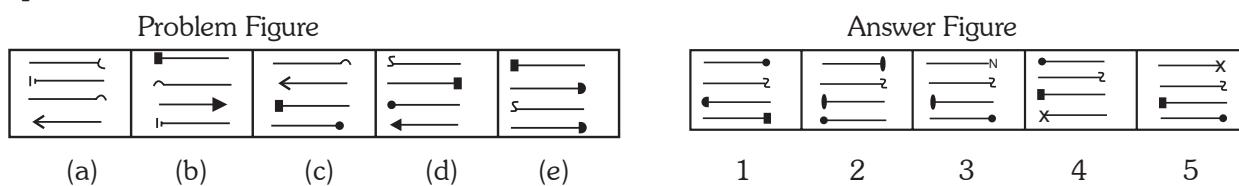
Though there are various types of problems but the fundamental concept for each type is the same. In every figure, there is a step by step change which follows a sequence.

Type-1: Four problem figure series.

Type-2: Five problem figure series.

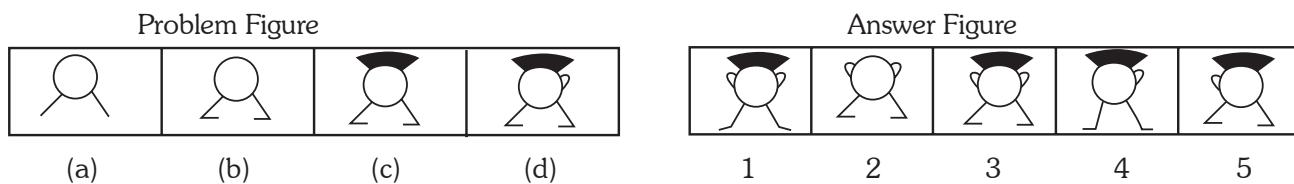
The above mentioned types are generally asked problems in SSC, RAIL, FCI etc. Now a days the Non-verbal questions are not asked in Banking examinations.

Example : 1



Solution: Option (2) the arrow which is in the top and the bottom arrow of the next figure or in alternate figures vanishes and a new figure takes the position. The arrows in the middle interchange their positions in a particular sequence. With following the particular sequence we get that the exact answer of this series be option (2).

Example:

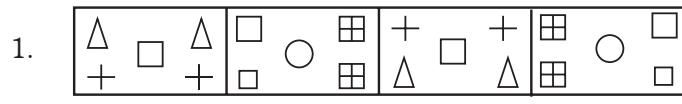


Solution: In the above question which is a Four figured Problem whose fifth figure have to choose from the answer figure. In the following figure we found that on every step one new figure is added, so the very next figure of the series be option (3) where one additional ear is added.

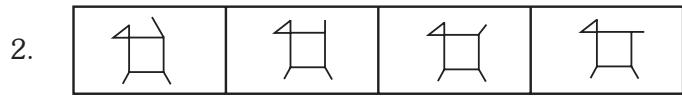
1. CONCEPT APPLICATOR

Directions (Qs. 1-15) : In each of the following questions you are given four series of questions you have to find out the next series from the answer figures that follows the sequence of the question figures.

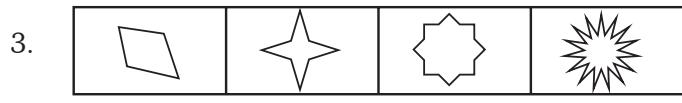
Question Figure



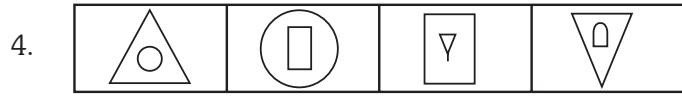
- (a) (b) (c) (d)



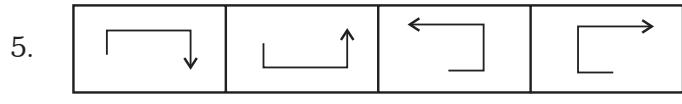
- (a) (b) (c) (d)



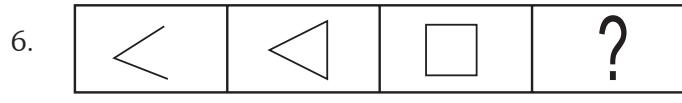
- (a) (b) (c) (d)



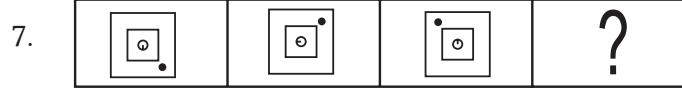
- (a) (b) (c) (d)



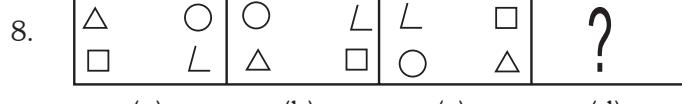
- (a) (b) (c) (d)



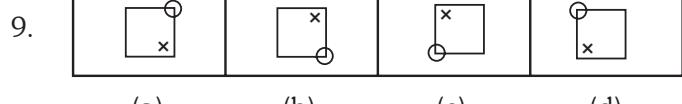
- (a) (b) (c) (d)



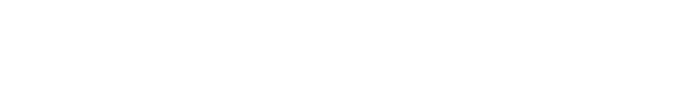
- (a) (b) (c) (d)



- (a) (b) (c) (d)

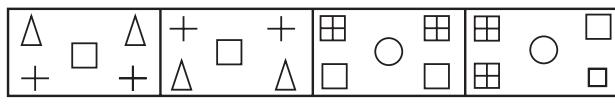


- (a) (b) (c) (d)

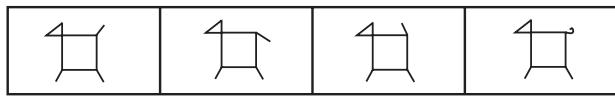


- (a) (b) (c) (d)

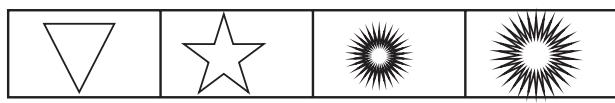
Answer Figure



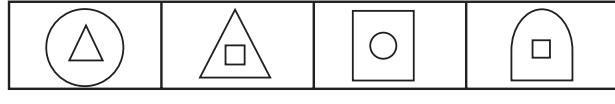
- 1 2 3 4



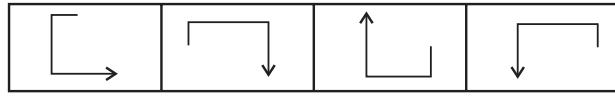
- 1 2 3 4



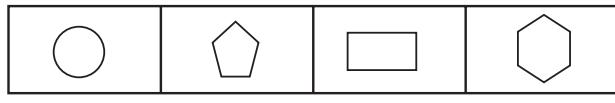
- 1 2 3 4



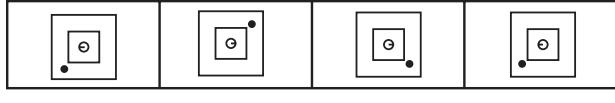
- 1 2 3 4



- 1 2 3 4



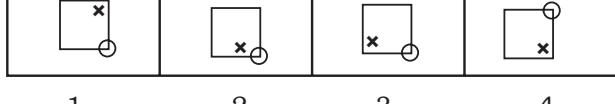
- 1 2 3 4



- 1 2 3 4



- 1 2 3 4



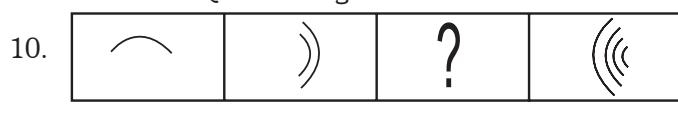
- 1 2 3 4



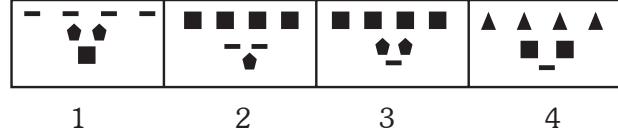
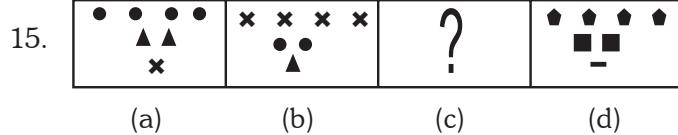
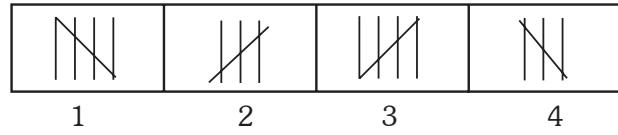
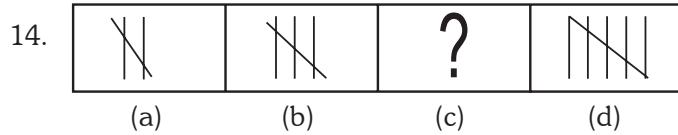
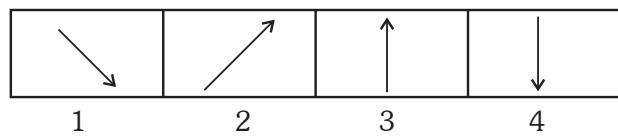
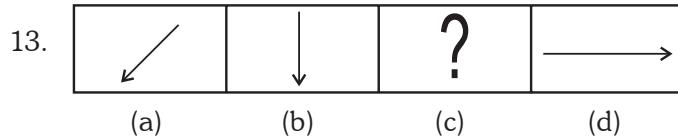
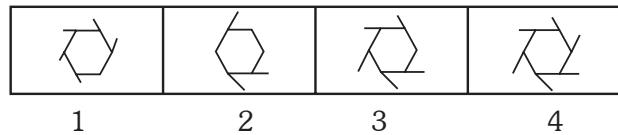
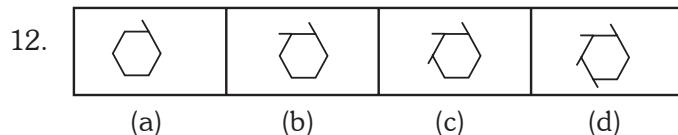
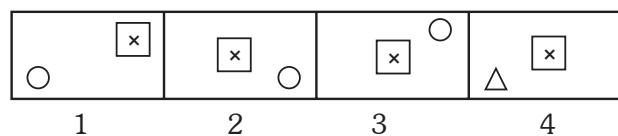
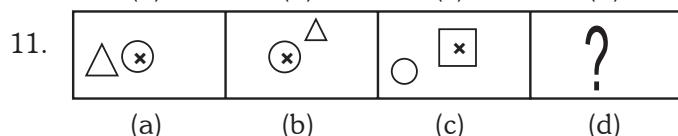
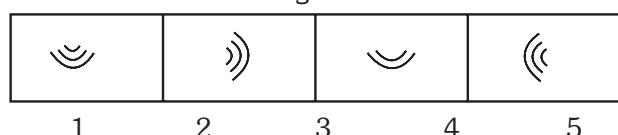
- 1 2 3 4

Directions : In each of the following questions you are given four series of questions with a question mark you have to find out the answer for the question mark that completes the series from the answer figures.

Question Figure



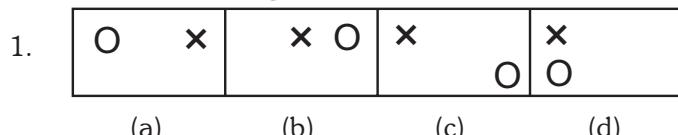
Answer Figure



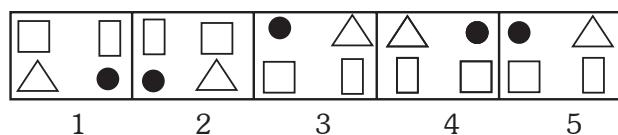
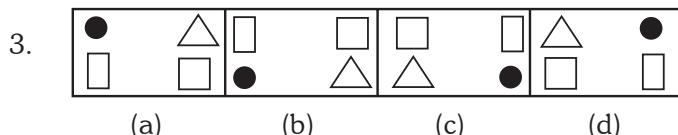
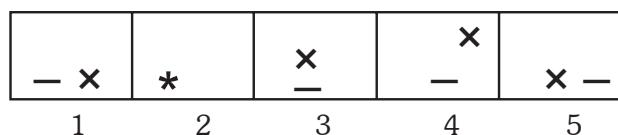
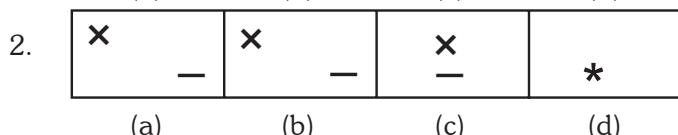
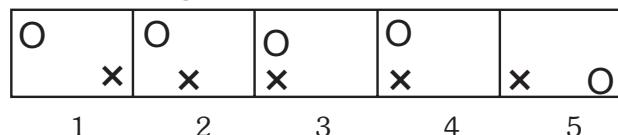
2 CONCEPT BUILDER

Directions (Qs. 1-15) : In each of the following questions you are given five series of questions you have to find out the next series from the answer figures that follows the sequence of the questions figures.

Question Figure

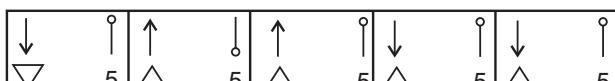


Answer Figure





- (a) (b) (c) (d)



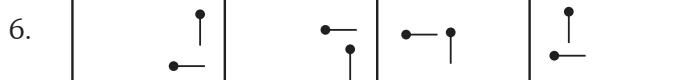
- 1 2 3 4 5



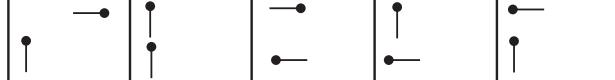
- (a) (b) (c) (d)



- 1 2 3 4 5



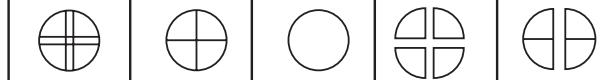
- (a) (b) (c) (d)



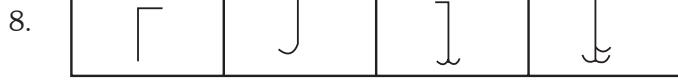
- 1 2 3 4 5



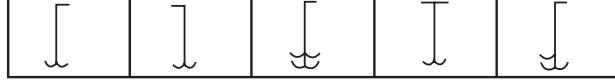
- (a) (b) (c) (d)



- 1 2 3 4 5



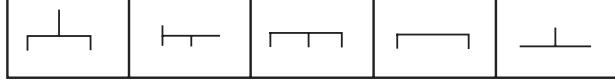
- (a) (b) (c) (d)



- 1 2 3 4 5

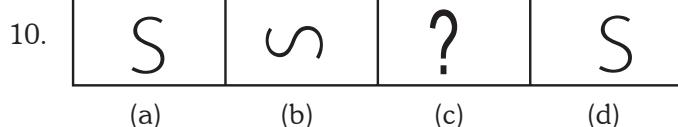


- (a) (b) (c) (d)

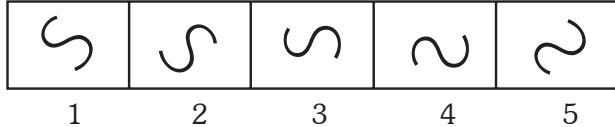


- 1 2 3 4 5

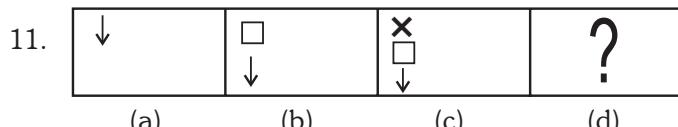
Directions (Qs. 10-15): In each of the following questions you are given four series of questions with a question mark you have to find out the answer for the question mark that completes the series from the answer figures.



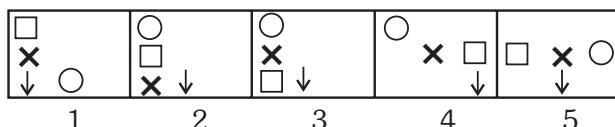
- (a) (b) (c) (d)



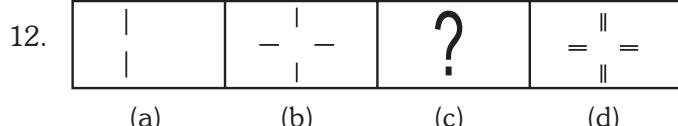
- 1 2 3 4 5



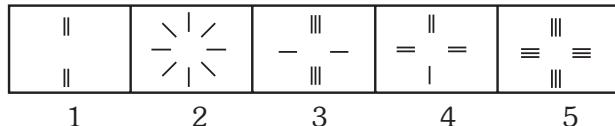
- (a) (b) (c) (d)



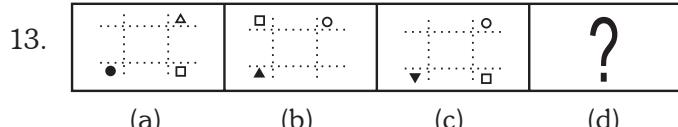
- 1 2 3 4 5



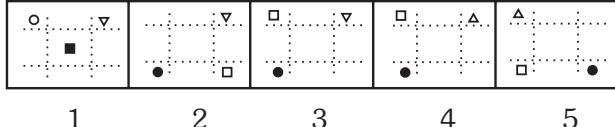
- (a) (b) (c) (d)



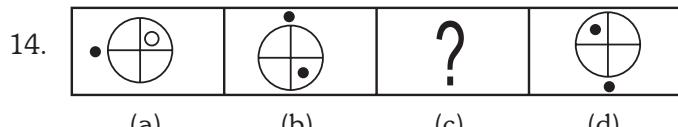
- 1 2 3 4 5



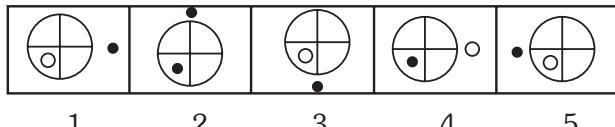
- (a) (b) (c) (d)



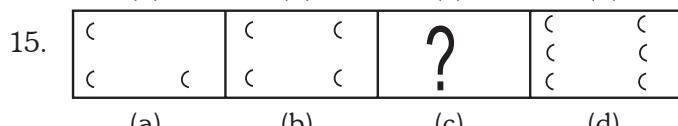
- 1 2 3 4 5



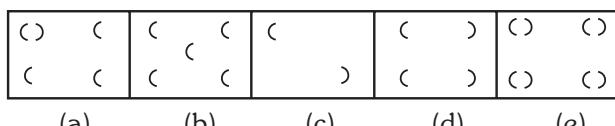
- (a) (b) (c) (d)



- 1 2 3 4 5



- (a) (b) (c) (d)



- (a) (b) (c) (d) (e)

3 CONCEPT CRACKER

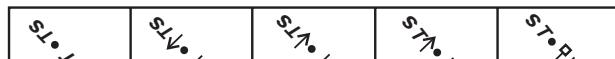
Direction (Qs. 1-15) : In each of the following questions you are given five series of questions you have to find out the next series from the answer figures that follows the sequence of the questions figures.

Question Figure



1. (a)
- (b)
- (c)
- (d)
- (e)

Answer Figure



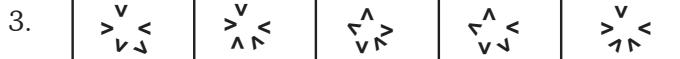
- 1
- 2
- 3
- 4
- 5



2. (a)
- (b)
- (c)
- (d)
- (e)



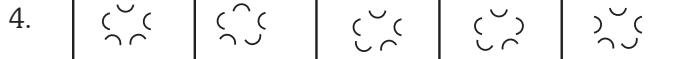
- 1
- 2
- 3
- 4
- 5



3. (a)
- (b)
- (c)
- (d)
- (e)



- 1
- 2
- 3
- 4
- 5



4. (a)
- (b)
- (c)
- (d)
- (e)



- 1
- 2
- 3
- 4
- 5



5. (a)
- (b)
- (c)
- (d)
- (e)



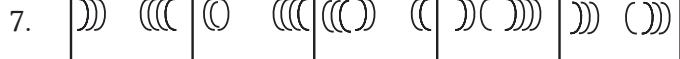
- 1
- 2
- 3
- 4
- 5



6. (a)
- (b)
- (c)
- (d)
- (e)



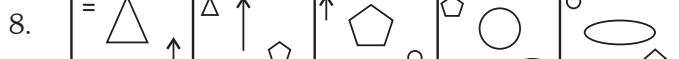
- 1
- 2
- 3
- 4
- 5



7. (a)
- (b)
- (c)
- (d)
- (e)



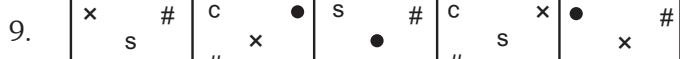
- 1
- 2
- 3
- 4
- 5



8. (a)
- (b)
- (c)
- (d)
- (e)



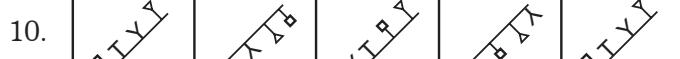
- 1
- 2
- 3
- 4
- 5



9. (a)
- (b)
- (c)
- (d)
- (e)



- 1
- 2
- 3
- 4
- 5



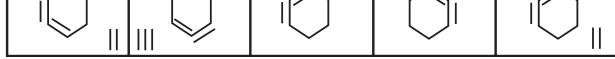
10. (a)
- (b)
- (c)
- (d)
- (e)



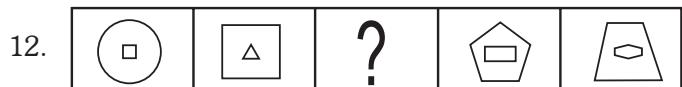
- 1
- 2
- 3
- 4
- 5



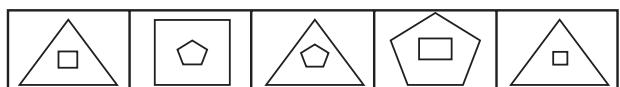
11. (a)
- (b)
- (c)
- (d)
- (e)



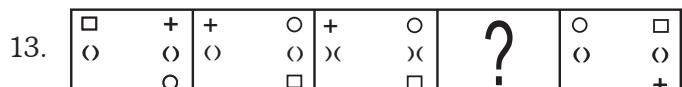
- 1
- 2
- 3
- 4
- 5



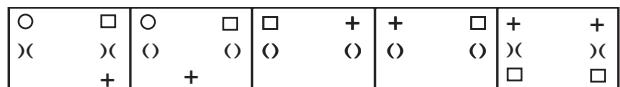
- (a)
- (b)
- (c) **?**
- (d)
- (e)



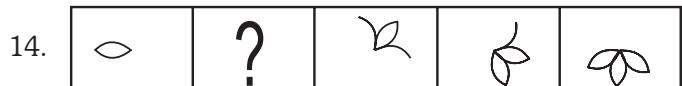
1 2 3 4 5



- (a)
- (b)
- (c)
- (d)
- (e)



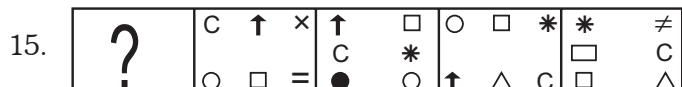
1 2 3 4 5



- (a)
- (b) **?**
- (c)
- (d)
- (e)



1 2 3 4 5



- (a)
- (b)
- (c)
- (d)
- (e)



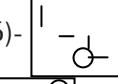
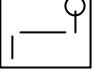
1 2 3 4 5

Answer with Explanation

Concept Applicator

1. (1)- Similar figure appears in every second figure box. For the first figure, upper figure and lower figures inter changed in their place and similarly for the second box figure the left hand side and right hand side do the same.
2. (2)- The tail of the figured dog moves 45 degree clock wise.
3. (4)-The number of projections doubles in each step.
4. (4)-Every time the inner figure enlarges and become the outer figure and the row inner figure changes to new element.
5. (3)-In one step, the arrow and the small line segment turn to other side of the more line and in the next figure.
6. (2)-Every time one line segment joints the figure.
7. (4)-every time the centre figure (circle and the radius) moves 90 degree clockwise.
8. (2)-All the elements moves anti clock wise.
9. (4)-The circle at the corner of the square moves clock wise, where as the cross inside the square moves anti clock wise.
10. (1)-Every time the curved arc moves clock wise and additional arc joins.
11. (3)-The element in the first two figure changes its position diagonally and central figure remains same.
12. (3)- Addition of line increases to the element.
13. (1)- Arrow moves anti clock wise at 45 degree.
14. (1)- Vertical line increases by one and diagonal line cuts it every time from left corner to right corner diagonally.
15. (2)- All the elements of the top row moves to second row , second row elements move to third row and third row elements move to first row.

Concept Builder

1. (4)-The circle moves to every corner clockwise whereas the (X) moves to every one step anti-clockwise.
2. (1)-First (X) moves down ward one step then (-) moves left side, then again (X) and so on.
3. (5)-Circle (Shaded circle) moves anti-clockwise and rest figures interchanged their position with the Opposite figure.
4. (2)-First Arrow inverts, on the 3rd figure the triangle and the diagonally opposite figure inverts again the arrow inverted, then the other figure inverts on the same way
5. (3)-The line segment inside the quadrilateral moves 45° clock wise and the arrow along with inverts on every move.
6. (5)-  This is the path of lower figure whereas  the figures follows the above path and
- changes the position in 90 degree up n down manner.
7. (4)-In one stop, the figure gets a dividing mark or line than in the very next step it is separated and this pattern repeated alternatively.
8. (3)
9. (3) One line is removed from the figure in each step on 3rd step on wards one line is added.
10. (2) -The element or the figures moves anti-clock wise.
11. (3)- Every time a new figure introduced and moves one unit in anti-clock wise direction.
12. (1)- First two figures are doubled in the next two figures, but the position remains same.
13. (3) All the elements change their place diagonally and all figures at the corner of the left side base figure is in shade.
14. (1) The circle at the quadrant changes its position with alternate shades clock wise and the shaded dot moves every 90° clock wise.

- 15 (2)- Increase of arc and faces in a single or one direction.

Concept Cracker

1. (1) one dot is replaced by a symbol and the replacement takes place on either end. And rotates anti clock wise at 45 degree in each step.
2. (1) the symbol gets vertically inverted and laterally inverted alternately. It also moves in anti-clockwise direction through distance equal to two half- side (of square boundary) and three half sides alternately.
4. (1) the arcs gets inverted sequentially in one, two, three, one, two, three... manner and in anti clock wise.
5. (1) two elements are added in each in each step, be it two lines, two arcs or one line and one arc.
6. (3) similar figures reappears in every fourth step and each time a figure rotates through 90 degree anti clock wise.
7. (2) two, three, four, two, three, curves get inverted sequentially
8. (1) in each step, the upper element is lost, the middle element reduces in size and becomes the upper element, the lower element enlarges and become the middle element and every time a new element appears at the bottom of the figure.
9. (3) the elements present at the diagonally (left. Upper corner to the bottom down corner) changes their places one unit and the elements at the left bottom corner and right upper corner interchanged their places this patterns follows alternately to the alternate figures
10. (2)
11. (1) in each step, both the line segment close to the sides of the hexagon at adjacent side in a clock wise direction, also the line segment at the corner to the box moves clock wise and the number increases.
12. (3) In each step the outer large figure disappears and the middle element becomes the outer large figure for the next step.
13. (1) all squares, + and circle moves anti clock wise and on 2nd step the arcs get laterally inverted.
14. (2) the petals move 45 degree clockwise and every step a half petals added to the previous figure and the addition done first right side than left side.
15. (3)

Chapter

2

Analogy and Classification

Section	Level	No. of Questions
Concept Applicator	Very easy	15
Concept Builder	Easy	15
Concept Cracker	Moderate	15
Concept Deviator	Difficult	

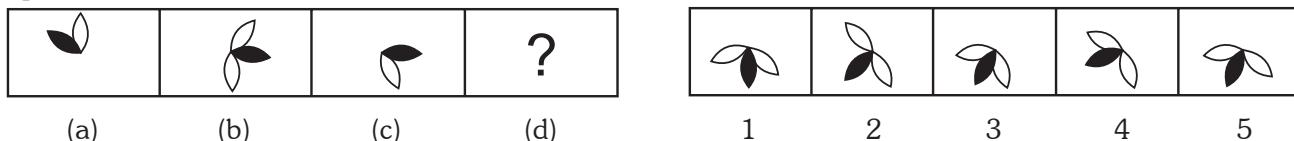
ANALOGY means **corresponding**, in this chapter on analogy a pair of related figures is provided and a similar relationship is to be established between two other figures by selecting from a set of alternative figures.

Classification:

In this portion of chapter we deal with problems of odd-man-out type. We are given a set of figures such that all except one has similar characteristics features, we are required to select the figure which differs from all other figures in the given set.

Examples of Analogy:

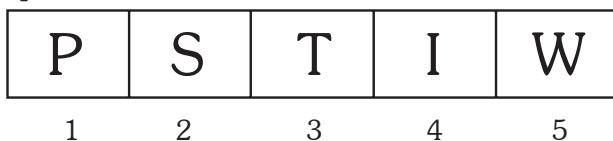
Example : 1



Solution : option (2) the black leaf rotates 135 degree clock wise and white leaf rotates 45 degree clock wise. A new white leaf attached with black leaf at 90 degree.

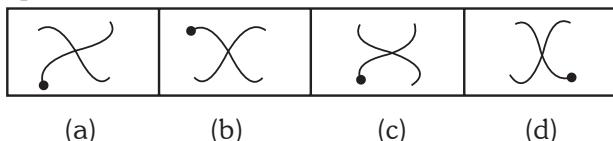
Examples of Classification:

Example : 2



Solution : option (d) is the answer as all are consonants except (d) as it is vowel.

Example : 3



Solution: option (a) is the answer as all other figure can be rotated into each other

Lets have a look on the exercise

1. CONCEPT APPLICATOR

Direction (Qs.): Figure A and B are related in a particular way or manner. Establish the same relationship between C and D choosing from five alternatives.

1.	PEAR	STOP	?
----	------	------	---

- (a) (b) (c) (d)

STOP	STOP	STOP	STOP	STOP
------	------	------	------	------

- 1 2 3 4 5

2.	△	▲	○	?
----	---	---	---	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

3.	□	◇	□	?
----	---	---	---	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

4.	↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	?
----	---------	---------	---------	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

5.	○○	○●○○	○○	?
----	----	------	----	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

6.	+	+	○○○○○	?
----	---	---	-------	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

7.	↙ ↘ ↗ ↖	↙ ↘ ↗ ↖	?
----	---------	---------	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

8.	○	●○●○●○	◇	?
----	---	--------	---	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

9.	●●	●●●●●●●●	●●	?
----	----	----------	----	---

- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

- 1 2 3 4 5

10.	↙ ↘ ↗ ↖	●○●○●○●○	?
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- (a) (b) (c) (d)

1	2	3	4	5
---	---	---	---	---

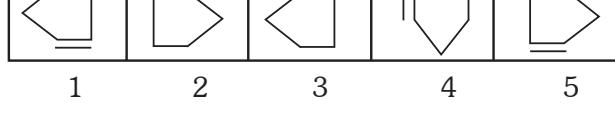
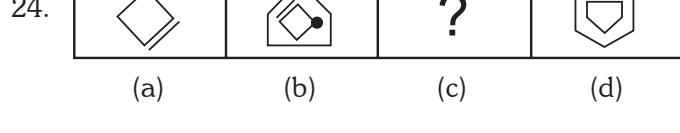
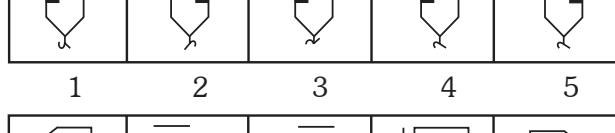
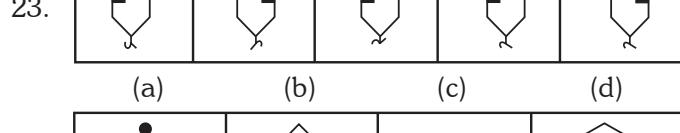
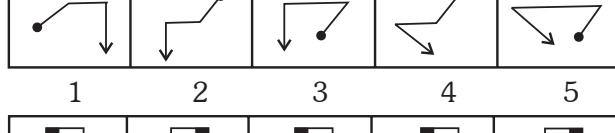
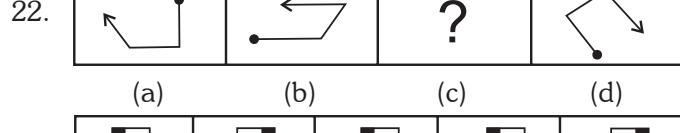
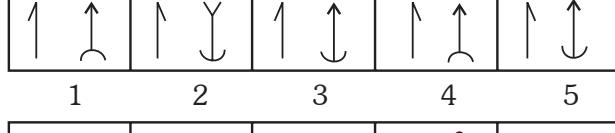
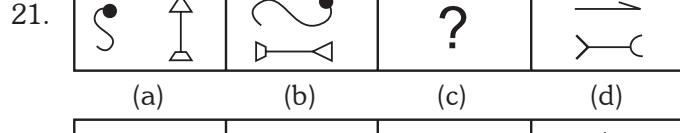
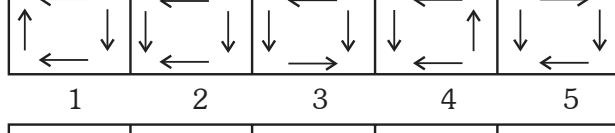
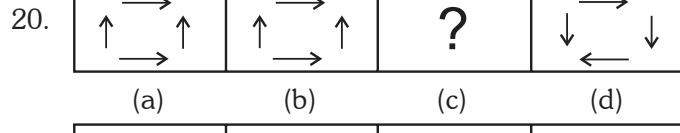
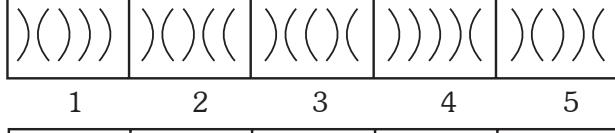
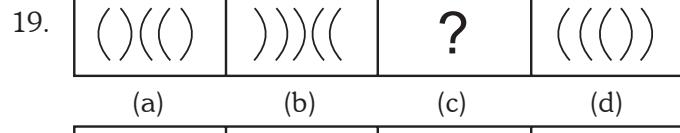
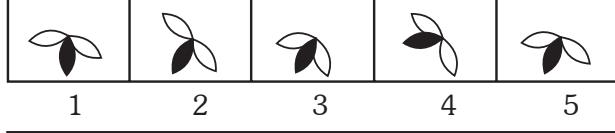
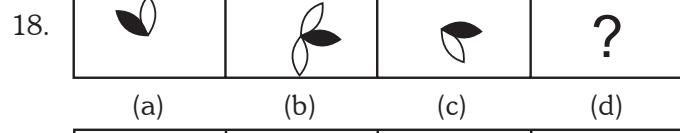
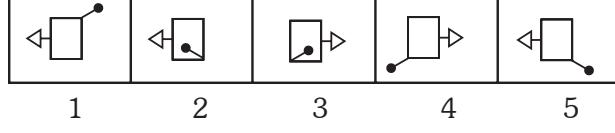
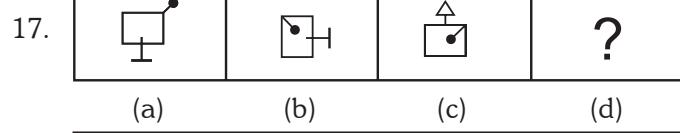
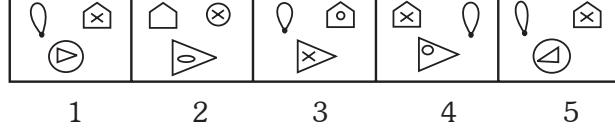
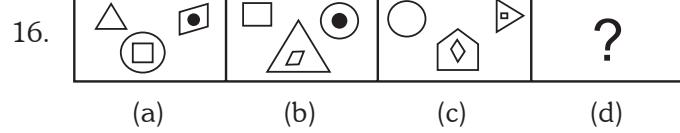
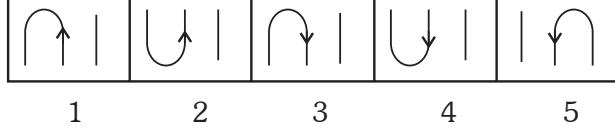
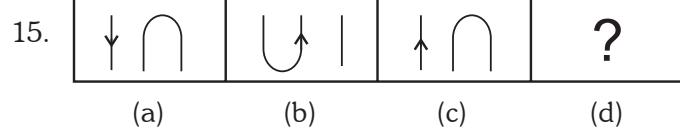
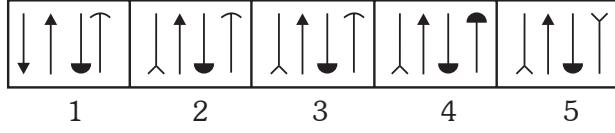
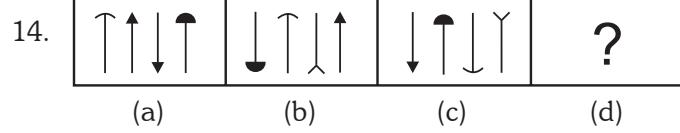
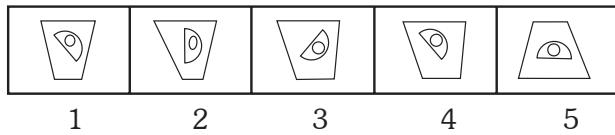
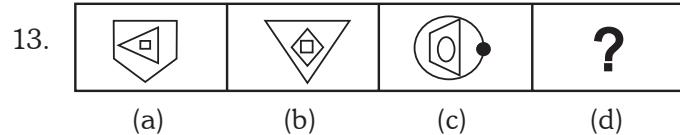
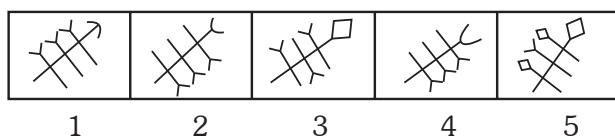
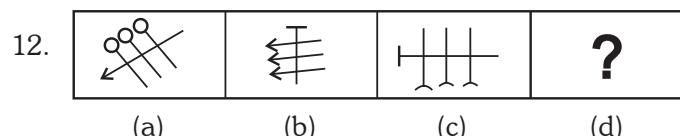
- 1 2 3 4 5

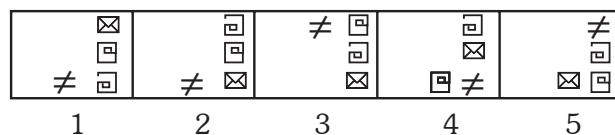
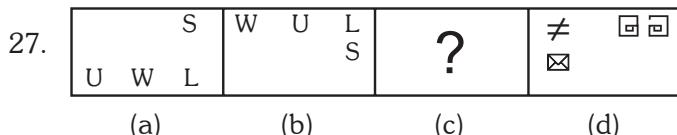
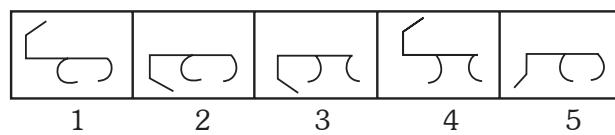
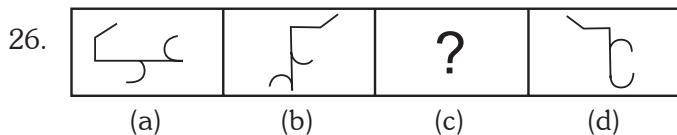
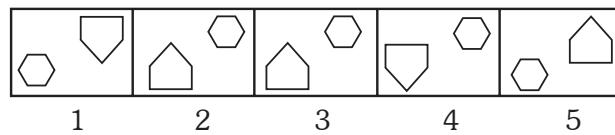
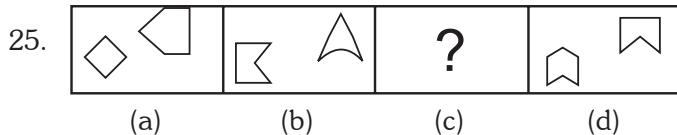
11.	N $\nabla \neq$ S $\nabla \neq$	S $\nabla \neq$ N $\nabla \neq$	● $\nabla \neq$ N $\nabla \neq$?
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- (a) (b) (c) (d)

1	2	3	4	5
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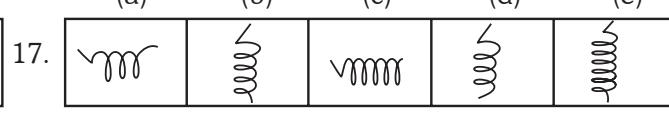
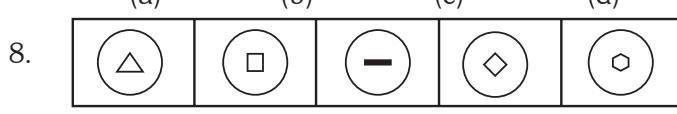
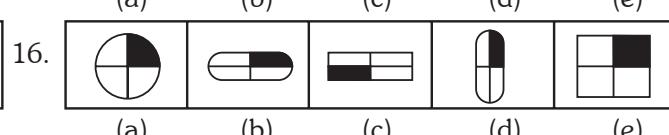
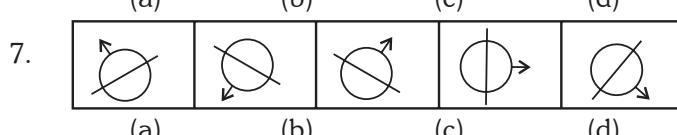
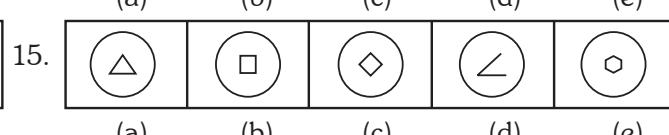
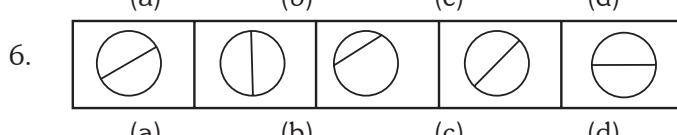
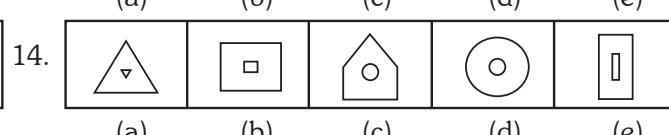
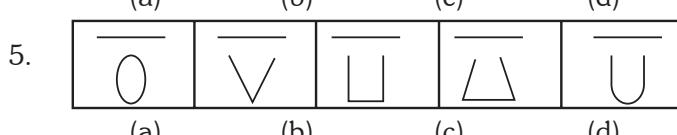
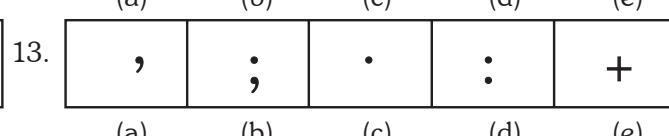
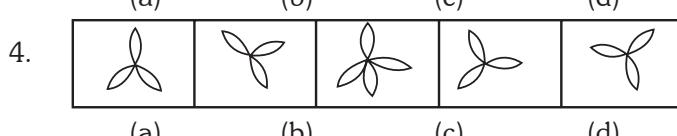
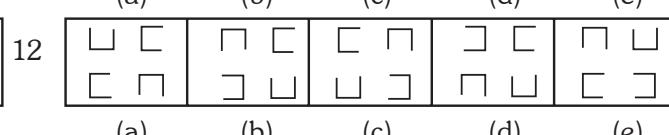
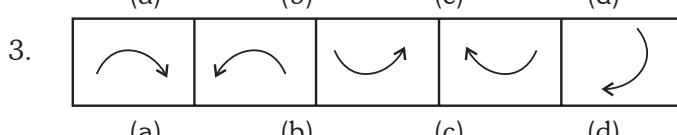
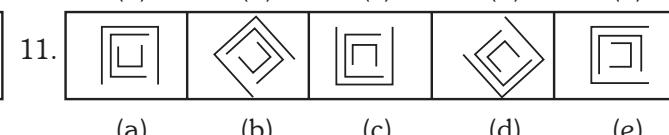
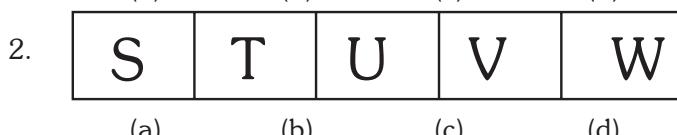
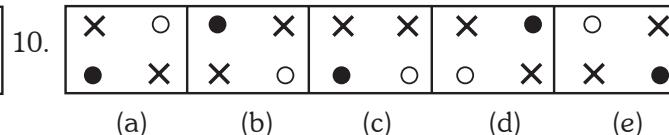
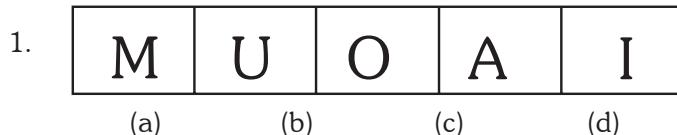
- 1 2 3 4 5





2 CLASSIFICATION:

Direction (Qs.) : In each problem, out of the five figures marked (a), (b), (c), (d) and (e), four are similar in a certain manner. However one figure is not like the other four. Choose the figure which is different from the rest.



9. (a) (b) (c) (d) (e)
18. (a) (b) (c) (d) (e)
19. (a) (b) (c) (d) (e)
25. (a) (b) (c) (d) (e)
20. (a) (b) (c) (d) (e)
26. (a) (b) (c) (d) (e)
21. (a) (b) (c) (d) (e)
27. (a) (b) (c) (d) (e)
22. (a) (b) (c) (d) (e)
28. (a) (b) (c) (d) (e)
23. (a) (b) (c) (d) (e)
29. (a) (b) (c) (d) (e)
24. (a) (b) (c) (d)

Answers of ANALOGY AND CLASSIFICATION

Answers of ANALOGY

1. (1) The complete figure rotates through 180 degree and the last element on the right side rotates 90 degree
2. (5) half of the figure is missing and the remaining half is in shaded form.
3. (1) the outer element rotates 135 degree clock wise and the inner element rotates 135 degree anti clock wise.
4. (2) The upper element moves 180 degree its head inverted and the lower one vertically inverted.
5. (1) six side figure reduces to five sided figure reduces to five sided figure and the elements present inside the figure moves outside and a new shaded circular element introduced inside the figure.
6. (2) Four part of the outer end lost.
7. (3) The figure rotates through 180 degree.
8. (2) the corresponding figure of A, introduced as many elements head as the number of side (inside).
9. (4) the two partially shaded circles rotates through 180 degree
10. (3) the figure rotates 90 degree anti -clock wise and shaded inverted image added to the top.
11. (1) the element moves in the sequence.
12. (4) the three parallel arrows together rotate 45 degree anti - clock wise and the arrow perpendicular to these three arrows rotates 135 degree clock wise. Arrow heads interchange position and colour.
13. (1) The outer most element reduces its size and inverted. The middle element moves 90 degree anti - clock wise and moves to outer side and the inner one moves to middle position at 45 degree anti clock wise.
14. (3) all the arrows get vertically inverted , the right most arrow moves to the left most side and all other arrows moves are space to the right , the heads of 2nd the 3rd positions inverted.
15. (3) the complete figure gets rotates through 180 degree and arrow head moves to U - shaped element.
16. (1) the upper left element becomes the lower outer element, the outer part of the upper right element becomes the lower -inner element and the symbol inside the upper right element remains in its place, the lower -inner element becomes the upper left element , the lower outer element becomes the outer part of the upper -right element.
17. (5) the two elements moves anti clock wise . the pin turns inside if initially outside and turns outside if initially inside. The outer element comes out of the square if initially it was intersecting a side of the square and vice -versa.
18. (2) the black leaf rotates 135 degree clock wise and white leaf rotates 45 degree clock wise. A new white leaf attached with black leaf at 90 degree.
19. (5) the first , second and fifth arcs (counting from left to right) get laterally inverted.
20. (1) all elements moves anti-clock wise direction aqnd the upper and lower elements are laterally inverted.
21. (4) the upper elements rotates 90 degree anti clock wise and gets laterally inverted the symbol on the rhs of the lower element gets laterally inverted and the lower element rotates 90 degree.
22. (3) the pin rotates 90 degree clock wise, the arrow rotates 45 degree clock wise and the line joining the pin and the arrow rotates 135 degree.
23. (4) the completes figure rotates 180 degree the arc gets laterally inverted and the line segment rotates 90 clock wise
24. (5) the line segment close to the inner elements moves to the adjacent side in an anti clock wise , the outer element is lost and the remaining figure rotates 90 degree ACW.
25. (3) the inner vertex of both the element turn outwards to form new elements. These elements interchange positions. The pentagon gets enlarged and rotates through 180 degree.
26. (2)
27. (2)

Answers of Classifications:

- 1 (a) M is only consonant, rest are vowel.
- 2 (c) only U is vowel
- 3 (e) rest all are horizontal element except (e) which is vertical
- 4 (c) rest all has three petals.
- 5 (a) one element is enclosed figure, rest are one end open
- 6 (c) only c is not having diameter.
- 7 (b) arrows are moving anti clock wise direction 45 degree.
- 8 (c) all except (c) has enclosed figure.
9. (d) all except (d) dots are on either side of the line.
- 10 (c) Except (c) rest elements of figures are diagonally opposite direction.
- 11 (a) all other figure can be rotated into each other. The middle element is obtained by rotating the outer element through 90 degree clock wise and the inner element is obtained by rotating the middle element through 90 degree clock wise.
12. (a) only in figure (a) two of the four elements are oriented in the same direction.
13. (e) option (e) is mathematical symbol.
- 14 (c) all outer elements having the replica of its present inside of that, except option (c)
- 15 (d) all inner figures are enclosed one except (d)
16. (c) the shaded region is present on the left bottom region, whereas rest all has on top right region.
- 17 (d) number of turning increases with a sequence.
- 18 (b) the line segment along with the circle are eight except option (b)
- 19 (e) all rotates in anti clock wise direction except option (e)
- 20 (d) one arrow is facing towards the centre.
- 21 (b) all other figures can be rotated into each other.
- 22 (d) The line segment present thick side of the arc. Whereas, answer figure has line segment on the thin side of the arc.
- 23 (d) all diameters are intersecting with each other.
- 24 (a) all other figures can be rotated into each other.
25. (c) in all other figure, the square has two line segments inside and one line segment outside.
- 26 (a) in all other figures the number of line segments forming the inner element is one less than the number of line segments forming the outer element.
- 27 (a) all other figures can be rotated into each other.
- 28 (c) all other figures can be rotated into each other.
- 29 (b) in all other figures, the black leaf appears in any of the two portions between the line segments.

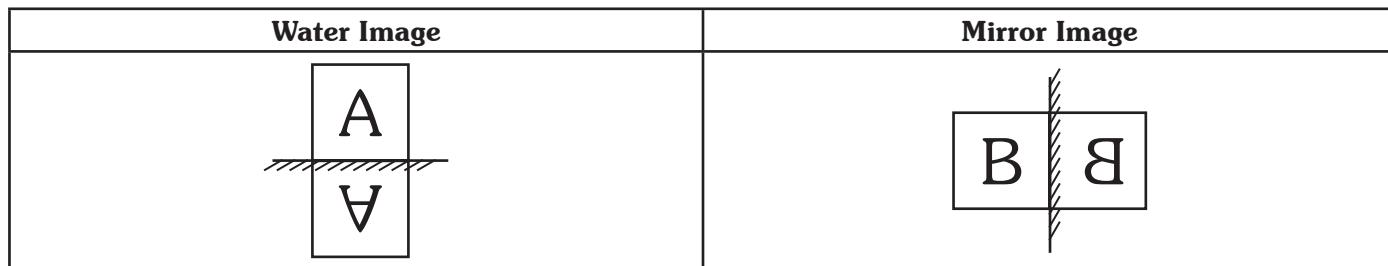
3

Mirror Image and Water Image

Section	Level	No. of Questions
Concept Applicator	Very easy	15
Concept Builder	Easy	15
Concept Cracker	Moderate	15
Concept Deviator	Difficult	

Mirror image and water image are two different concepts. Mirror image is also known as horizontal plane. In mirror image, left side and right side inter changed where, top and bottom are remain same.

In water image is inverted upside down whereas left and right side remain same



FOLLOW THE MIRROR AND WATER IMAGES OF ALPHABETS AND NUMERICAL

Letters	Mirror Images	Letters	Mirror Images	Letters	Mirror Images
A	A	J	ဂ	S	၂
B	B	K	က	T	၉
C	C	L	၁	U	၁
D	D	M	၂	V	၂
E	E	N	၄	W	၄
F	F	O	၀	X	၁
G	G	P	၁	Y	၁
H	H	Q	၁	Z	၁
I	I	R	၁		

Water Images of Alphabets

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Ӑ	Ӗ	Ҫ	Ӆ	Ӗ	Ҫ	Ҥ	Ӣ	ڶ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ	Ӯ

Mirror Images of Numbers

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Water Images of Numbers

1	2	3	4	5	6	7	8	9
ڶ	ڙ	ڻ	ڣ	ڢ	ڦ	ڤ	ڻ	ڰ

1. CONCEPT APPLICATOR

Directions (Qs. 1 to 10): In each of the following questions you are given a combination of alphabets and / or numbers followed by four alternatives (a), (b), (c) and (d). Choose the alternatives which is closely resembles the water image of the given combination.

1. REASONING

- | | |
|---------------|---------------|
| (a) KEAVOSAER | (b) QINOSAER |
| (c) REASONING | (d) REASONING |

2. NAME

- | | |
|-----------|----------|
| (a) NAME | (b) EMAN |
| (c) SWMAN | (d) EMAN |

3. MANTRI

- | | |
|------------|------------|
| (a) IHTNAM | (b) ITTNAM |
| (c) WANTRI | (d) IHTNAM |

4. MISSISSIPPI

- | | |
|-----------------|--------------|
| (a) MISSISSIPPI | (b) ISSISSIM |
| (c) WISSISSIBI | (d) ISSISSIM |

5. PAN20

- | | |
|-----------|-----------|
| (a) ȿAN20 | (b) ȿAN20 |
| (c) ȿAN20 | (d) PANSO |

6. PIONEER

- | | |
|-------------|-------------------|
| (a) ȿIONEEB | (b) REENOB |
| (c) PIONEEB | (d) None of these |

7. P1PA2PU

- | | |
|------------|-----------|
| (a) ȿ1PA2U | (b) ȿ1A2U |
| (c) ȿ1A2U | (d) U2A1P |

8. CAT2015

- | | |
|--------------|--------------|
| (a) CAVTS015 | (b) CAVS015 |
| (c) CAVTS012 | (d) CALTS012 |

9. NEXA

- | | |
|----------|----------|
| (a) NEXA | (b) AXEN |
| (c) NEXA | (d) NEAX |

10. destination

- | | |
|------------------|-------------------|
| (a) noitratunisq | (b) noitratunisq |
| (c) qestinutnoi | (d) none of these |

Directions (Qs. 11 to 20): In each of the following questions you are given a combination of alphabets and / or numbers followed by four alternatives (a), (b), (c) and (d). Choose the alternatives which is closely resembles the Mirror image of the given combination.

11. GLOBE

- | | |
|-----------|-----------|
| (a) GLOBE | (b) GLOBE |
| (c) GLOBE | (d) GLOBE |

12. BANKING

- | | |
|-------------|-------------|
| (a) BINKING | (b) BANKING |
| (c) BNKNIG | (d) BANKING |

13. RESEARCH

- | | |
|--------------|--------------|
| (a) RESEARCH | (b) RESEARCH |
| (c) RESEARCH | (d) HCRAESE |

14. SUMMER

- | | |
|------------|------------|
| (a) SUMMUS | (b) SUMMER |
| (c) SUMMER | (d) SUMMER |

15. AQ716P

- | | |
|------------|------------|
| (a) AԾ716P | (b) 716QAA |
| (c) P716P | (d) AԾ716P |

16. 7155×7156

- | | |
|--------------|--------------|
| (a) 71557157 | (b) 71557156 |
| (c) 65177157 | (d) 71557156 |

17. INDIA

- | | |
|-----------|-----------|
| (a) INDIA | (b) AIDNI |
| (c) INIDA | (d) AIDNI |

18. AMBULANCE

- | | |
|---------------|---------------|
| (a) AMBULANCE | (b) ECNALUBMA |
| (c) AMBULANCE | (d) None |

19. DEGREE

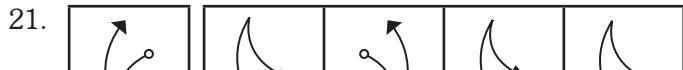
- | | |
|------------|------------|
| (a) DEGREE | (b) DEGREE |
| (c) DEGREE | (d) None |

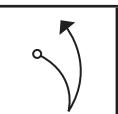
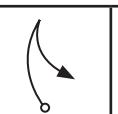
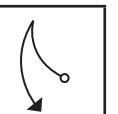
20. 99663125

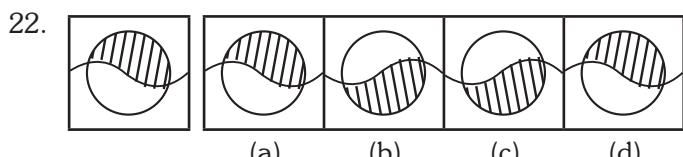
- | | |
|-------------|-------------|
| (a) 6663125 | (b) 6663125 |
| (c) 6663125 | (d) none |

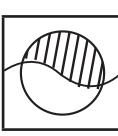
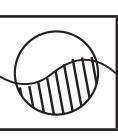
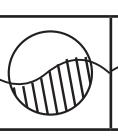
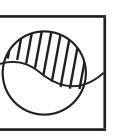
2 CONCEPT BUILDER

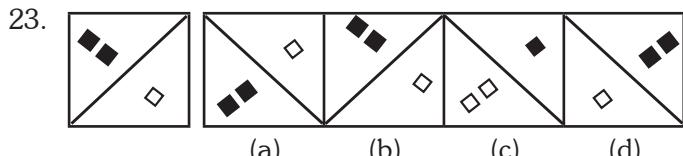
Direction (Qs. 21 to 28): In each of the following questions you are given a figure followed by four alternatives (a), (b) , (c) and (d). Choose the alternatives which is closely resembles the water image of the given combination.

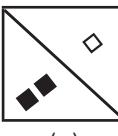
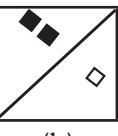
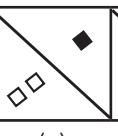
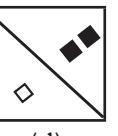


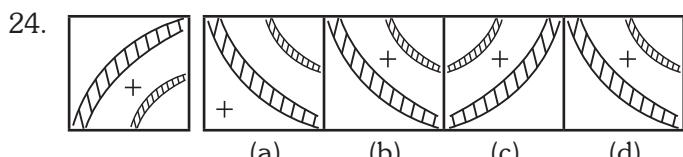
- (a)  (b)  (c)  (d) 

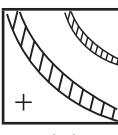
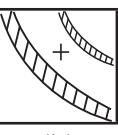
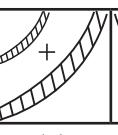
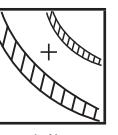


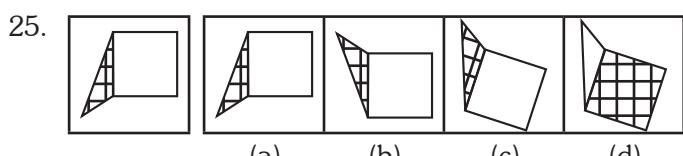
- (a)  (b)  (c)  (d) 

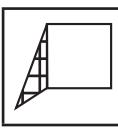
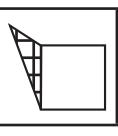
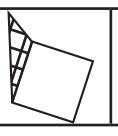
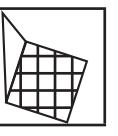


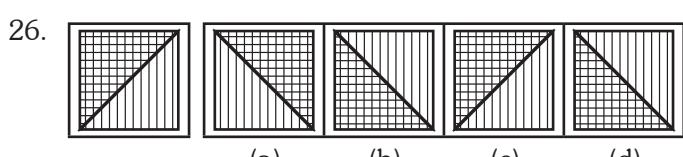
- (a)  (b)  (c)  (d) 

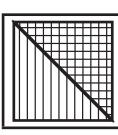
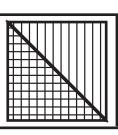
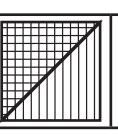
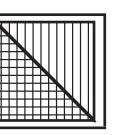


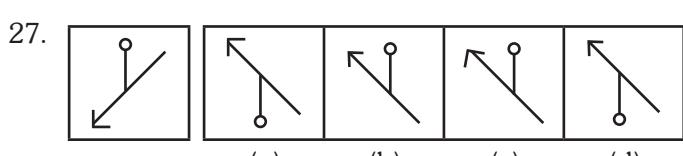
- (a)  (b)  (c)  (d) 

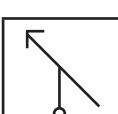
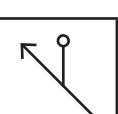
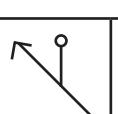
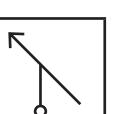


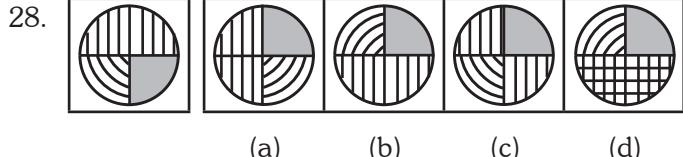
- (a)  (b)  (c)  (d) 



- (a)  (b)  (c)  (d) 



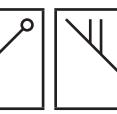
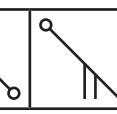
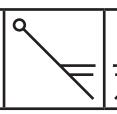
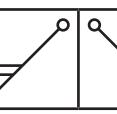
- (a)  (b)  (c)  (d) 

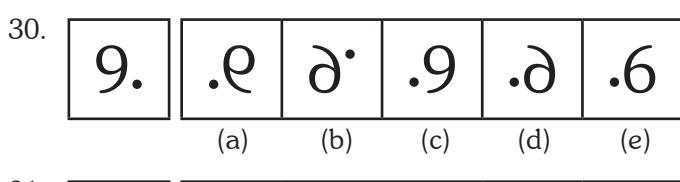


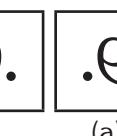
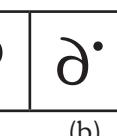
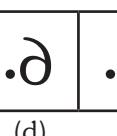
- (a)  (b)  (c)  (d) 

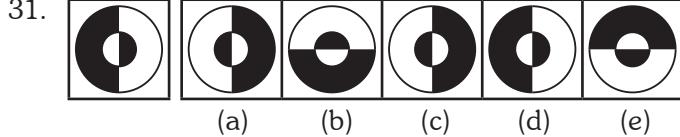
Direction (Qs. 29 to 37): In each of the following questions you are given a figure followed by four alternatives (a), (b) , (c) and (d). Choose the alternatives which is closely resembles the mirror image of the given combination.

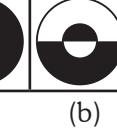
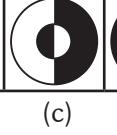
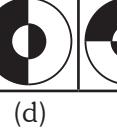


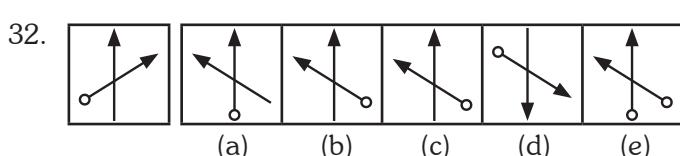
- (a)  (b)  (c)  (d)  (e) 

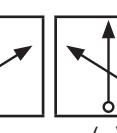
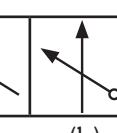
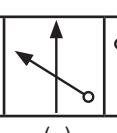
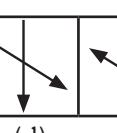
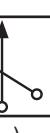


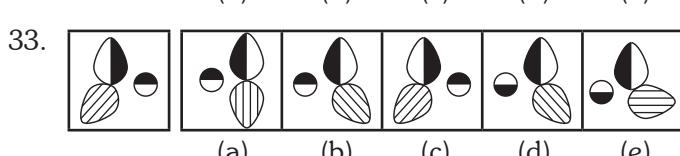
- (a)  (b)  (c)  (d)  (e) 

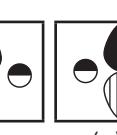
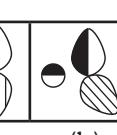
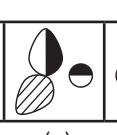
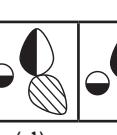


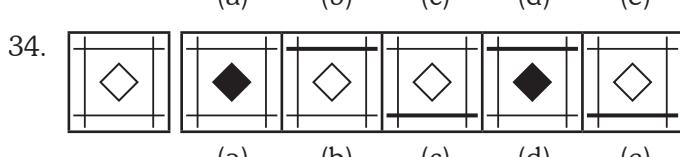
- (a)  (b)  (c)  (d)  (e) 

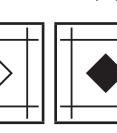
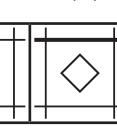
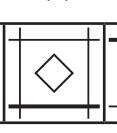
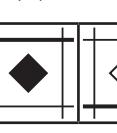


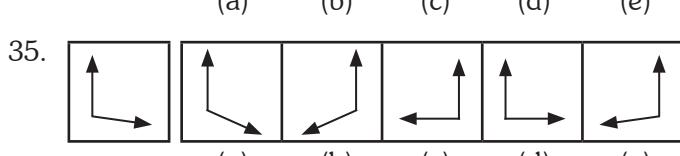
- (a)  (b)  (c)  (d)  (e) 

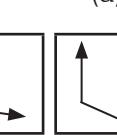
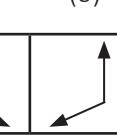
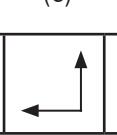
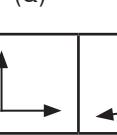


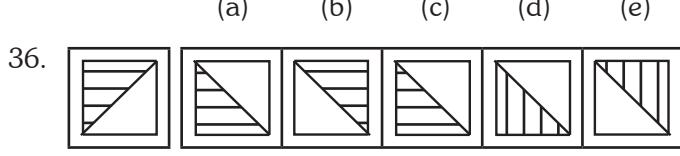
- (a)  (b)  (c)  (d)  (e) 

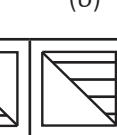
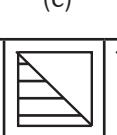
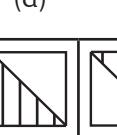


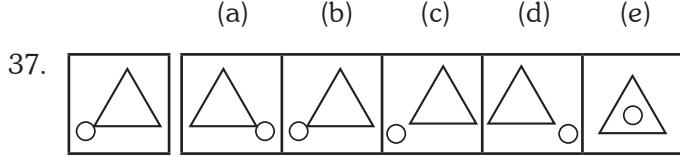
- (a)  (b)  (c)  (d)  (e) 

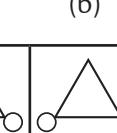
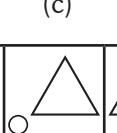
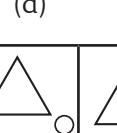
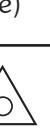


- (a)  (b)  (c)  (d)  (e) 



- (a)  (b)  (c)  (d)  (e) 



- (a)  (b)  (c)  (d)  (e) 

Answer with Explanation

Concept Applicator

Water image answer key:

1. (a)
2. (b)
3. (a)
4. (a)
5. (a)
6. (a)
7. (b)
8. (c)
9. (a)
10. (a)

Mirror image answer key:

11. (a)
12. (b)
13. (a)
14. (b)
15. (c)
16. (d)
17. (a)
18. (a)
19. (b)
20. (b)

Concept Builder

Water image answer key

21. (d)
22. (b)
23. (a)
24. (b)
25. (c)
26. (d)
27. (a)
28. (b)

Mirror image answer key :

29. (b)
30. (a)
31. (c)
32. (b)
33. (b)
34. (b)
35. (e)
36. (b)
37. (a)

Chapter

4

Paper Cutting and Folding

Section	Level	No. of Questions
Concept Applicator	Very easy	15
Concept Builder	Easy	15
Concept Cracker	Moderate	15
Concept Deviator	Difficult	

INTRODUCTION

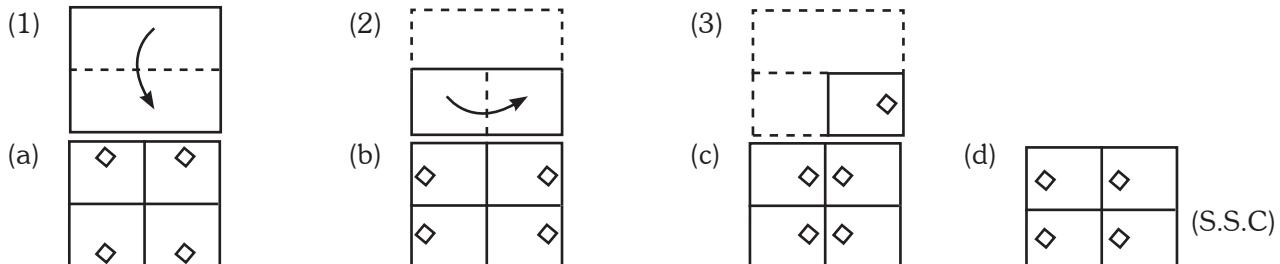
In this Chapter we will discuss problems based on paper cutting and paper folding.

Paper cutting: In this type of questions, a set of three figures showing in which a piece of paper is folded first and followed by a cut than the examinee has to select one of the figures from the set of four alternative figures which would most closely resemble the pattern when the paper is unfolded.

Paper Folding: The problems based on paper folding are such that the examinee has to select a figure from the four alternatives which will be closely resemble the pattern that would be formed when a Sheet (basically a Transparent sheet) is folded alone a dotted line carrying any design or figure.

Let's have a look on Examples:

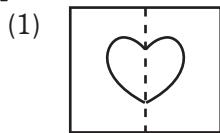
Example of PAPER CUTTING



Solution : Option (b) As the paper is folded to one fourth of the portion, and a cut (in the shape of diamond) is present to the middle of the right most corner. Once it open, option (b) figure follows the pattern.

Example of PAPER FOLDING

Transparent Sheet



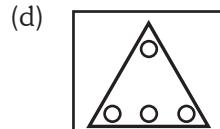
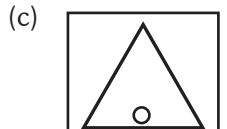
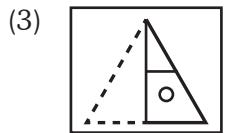
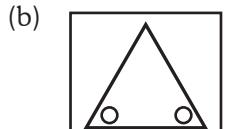
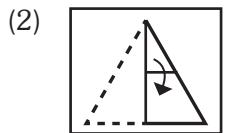
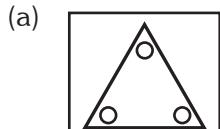
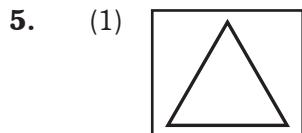
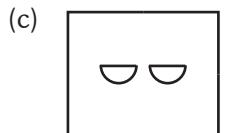
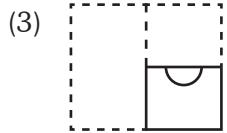
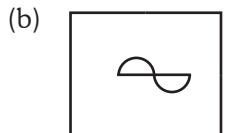
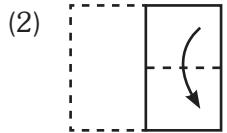
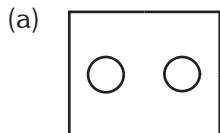
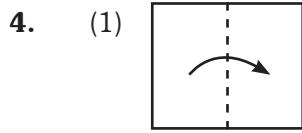
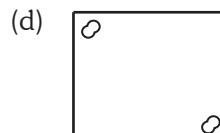
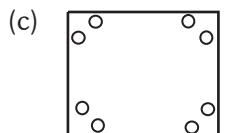
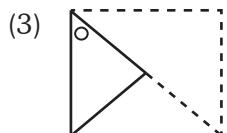
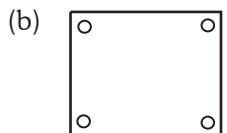
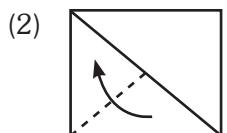
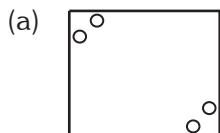
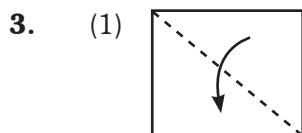
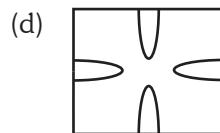
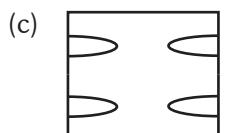
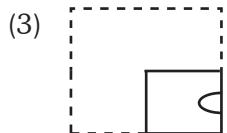
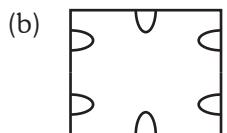
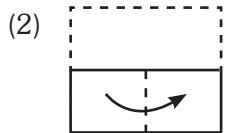
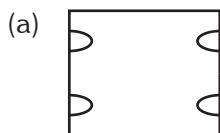
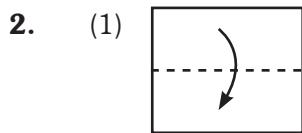
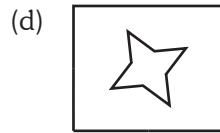
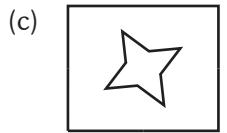
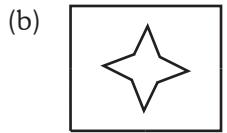
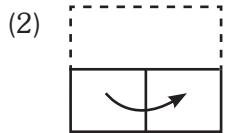
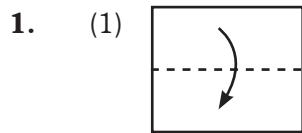
Response Figure

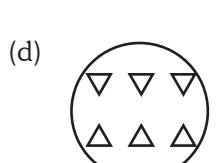
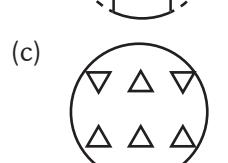
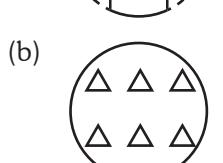
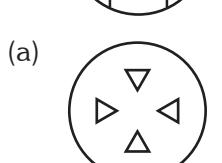
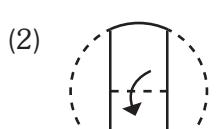
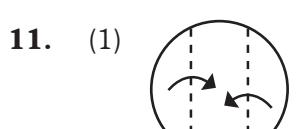
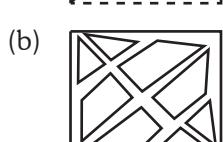
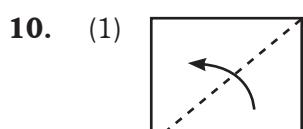
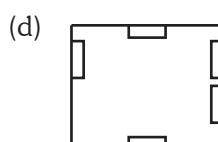
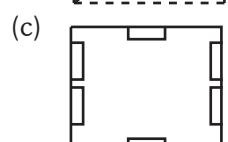
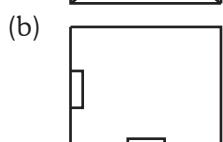
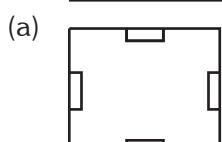
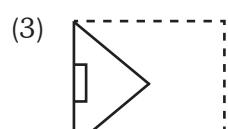
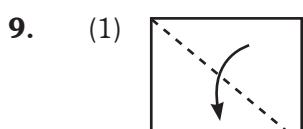
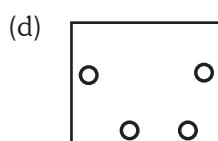
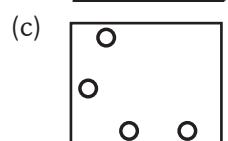
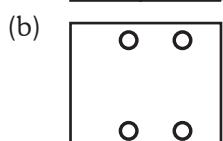
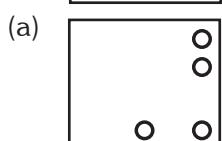
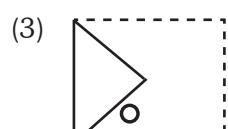
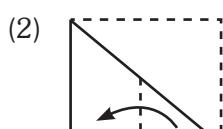
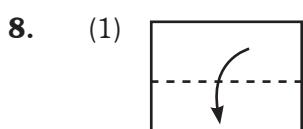
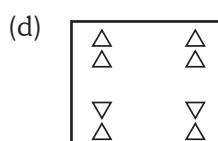
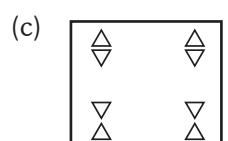
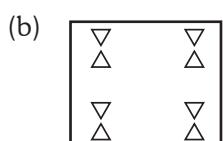
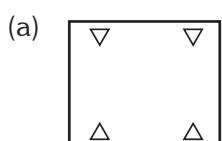
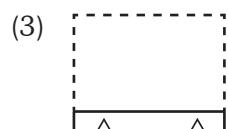
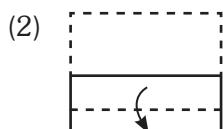
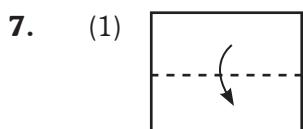
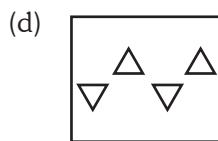
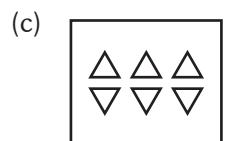
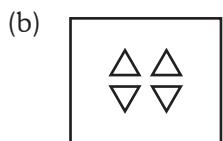
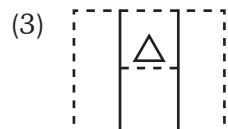
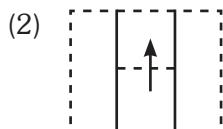
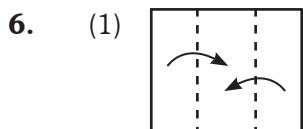


Solution : option (a) as the transparent figure consists a diagram of heart shape , when folded along the dotted line , the lines of the heart overlapped with each other and appears as a single line figure. So option (a) is the answer of the figure.

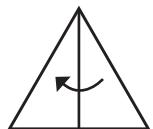
1. CONCEPT APPLICATOR

Directions Qs. 1 to 14): If a Paper (Transparent Paper) is folded in a manner and a design Cut or pattern punched is made. When unfolded this paper appears as given below in the answer figure. Choose the correct answer figure given below.

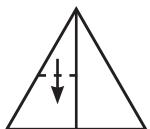




12. (1)



(2)



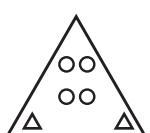
(3)



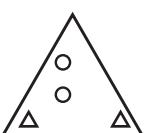
(a)



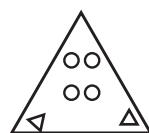
(b)



(c)



(d)



13. (1)



(2)



(3)



(a)



(b)



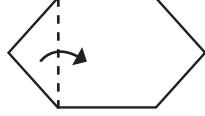
(c)



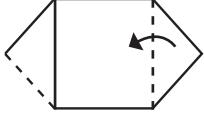
(d)



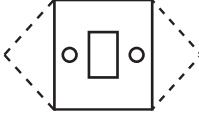
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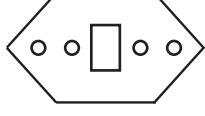
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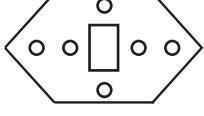
(3)



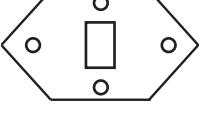
(a)



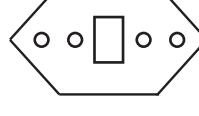
(b)



(c)



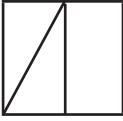
(d)



2 CONCEPT APPLICATOR OF PAPER FOLDING

Direction (Qs. 1-15): If a Paper (Transparent Sheet) is folded in a manner and a design or pattern is drawn. When unfolded this paper appears as given below in the answer figure. Choose the correct answer figure given below.

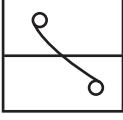
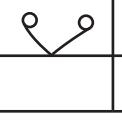
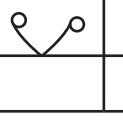
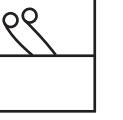


- (a)  (b)  (c)  (d) 

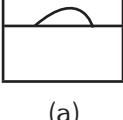
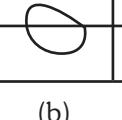
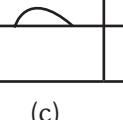
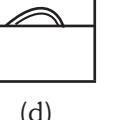


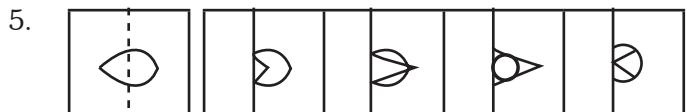
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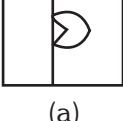
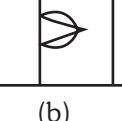
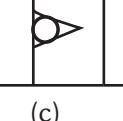
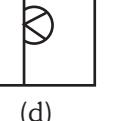


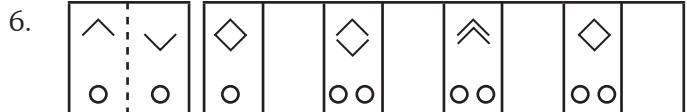
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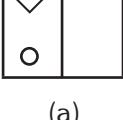
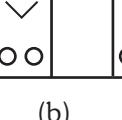
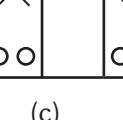
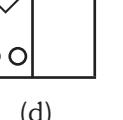


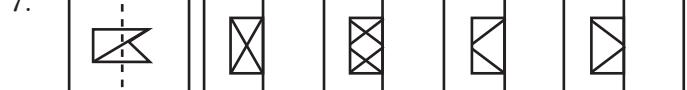
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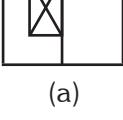
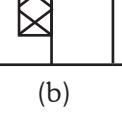
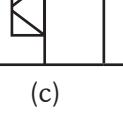
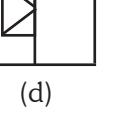


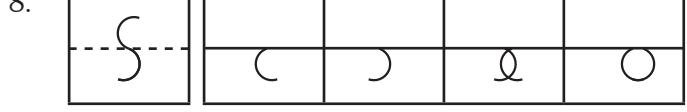
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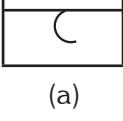
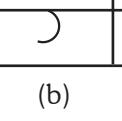
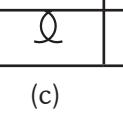
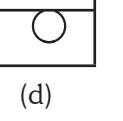


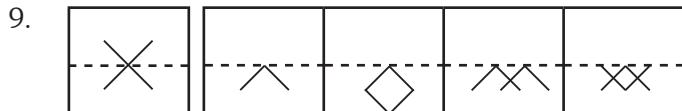
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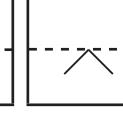
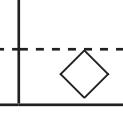
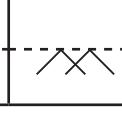
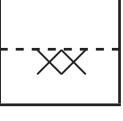


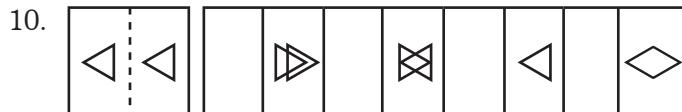
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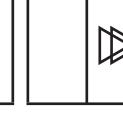
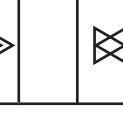
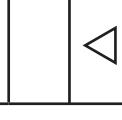
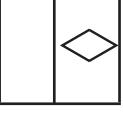


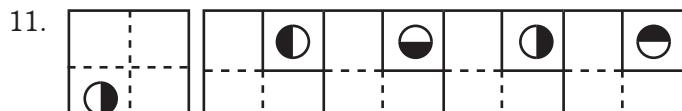
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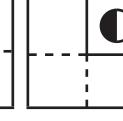
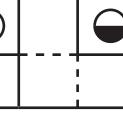
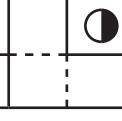
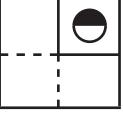


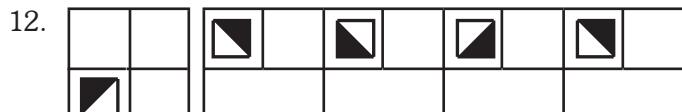
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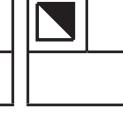
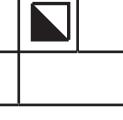
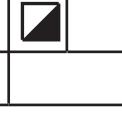
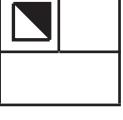


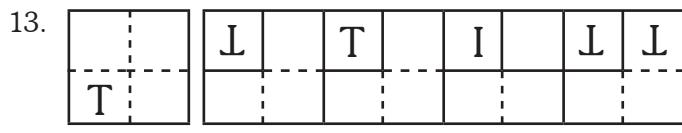
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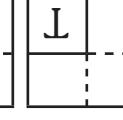
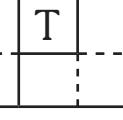
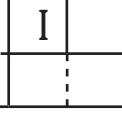
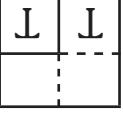


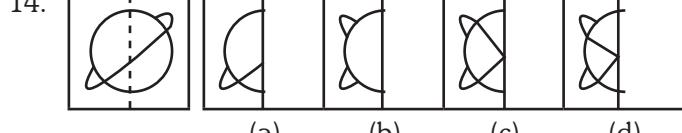
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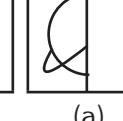
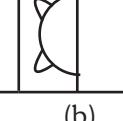
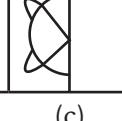
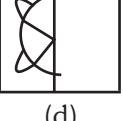


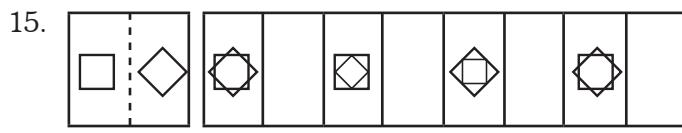
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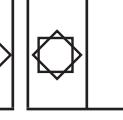
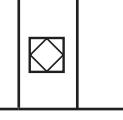
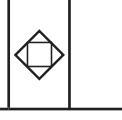
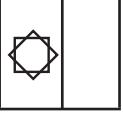


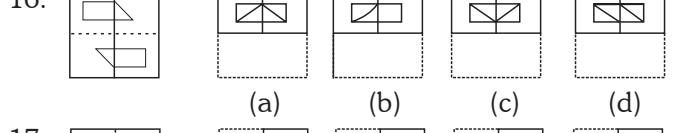
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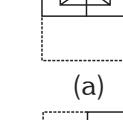
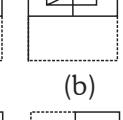
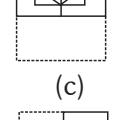
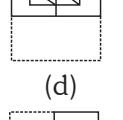


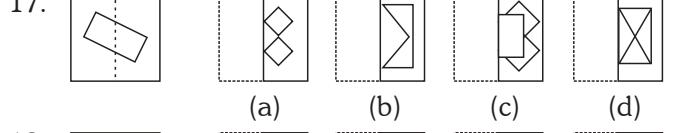
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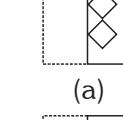
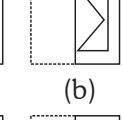
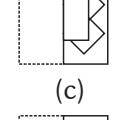
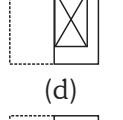


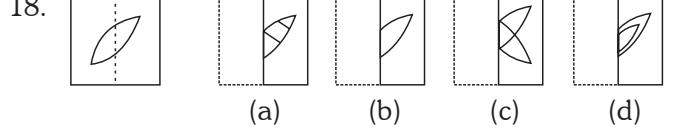
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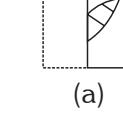
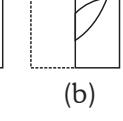
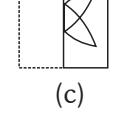
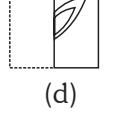


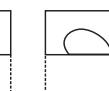
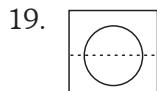
- (a)  (b)  (c)  (d) 



- (a)  (b)  (c)  (d) 



- (a)  (b)  (c)  (d) 

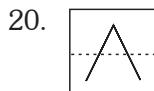


(a)

(b)

(c)

(d)



(a)

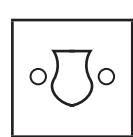
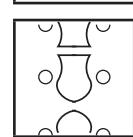
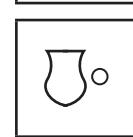
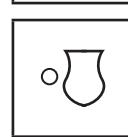
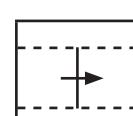
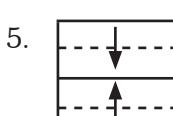
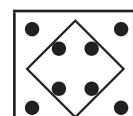
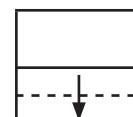
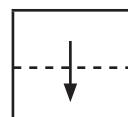
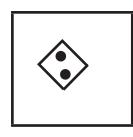
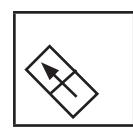
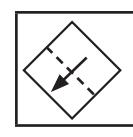
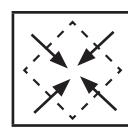
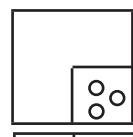
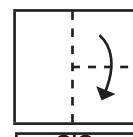
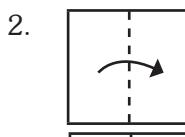
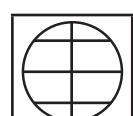
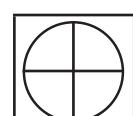
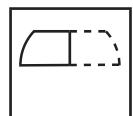
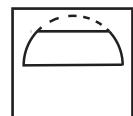
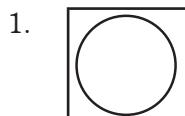
(b)

(c)

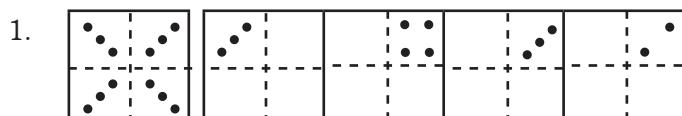
(d)

3 CONCEPT BUILDER

Directions (Qs. 1 to 5): If a Paper /Transparent Paper is folded in a manner and a Cut or design or pattern is made. When unfolded this paper appears as given below in the answer figure. Choose the correct answer figure given below.



Direction (1 to 10): If a paper is folded in a particular manner and a punch is made, when unfolded this paper appears as given below in this question figure. Find out the manner in which the paper is folded and the punch is made from the answer figures given.

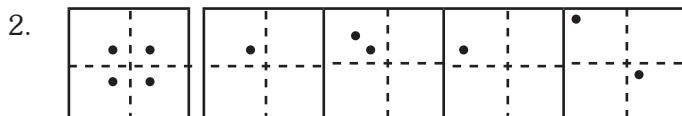


(a)

(b)

(c)

(d)

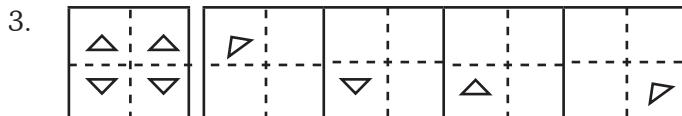


(a)

(b)

(c)

(d)

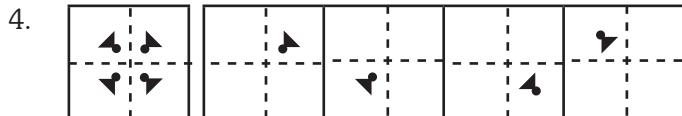


(a)

(b)

(c)

(d)

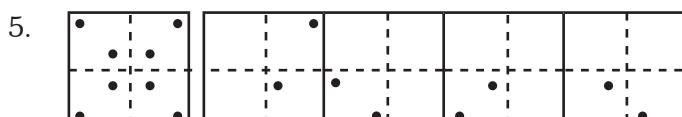


(a)

(b)

(c)

(d)

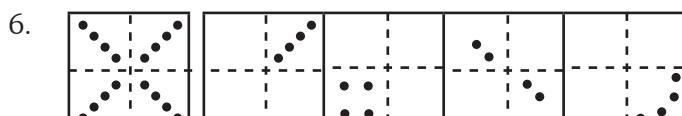


(a)

(b)

(c)

(d)

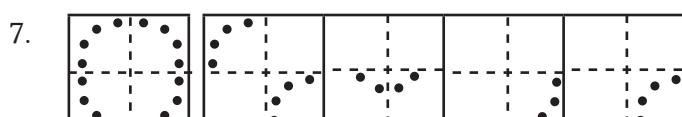


(a)

(b)

(c)

(d)



(a)

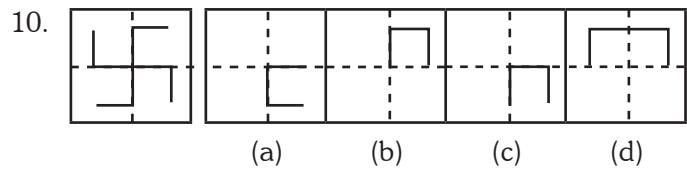
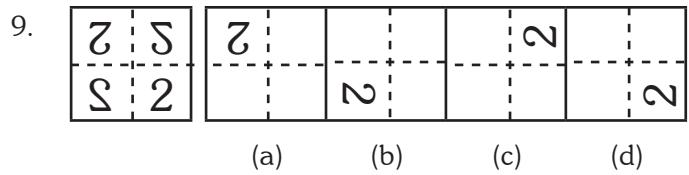
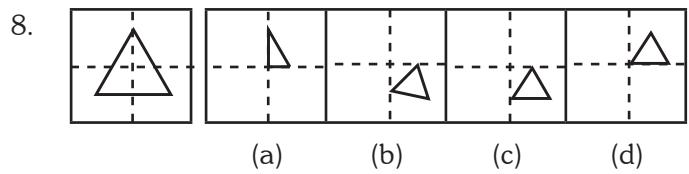
(b)

(c)

(d)

Paper Cutting and Folding

325



Answer with Explanation

Concept Applicator

Concept Applicator Answers of Paper Cutting:

1. (c)
2. (c)
3. (a)
4. (a)
5. (b)
6. (c)
7. (b)
8. (a)
9. (a)
10. (c)
11. (d)
12. (b)
13. (c)
14. (a)

Concept Applicator Answers of Paper Folders

1. (b)
2. (b)
3. (b)
4. (a)
5. (a)
6. (a)
7. (b)
8. (d)
9. (a)
10. (b)
11. (a)
12. (b)
13. (a)
14. (c)
15. (a)

Concept Builder

1. (d)

2. (c)

3. (d)

4. (a)

5. (c)

1. (c)

2. (a)

3. (b)

4. (a)

5. (c)

6. (a)

7. (c)

8. (c)

9. (a)

10. (b)

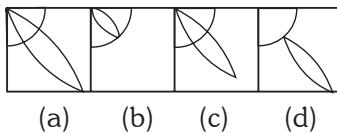
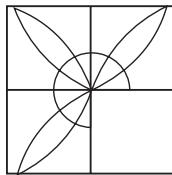
Completion of Incompletion Pattern

Section	Level	No. of Questions
Concept Applicator	Very easy	15
Concept Builder	Easy	15
Concept Cracker	Moderate	15
Concept Deviator	Difficult	

INTRODUCTION : in this chapter a figure will be given which is not a complete figure a set of figures is given which will completes the problem figure.

Example:

Question Figure Answer Figure

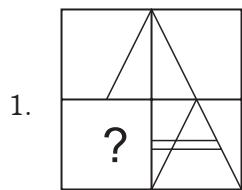


(a) (b) (c) (d)

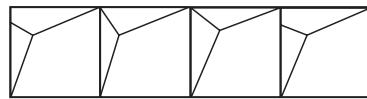
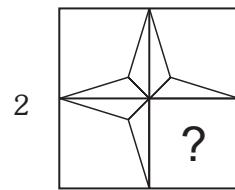
Solution: Clearly from option (c) we can say that it will complete the blank space and completes the entire figure. And if we observe carefully we can find that the Patel and the quadrant satisfies the question figure.

1. CONCEPT APPLICATOR

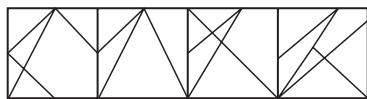
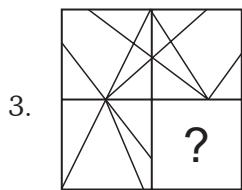
Directions (Qs. 1-29) : Following Questions has four alternatives, among which one completes the figures.



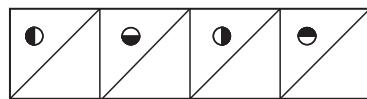
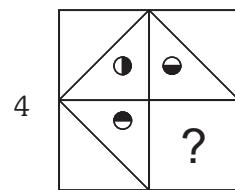
(a) (b) (c) (d)



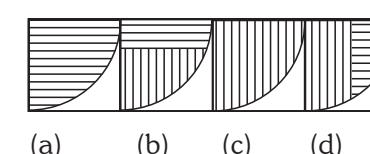
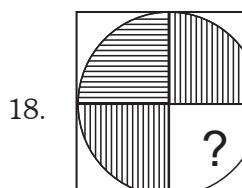
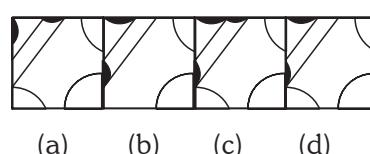
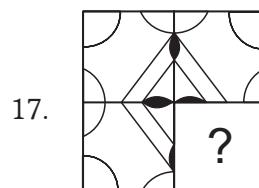
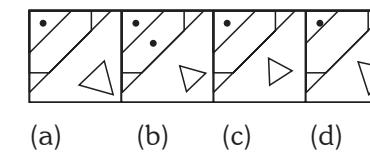
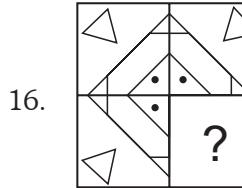
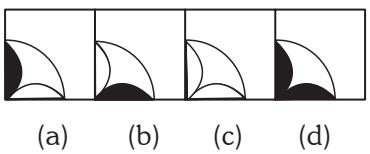
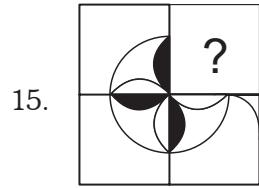
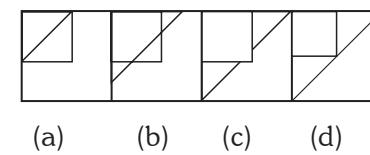
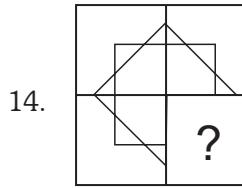
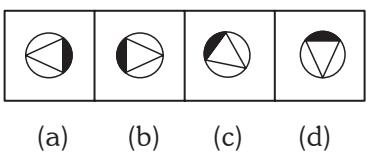
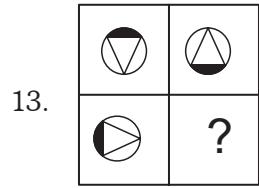
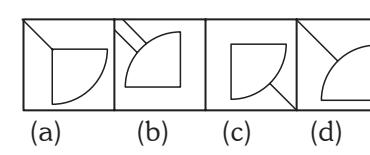
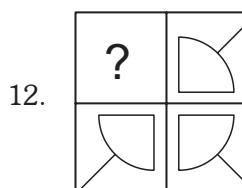
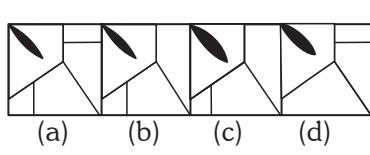
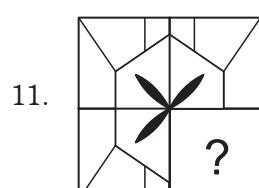
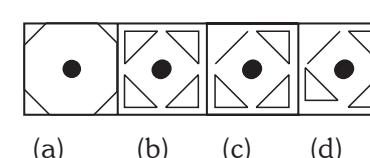
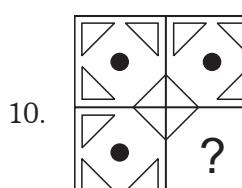
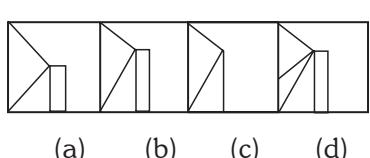
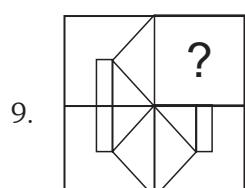
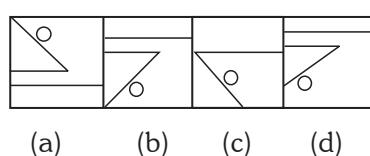
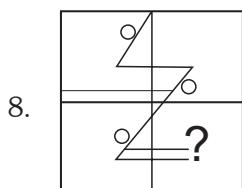
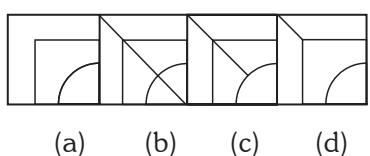
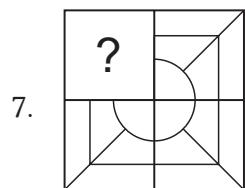
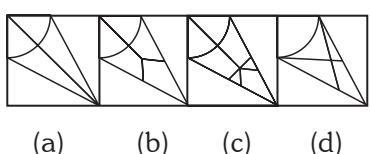
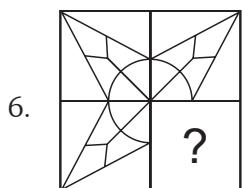
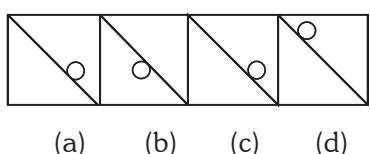
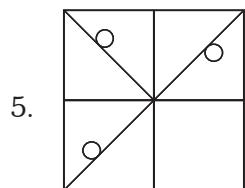
(a) (b) (c) (d)



(a) (b) (c) (d)



(a) (b) (c) (d)



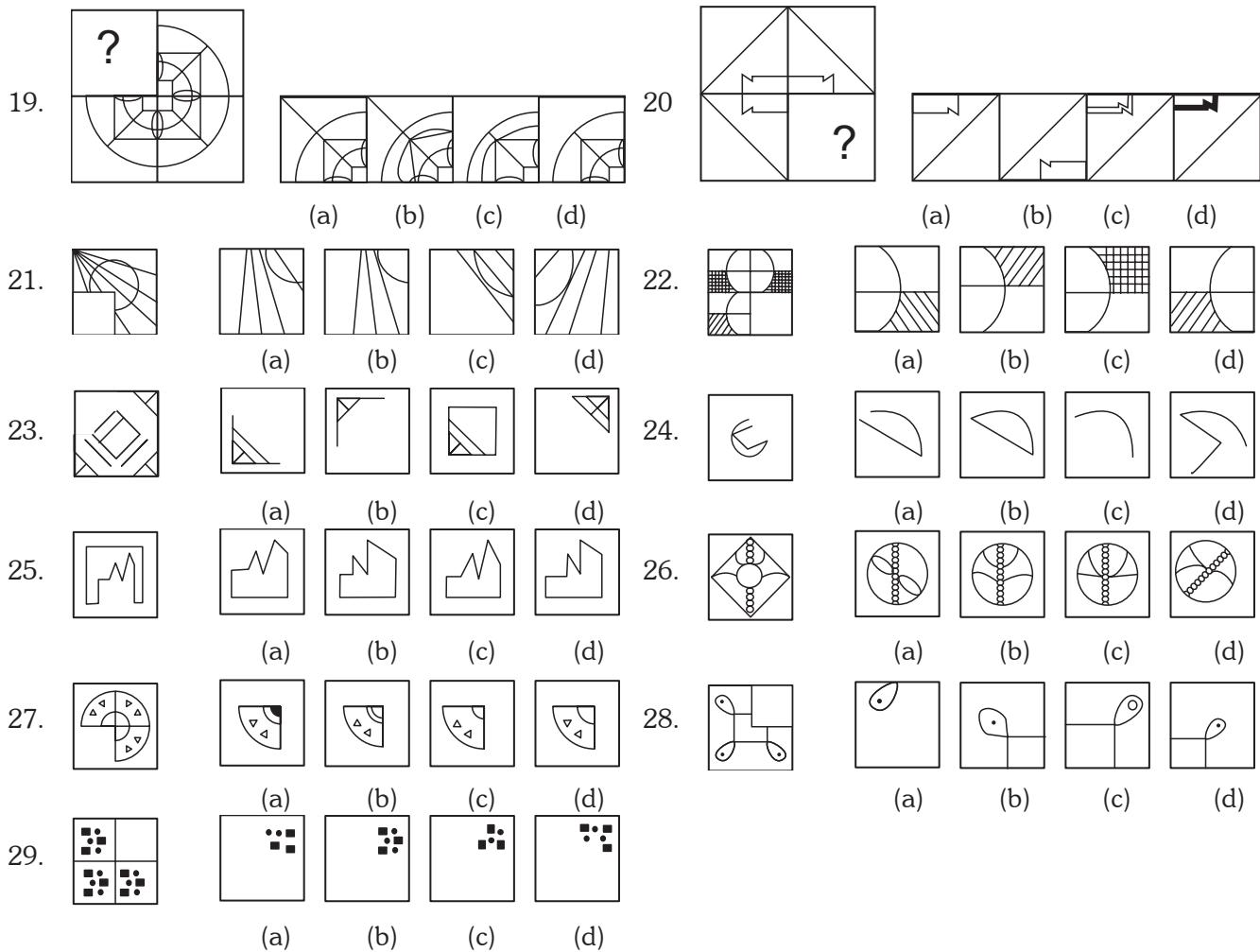
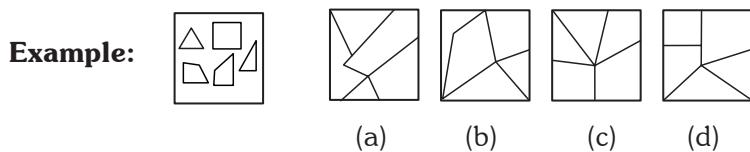


Figure Formation

This portion of the chapter deals with the formation of figure from the various given parts or choosing the pattern with identical components.



Solution : option (d) As in the question figure we have two triangles and three quadrilaterals. Observe option (a), (b) and (c) we found

In option (a) there are two triangles but two quadrilaterals and one hexagon.

In option (b) which has two triangles and three quads but the quads are not similar to the quads of the question figure.

In option (c) there are three triangles

Hence option a, b, and c ruled out . so option (d) is the answer which also satisfies the condition.

Lets see the exercise :

2 CONCEPT BUILDER

Direction (Qs. 1-10) : In the following questions, there are four answer figures which can be formed from the cut out pieces given in question figure.

- | | | | | | | | | | | | |
|-----|---|---|---|---|---|-----|--|--|--|--|--|
| 1. |  |  |  |  |  | 2. |  |  |  |  |  |
| 3. |  |  |  |  |  | 4. |  |  |  |  |  |
| 5. |  |  |  |  |  | 6. |  |  |  |  |  |
| 7. |  |  |  |  |  | 8. |  |  |  |  |  |
| 9. |  |  |  |  |  | 10. |  |  |  |  |  |
| 11. |  |  |  |  |  | | | | | | |

Answer with Explanation

Concept Applicator

- | | |
|----------------|----------------|
| 1. option (c) | 16. option (c) |
| 2. option (d) | 17. option (d) |
| 3. option (b) | 18. option (a) |
| 4. option (a) | 19. option (d) |
| 5. option (b) | 20. option (a) |
| 6. option (b) | 21. option (c) |
| 7. option (c) | 22. option (a) |
| 8. option (b) | 23. option (b) |
| 9. option (b) | 24. option (a) |
| 10. option (c) | 25. option (a) |
| 11. option (c) | 26. option (b) |
| 12. option (d) | 27. option (d) |
| 13. option (a) | 28. option (d) |
| 14. option (b) | 29. option (b) |
| 15. option (b) | |

Concept Builder

1. Option (d) there are two triangles and two quadrilaterals and figure (d) only satisfies it and resembles the figure.
2. Option (b) the figure in option (b) is one of the part of the question figure.
3. Option (a)
4. Option (a)
5. Option (b)
6. Option (c)
7. Option (c)
8. Option (a)
9. Option (a)
10. Option (b)
11. Option (d)

Chapter

6

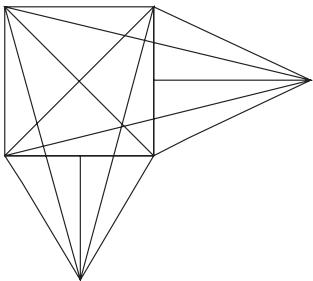
Counting of Figures and Hidden Embedded Figures

Section	Level	No. of Questions
Concept Applicator	Very easy	15
Concept Builder	Easy	15
Concept Cracker	Moderate	15
Concept Deviator	Difficult	

The First Part of the Chapter includes the problems based on the counting of the figures in a Given Complex Figures and the second part of the chapter based on the Hidden embedded Figures which are inside the question Figure. The Systematic method for determining the number of any particular Figure or the Hidden figure from the answer figures would be clear from the examples.

Example: 1

What is the number of Straight Lines in the following Figure?



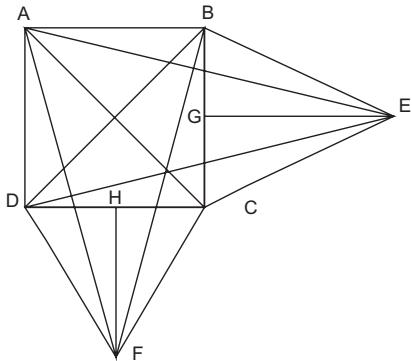
(a) 12

(b) 16

(c) 18

(d) 20

Solution: lets name the Figure First.



Three Horizontal Lines are – AB, DC, GE.

Three Vertical Lines are - AD, BC and HF.

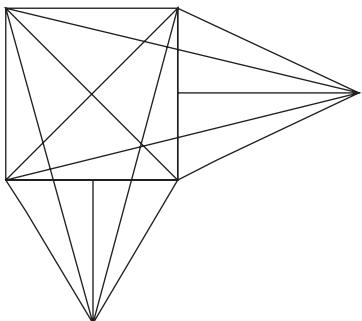
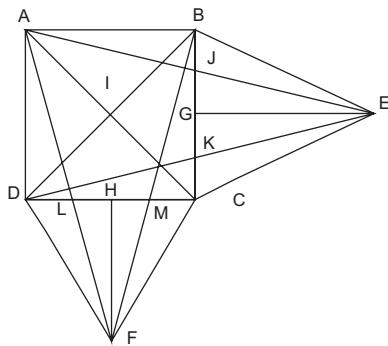
Ten Slant Lines are – AC, DB, DF, AF, BF, CF, CE, DE, AE, and BE

Then, total Lines be – 16

Hence option (b)

Example: 2

How many Triangles are there in the following Figure?

**Solution:**

Let consider the Square(ABCD) First,

Total Triangles be – ADC, ABC, AID, DIC, CIB, and BIC = 6 Triangles

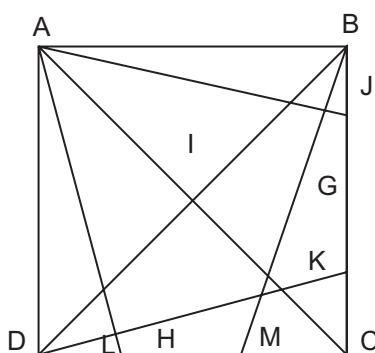
Consider the triangle BCE with Common side BC, then Number of triangles be – BCE, BGE, EGC, BJE, EJG, EGK, EKC, EDC, EBA = 9

Similarly For the Triangle DCF with common side DC has – 9 triangles.

Now consider only inside the square,

Triangles like: ADL, BMC, AJB and DCK = 4 Triangles

And there are more Triangles inside the square Figure which are marked .



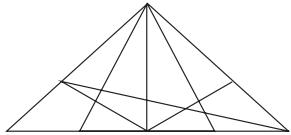
So, marked Triangles are – 15 Triangles

Therefore Total Triangles are - 43

1. CONCEPT APPLICATOR

How Many Triangles and Straight lines are there?

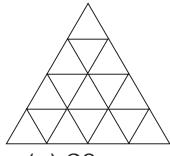
1.



- (a) 8, 20
(c) 10, 22
(b) 8, 22
(d) 10,20

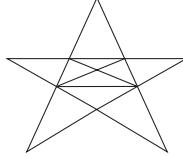
Direction 2-4: How many Triangles are there?

2.



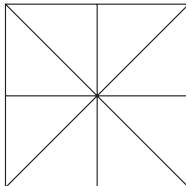
- (a) 20
(c) 24
(b) 22
(d) 26

3.



- (a) 15
(c) 18
(b) 16
(d) 19

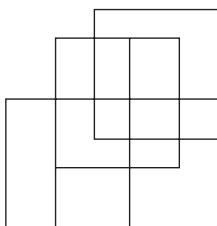
4.



- (a) 16
(c) 14
(b) 15
(d) 18

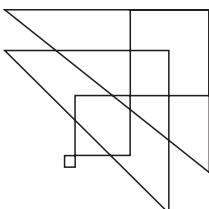
Direction 5-6: How many quadrilaterals are there in these given figures?

5.



- (a) 15
(c) 17
(b) 16
(d) 19

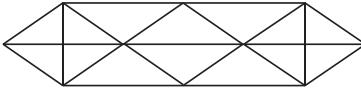
6.



- (a) 8
(c) 4
(b) 6
(d) none of these

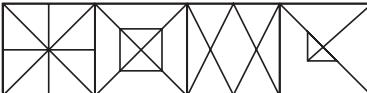
Direction 7-9: Count the total number of Triangles of the following figures?

7.



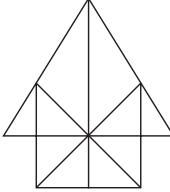
- (a) 20
(c) 24
(b) 22
(d) 26

8.



- (a) 40
(c) 43
(b) 41
(d) 45

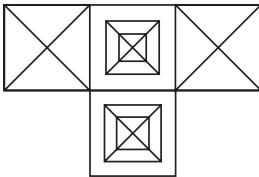
9.



- (a) 16
(c) 18
(b) 17
(d) 20

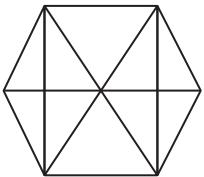
Direction 10-11: How many squares and triangles are there in the given figures?

10.



- (a) 8, 32
(c) 8, 40
(b) 8, 48
(d) 8, 50

11.



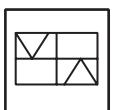
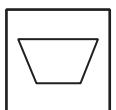
- (a) 5, 22
(c) 6, 22
(b) 8, 20
(d) 8, 22

HIDDEN EMBEDDED FIGURES

In this type of problems a figure is given, followed by four complex figures in such a way that the question figure's element is embedded in one and only one of them.

For example:

Example: 1 Question figure



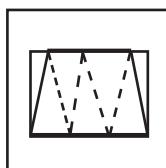
(a)

(b)

(c)

(d)

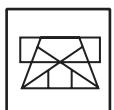
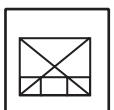
Solution: On close observation, we find that the element of the question figure is embedded in option (c) figure. As



(c)

Hence, option (c)

Example 2: Question figure



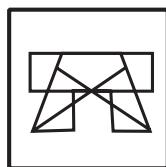
(a)

(b)

(c)

(d)

Solution: On close observation, we find that the element of the question figure is embedded in option (d) figure. As



(d)

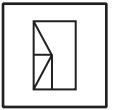
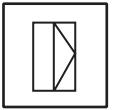
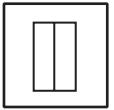
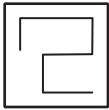
Hence, option (d).

2. CONCEPT APPLICATOR

Direction (1-20) : Select the answer figure in which the question figure is hidden.

Question figure

1.



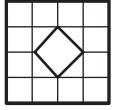
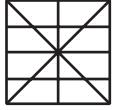
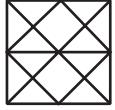
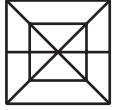
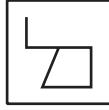
(a)

(b)

(c)

(d)

2.

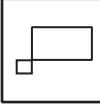
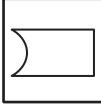
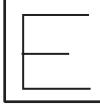
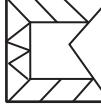
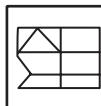
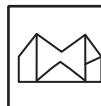
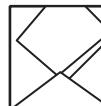
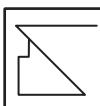
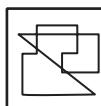
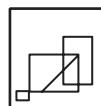
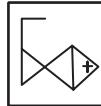
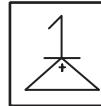
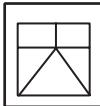
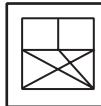
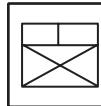
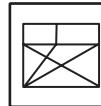
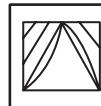
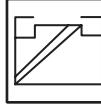
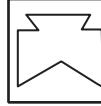
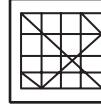
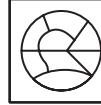
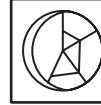
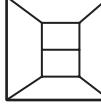
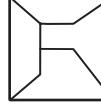


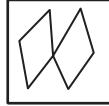
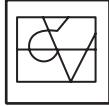
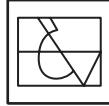
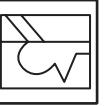
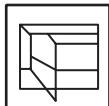
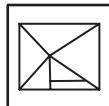
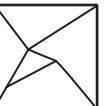
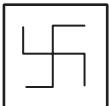
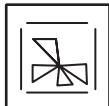
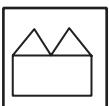
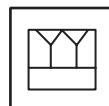
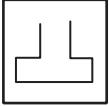
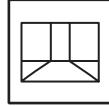
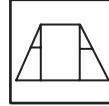
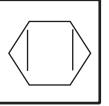
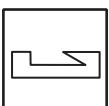
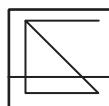
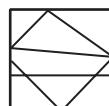
(a)

(b)

(c)

(d)

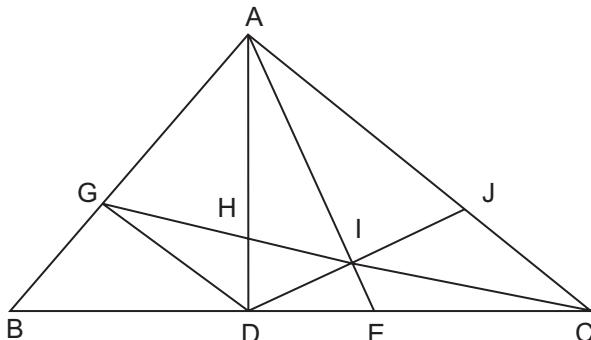
3.  (a)  (b)  (c)  (d)
4.  (a)  (b)  (c)  (d)
5.  (a)  (b)  (c)  (d)
6.  (a)  (b)  (c)  (d)
7.  (a)  (b)  (c)  (d)
8.  (a)  (b)  (c)  (d)
9.  (a)  (b)  (c)  (d)
10.  (a)  (b)  (c)  (d)
11.  (a)  (b)  (c)  (d)
12.  (a)  (b)  (c)  (d)

13.  (a)  (b)  (c)  (d)
14.  (a)  (b)  (c)  (d)
15.  (a)  (b)  (c)  (d)
16.  (a)  (b)  (c)  (d)
17.  (a)  (b)  (c)  (d)
18.  (a)  (b)  (c)  (d)
19.  (a)  (b)  (c)  (d)
20.  (a)  (b)  (c)  (d)

Answer with Explanation

Concept Applicator

1.

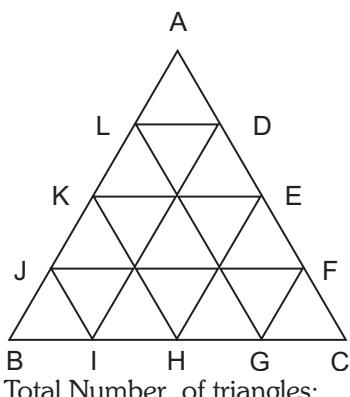


No. of Straight lines: AB, BC, CA, AD, AE, GD, GC, DF = 8

No. of Triangles: ABC, ABD, ADE, AEC, ABE, ADC, AGC, BGC, BGD, DGC, GDH, HDI, GDI, DIE, IEC, DIC, AIC, AIJ, JIC, AGI, AGH, AHI = 22

Option (b)

2.



Total Number of triangles:

From the Vertex A: ABC, AJF, AKE, ALD

From the Vertex B: BIJ, BHK, BGL

From the Vertex C: CGF, CHE, CID

In quad BJFC: there are 7 small triangles

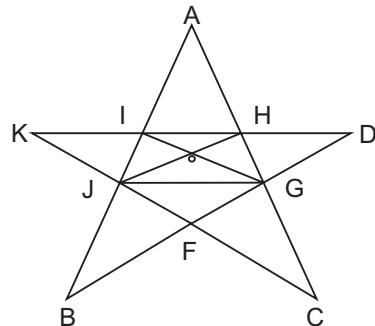
In quad KEJF: there are 4 Small triangles

In quad KELD: there are three triangles

Total triangles 24.

Option (c)

3.

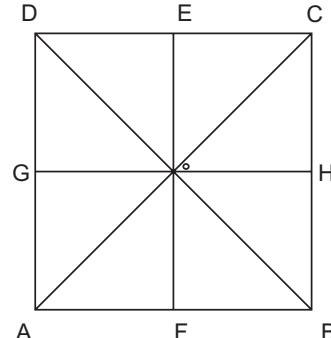


Number of Triangle are ABG, AJC, EFD, DIB, AIH, EIJ, BJF, CFG, DGH, JFG, IJG, HJG, IOH, IOJ, IOG, HOG.

Total: 19

Option (d)

4.

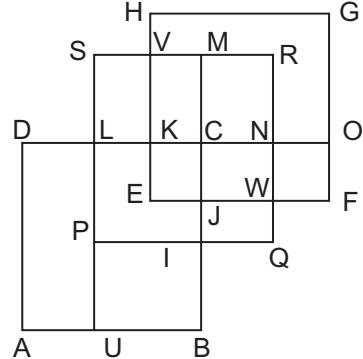


Number of triangles are ABC, ADC, ADB, BDC, DOC, COB, BOA, AOD, DOE, EOC, AOF, FOB, DOG, COH, AOG, BOH.

Total: 16

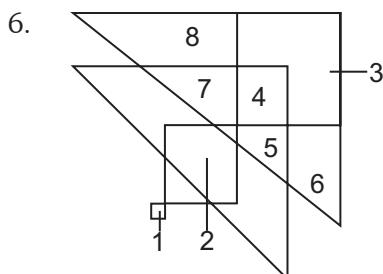
Option (a)

5.



TOTAL NUMBER OF QUADRILATERALS = 17

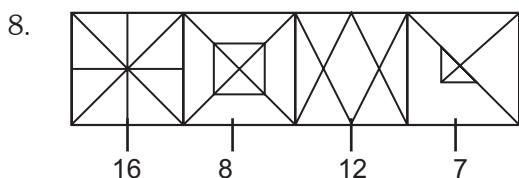
Hence option (c)



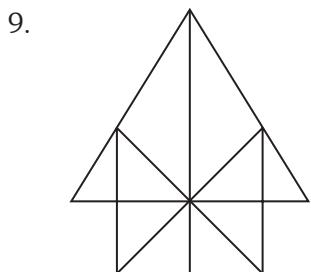
Hence option (a)



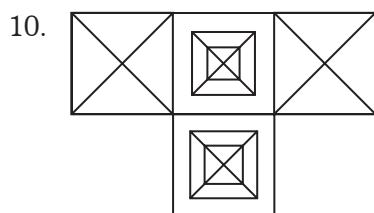
There are total 24 triangles. The way to count the triangles of the figure is to draw the figure and count.
Option(c)



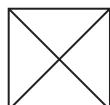
Option: (c)



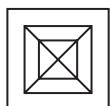
The total number of triangles present in the above figure is 20
Option (d)



The above figure contains 4 boxes were two are similar.



This particular box contains 8 triangles and 1 square, as there are two boxes which are same, than there are total 16 triangles and 2 squares.



The above figure contains – (16 triangles and 3 squares) \times 2 = 32 triangles and 6 squares.

Total triangles = 48 and total squares = 8

Hence option (b)

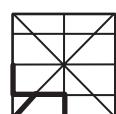
11. total triangles are - 22 and total squares are 5.

Hence option (a)

Concept Applicator



Option (b)



Option (c)



Option (b)



Option (a)



Option (b)



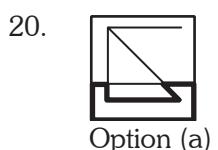
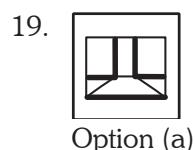
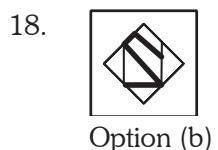
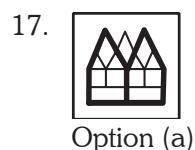
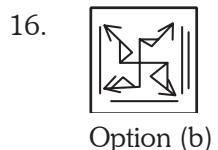
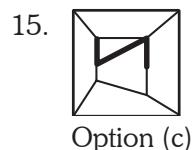
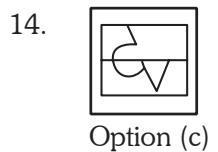
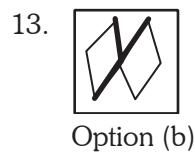
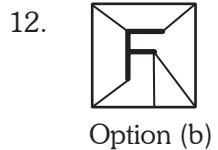
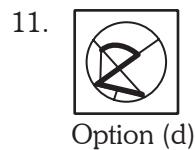
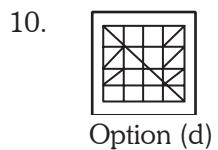
Option (d)



Option (d)



Option (d)



Chapter

7

Cubes and Dices

Section	Level	No. of Questions
Concept Applicator	Very easy	15
Concept Builder	Easy	15
Concept Cracker	Moderate	15
Concept Deviator	Difficult	

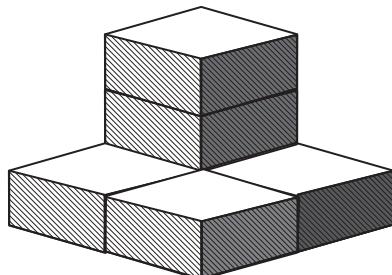
Introduction

In This Chapter we will study the non-verbal section of Cubes and dice. Verbal questions on cubes has been discussed earlier in this book. As cube is a three dimensional geometrical figure, which can only be made out of squares. Square when given a height equal to one of the sides becomes a cube. It has six equal sides or surface Twelve edges and eight corners.

When the number of cubes or blocks in a figure is to be counted following procedure to be adopted.

Counting the Number of Cubes / Blocks.

Example 1:



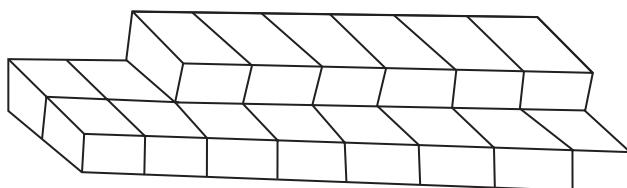
- (a) 5 (b) 6 (c) 7 (d) 8

Solution: the above figure consists 3 blocks in a column and one block in 3-columns.

$$\text{Total blocks} = (3 \times 1) + (1 \times 3) = 3 + 3 = 6$$

Option (b)

Example 2:



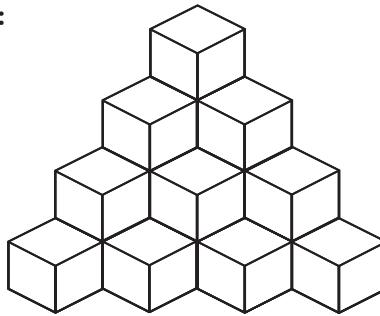
- (a) 20 (b) 21 (c) 22 (d) 24

Solution: The above figure we can solve by consisting rows too.

There are two rows with 8 blocks and 1 rows – 6 blocks.

$$\text{Total Blocks} - (2 \times 8) + (1 \times 6) = 16 + 6 = 22$$

Option (c)

Example 3:

- (a) 17 (b) 18 (c) 19 (d) 20

Solution: The above figure we can count by columns method:

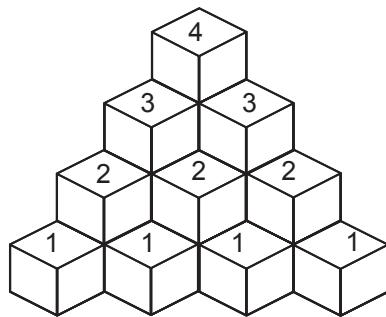
Four columns – one cube each

Three columns - two cubes each

Two columns - three cubes each

One Column - Four cubes each

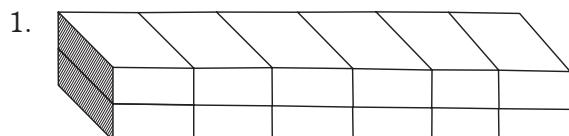
Below the numbers on the cubes represents the total cubes present on the particular column.



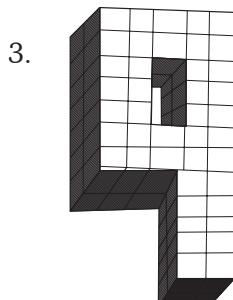
Hence, the total number of cubes be $= (4 \times 1) + (2 \times 3) + (3 \times 2) + (1 \times 4) = 4 + 6 + 6 + 4 = 20$

Option (d).

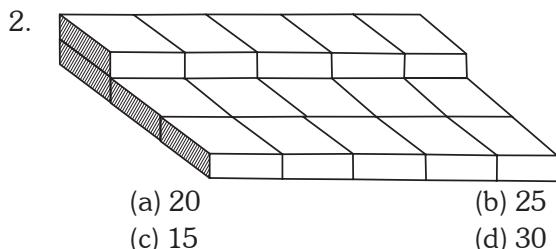
1. CONCEPT APPLICATOR



- (a) 10 (b) 11
(c) 12 (d) 13

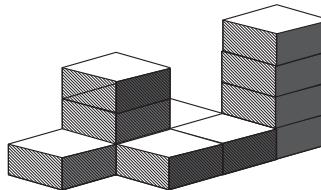


- (a) 84 (b) 64
(c) 48 (d) 50



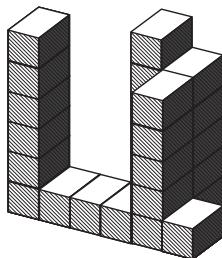
- (a) 20 (b) 25
(c) 15 (d) 30

4.



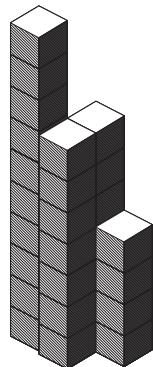
- (a) 10
(c) 12
(b) 11
(d) 13

5.



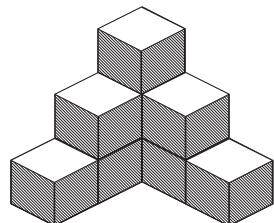
- (a) 20
(c) 30
(b) 25
(d) 35

6.



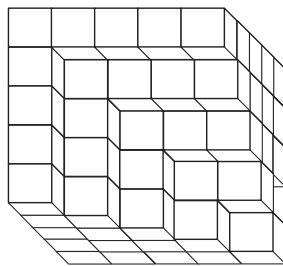
- (a) 20
(c) 28
(b) 24
(d) 30

7.



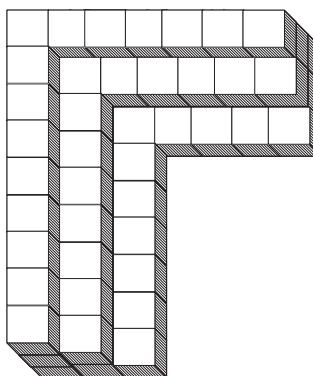
- (a) 8
(c) 10
(b) 9
(d) 11

8.



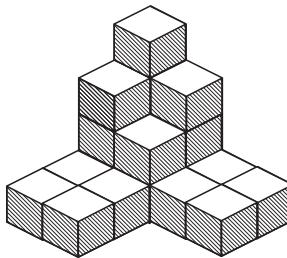
- (a) 79
(c) 81
(b) 80
(d) 82

9.



- (a) 79
(c) 81
(b) 80
(d) 82

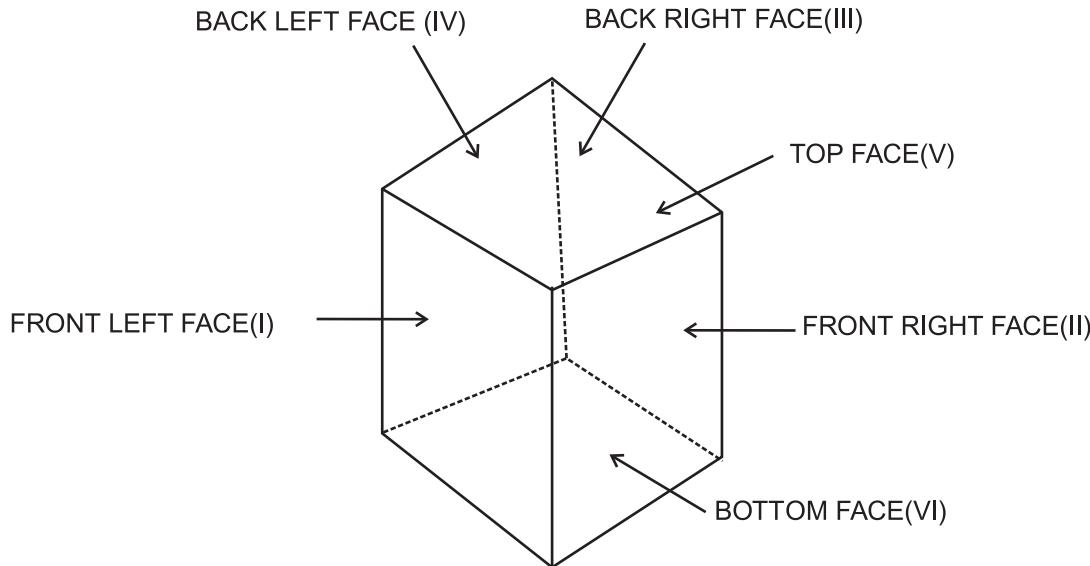
10.



- (a) 15
(c) 20
(b) 18
(d) 22

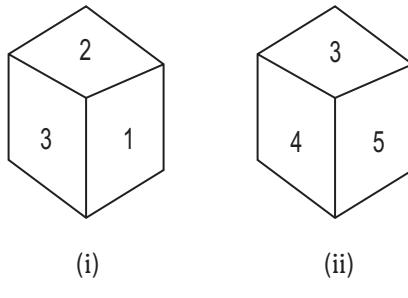
2. DICES

Candidate may face a dice (a cube or cuboid) in various positions. Our job is to find out the number opposite a given number on the dice.

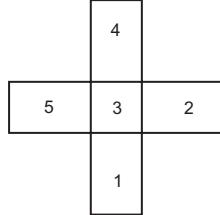


In the above direction we have given the name from left to right (in anti -clock wise direction). Following examples will clear our concepts.

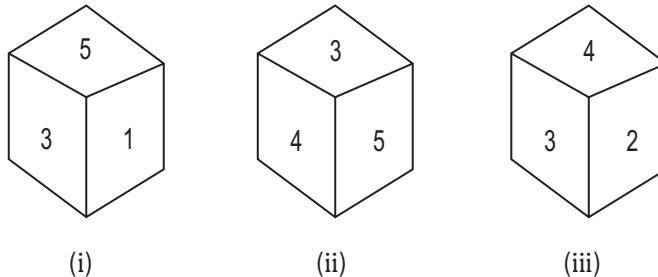
Example 1: Two different positions of the same dice are given below. Find the number on the face opposite the face showing 3?



Solution: We shall first find the number which occurs most often in the given figures. Clearly from the first and second figure we find that the adjacent numbers of 3 be 1, 2, 4 and 5. So the number which face number 3 be 6.



Example 2: Three different positions of the same dice are given below. Find the number on the face opposite the face showing 4?



Solution: Clearly from the figures we find 3 in all the cubes.

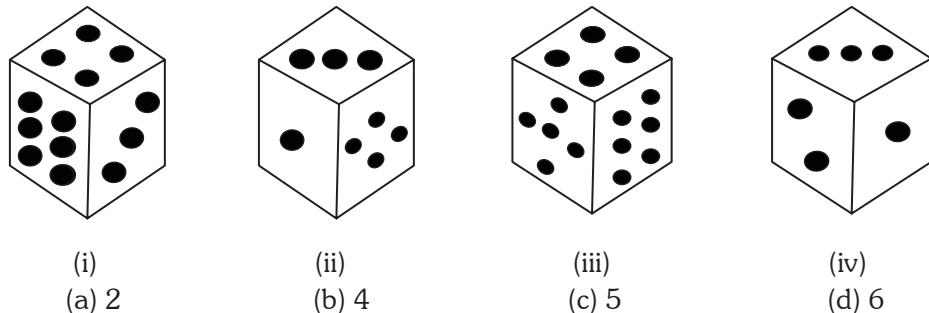
From the First Figure we find the adjacent number of three be 5 and 1.

From second we find the adjacent number of three be 4 and 5.

From third we get 4 and 2 as adjacent numbers, hence we find 1,2,4 and 5 hence 6 is opposite of 3.

Now from figure (ii) and (iii) we get 2, 3, 5 and 6 (from above, as 6 six is opposite to 3 but adjacent to 4) are adjacent to 4. Hence 1 is opposite to number 4.

Example 3: How many dots are there on the dice face opposite the one with three dots?



(i)
(a) 2

(ii)
(b) 4

(iii)
(c) 5

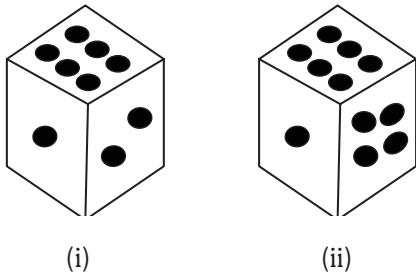
(iv)
(d) 6

Solution: From figure (I), (II) and (IV) we can able to observe a common dice face that is 3 dots.

From figure (I), (II) and (IV) we get that 1, 2, 4 and 6 are adjacent to 3 dots. Hence, 5 dots on the face opposite the face with 3 dots. Option (c) is our answer.

3 CONCEPT APPLICATOR

1. Two Position of a dice are shown below:



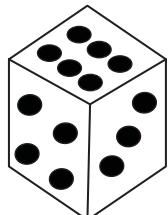
(i)

(ii)

When six is at the bottom, what number will be at the top?

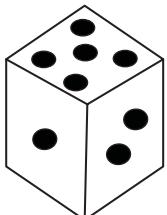
- (a) 1 (b) 2 (c) 4 (d) 5

2. Two positions of a block are shown below. When 2 is at the bottom which number will be at the top?



(i)

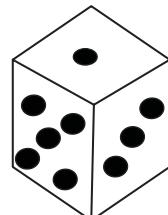
- (a) 1
(c) 6



(ii)

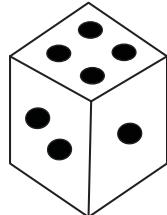
- (b) 4
(d) cannot be determine

3. Two positions of a block are shown below. When 2 dots is at the bottom which number of dots will be at the top?



(i)

- (a) 3
(c) 6

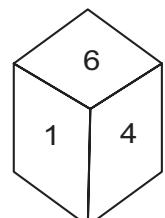


(ii)

- (b) 5
(d) cannot be determine

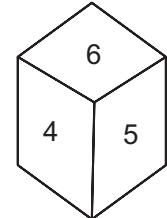
(S.S.C)

4. Two positions of a dice are shown below. When 1 is at the top which number will be at the bottom?



(i)

- (a) 2
(c) 5

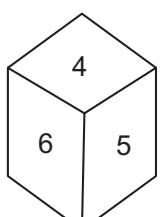


(ii)

- (b) 3
(d) cannot be determine

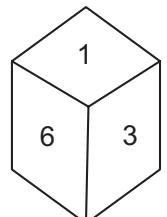
5. Two positions of a dice are shown below. When 3 is at the top which number will be at the bottom?

(S. S. C)



(i)

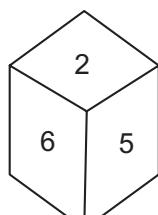
- (a) 2
(c) 5



(ii)

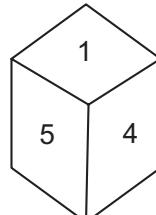
- (b) 4
(d) 6

6. What number is opposite of 3 in the figure shown below?



(i)

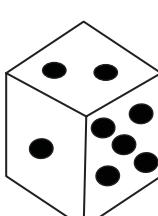
- (a) 2
(c) 5



(ii)

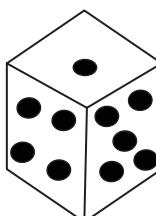
- (b) 4
(d) 6

7. How many dots are contained on the faces opposite to that containing four dots?



(i)

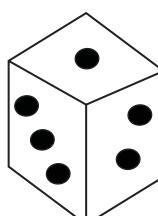
- (a) 2
(c) 6



(ii)

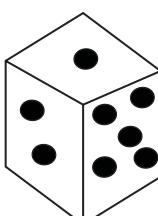
- (b) 3
(d) 1

8. Below there are three different positions of a dice. Find the number of dots on the face opposite to the face with one dot.



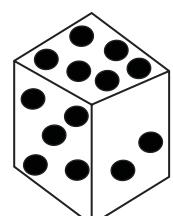
(i)

- (a) 2
(c) 4



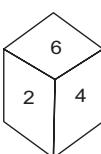
(ii)

- (b) 3
(d) 6



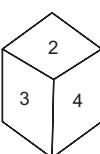
(iii)

9. A dice is thrown four times and its four different positions are shown below. Find the number on the face opposite the face showing 2.

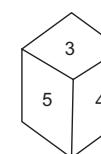


(i)

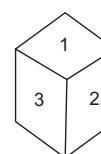
- (a) 3
(c) 5



(ii)

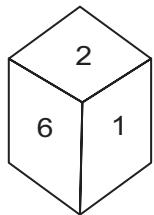


- (b) 4
(d) 6

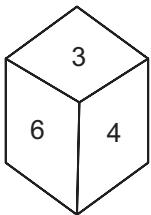


(iv)

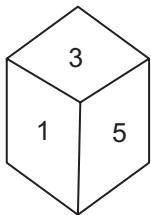
10. If the total sum of numbers on opposite faces of a cubical block is always 7, find the figure which is correct.



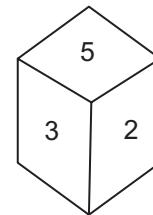
(a)



(b)



(c)

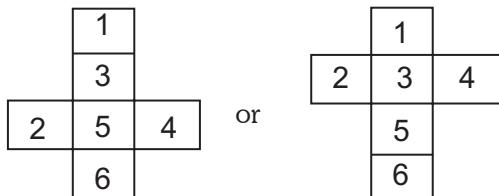


(d)

4. Box / Dice Construction

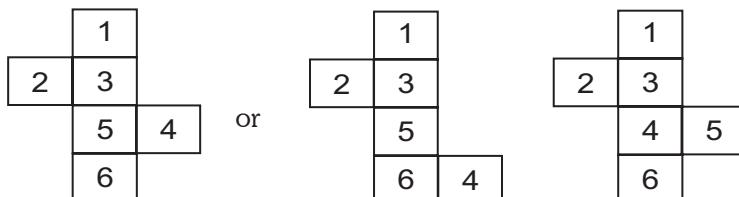
Very often these problems in which an examinee is given a figure with a specific design and the candidate is asked to identify the cube or cuboids that will be formed by folding the designed figure or to identify which number may appear behind the number. Below there are few forms of a box or cube which helps you to understand the patterns.

Pattern 1:



1. Lies opposite of 5
2. Lies opposite of 4
3. Lies opposite of 6

Pattern 2:

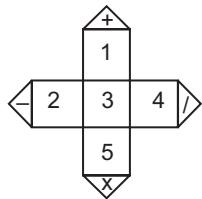


1. Lies opposite of 5 As we change the numbers of the faces, then
3. Lies opposite of 6 1. Lies opposite of 4
2. Lies opposite of 4 3. Lies opposite of 6
2. Lies opposite of 5

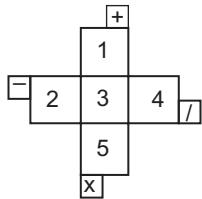
Pattern 3:



1. Lies opposite of 3
2. Lies opposite of 5
3. Lies opposite of 6

Pattern 4:

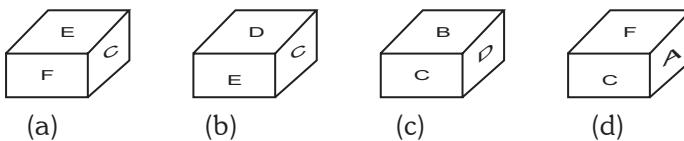
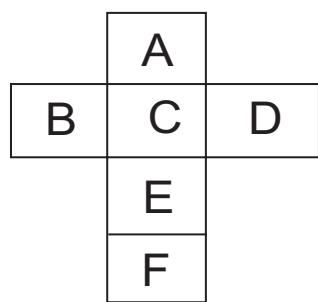
1. Lies opposite of 5
2. Lies opposite of 4
3. Lies opposite of

**Pattern 5:**

1. Lies opposite of 5
2. Lies opposite of 4
3. Lies opposite of

**For Example:**

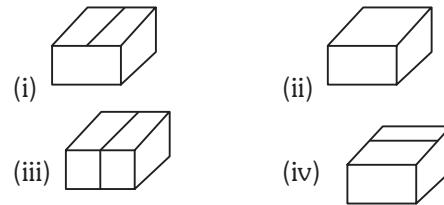
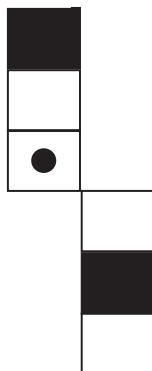
Direction: The sheet of Paper shown in the Figure is folded to form a box. Choose from the amongst the alternatives (a), (b), (c) and (d). The box that are similar to the box that will be formed



Solution: In option (a) C can be adjacent to E not to F. Similarly D can be adjacent to C not to B in figure (c). In figure (d) F cannot be adjacent to C rather it will be opposite to F. hence option be which is similar to the question figure.

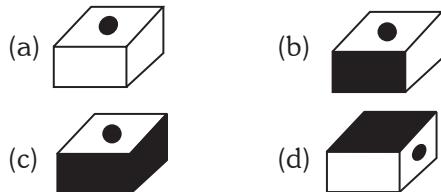
5 CONCEPT APPLICATOR

1. Among the four alternatives which one cannot be the similar box as the question figure.

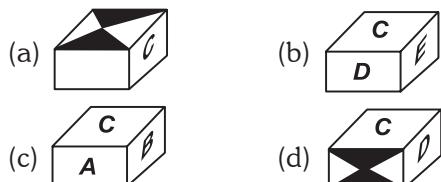
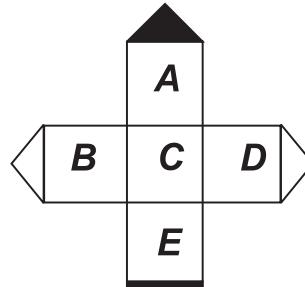


- (a) Only (i)
- (b) (i) and (ii) both
- (c) (i), (ii) and (iv) only
- (d) None of them

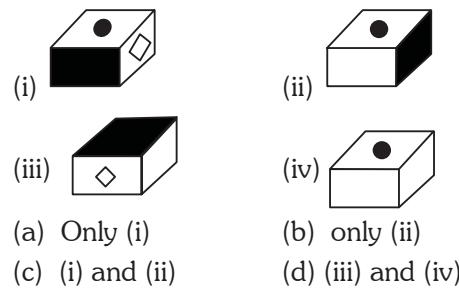
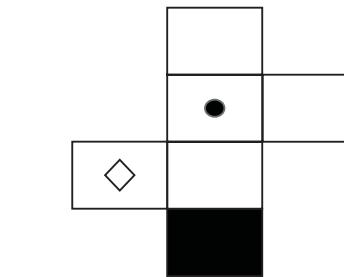
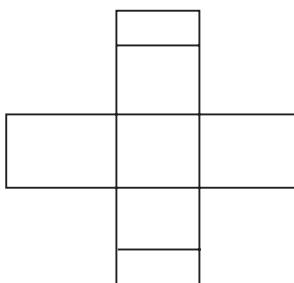
4. Among the four alternatives choose which can be the similar boxes as the question figure.



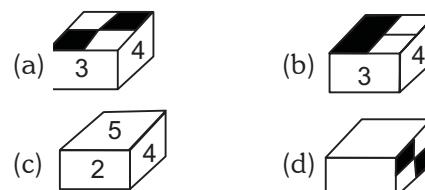
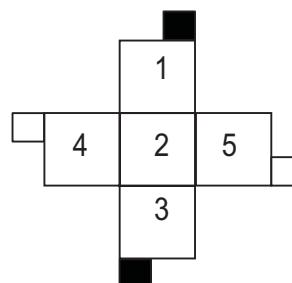
2. Among the four alternatives choose which one can be the similar box as the question figure.



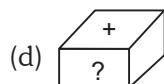
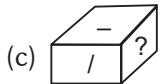
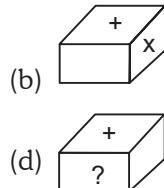
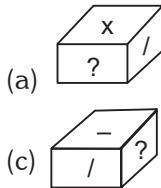
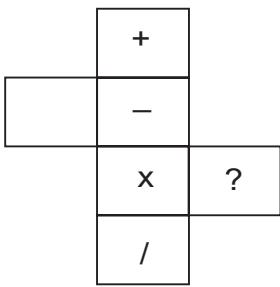
3. Among the four alternatives choose which are can be the similar boxes as the question figure.



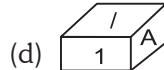
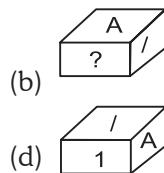
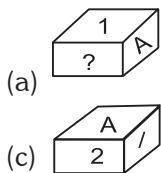
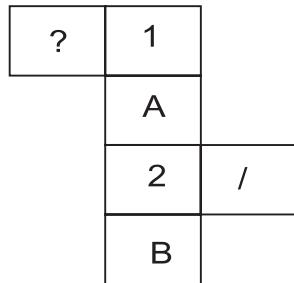
5. Among the four alternatives choose which one can be the similar box as the question figure.



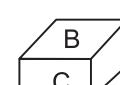
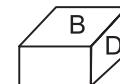
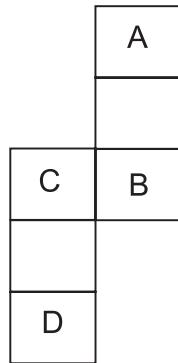
6. Among the four alternatives choose which one can be the similar box as the question figure.



7. Among the four alternatives which one cannot be the similar box as the question figure.

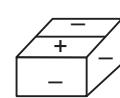
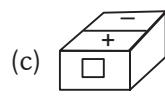
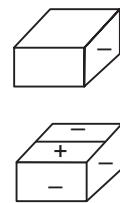
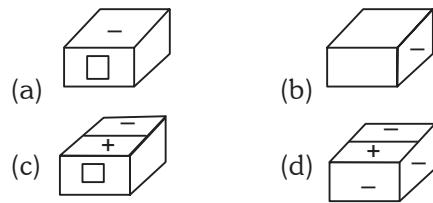
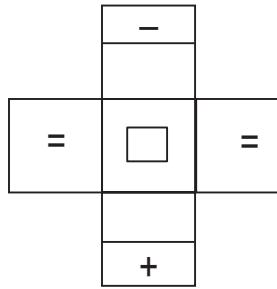


8. Among the four alternatives which are cannot be the similar box as the question figure.

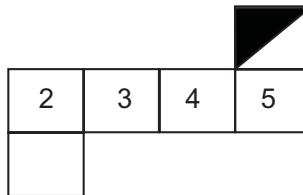


- (i) Only a
(ii) Only b
(iii) b and c only
(iv) b, c and d only

9. Among the four alternatives choose which one can be the similar box as the question figure.



10. Among the four alternatives which one cannot be the similar box as the question figure.



Answer with Explanation

Solutions Of Cubes and Dices

1. There is 6 columns with 2 cubes each. Total boxes = $6 \times 2 = 12$, option (c)
2. There are total 4 rows and 5 boxes in each row, then $5 \times 4 = 20$ boxes. Option (a)
3. There are total 42 cubes present in the upper portion. Then total cubes be $42 \times 2 = 84$
or
 24 columns with 2 cubes each = $24 \times 2 = 48$
 14 columns with 2 cubes each = 28
 4 columns with 2 cubes each = 8
Total cubes = $48 + 28 + 8 = 84$, hence option (a)
4. 4 columns with 1 cubes = 4 cubes
 1 columns with 3 cubes = 3
 1 columns with 4 cubes = 4
Total cubes = $4 + 3 + 4 = 11$, option (b)
5. Total cubes 25 , option (b)
6. One column with 10 boxes = $1 \times 10 = 10$
Two column with 7 boxes = $2 \times 7 = 14$
One column with 4 boxes = $1 \times 4 = 4$
Total boxes = 28 , hence option (c)
7. Total cubes = 9
8. There are 9 columns with 5 cubes = 9×5
There are 7 columns with 4 cubes = 7×4
There are 5 columns with 3 cubes = 5×3
There are 3 columns with 2 cubes = 3×2
There is one column with 1 cubes = 1×1
Total = $9 \times 5 + 7 \times 4 + 5 \times 3 + 3 \times 2 + 1 \times 1 = 81$
[note you have observed that the particular figure where the number of column decreases by 2 and number of cubes by 1]
9. Option (d), i.e $15 \times 3 + 13 \times 2 + 11 \times 1 = 82$ cubes
10. Option (c) there are 20 cubes.

Dice – concept applicator

1. Option (d) From both the figures we find that numbers $1,2,3$ and 4 dots appear adjacent to 6 . thus, the number 5 dots will appear opposite to 6 . Therefore when 6 is at the bottom, then 5 will be at the top.
2. Option (c) Number three is common in both the figures we assume the block in figure (ii) to be rotated so that three appears at the same position as in figure (i) and the numbers 5 and 2 move to the faces hidden behind the numbers 4 and 6 respectively. Thus the combined figure will have 3 on right hand side face, 4 on the front face, 6 on the top face, 5 on the rear face and 2 on the bottom face. Clearly when 2 is at the bottom, then 6 is at the top.
3. Option (a) Number 1 is common to both the figures (i) and (ii). The dice in fig. (ii) is assumed to be rotated so that 1 dot moves to the top face i.e to the same position as in figure (i) and 2 and 4 dots move to the face behind the faces with 3 and 5 dots respectively. Clearly by combination, 3 dots lie on the face opposite the face having 2 dots. Therefore, when there are 2 dots at the bottom, the number of dots at the top will be 3 .
4. Option (c) as we can observe the position of 6 is same in both the figures and position of 4 moves from Right hand side to Left hand side (clock wise direction). Clearly we can observe that 5 is just opposite of number 1 .
5. Option (c) as number 6 position is same in both the figures. We can assume that the dice to be rotated so that 6 remains on the same face and $1,3,4$ and 5 will be arranged ascending order as all are adjacent to 6 . Hence, when 3 is in top, 5 will be at bottam.
6. Option (c) as 5 is common on both the figure, and $1,2,4$ and 6 are adjacent to 5 . hence 3 is opposite of 5 .

7. Option (a) as both the figure contains one dot and 5 dots, fixing the 5 dots face and moving one dot face position to fig (i). we find 4 dots is opposite to 2 dots.
8. Option (d): as 1, 3 5 and 6 are adjacent to 2 in all the three positions, if 3 is opposite to 5 that we came across from the figures. So it is obvious that one will be opposite to 6.
9. Option (c) from figure I, ii and iv we conclude that 6, 4, 3 and 1 lie adjacent to 2. Hence 5 be opposite of 2.
10. Option (c) as per the question, sum of the numbers on opposite sides or faces is always 7. Therefore 1 appears opposite 6, 2 appears opposite 5 and 3 must appears opposite of 4.
In (a) 1 cannot adjacent to 6
In (b) 3 cannot adjacent to 4
In (d) 2 cannot appears adjacent to 5
Hence only option (c) is correct.

Solutions of Dice Construction

1. (c) as the dot face cannot be adjacent to both the dark shaded faces. Hence option © cannot be possible.
2. (c) option (a) and option (d) will be eliminated as we see the figure as the pattern face is adjacent to face C, which cannot be possible. In Option (b) D and E both are adjacent to C, but there direction should be clock wise. Face D on the left side and face E on the right side that can be possible only when pattern face be on the top. Hence option (c)
3. (b) option (iii) will be eliminated as the separation present on the two faces which is possible and option (iv) as the separation is not on the middle of the face.
4. (d) option (i) and (ii) cannot be possible as the shaded face will not be adjacent to doted face.
5. (a) option (a) satisfies all the conditions of dice formation or constructions.
6. (a)option (a) it is clear from the alternatives.
7. (b) in option (b) “?” and “/” are adjacent to each other, which cannot be possible.
8. (iii) option b and c cannot satisfies the conditions of dice formation, as option (b) B cannot be adjacent to D and in option (c) two white faces cannot be adjacent to each other.
9. (a) from the alternatives it is very easy to recognize option (a) as it satisfies all the conditions of a dice formation.
10. (c): in option (c) 2 and 5 are adjacent to the whiter portion side of the half shaded face, but in the option 2 is attached with the darker side, which cannot be possible.

Miscellaneous Question Bank

ANALOGY

Directions (Qs. 1 to 18): Select the related letters/ words/number from the given alternatives.

[SSC CGL 2012]

1. 8 : 12 :: 6 : ?

(a) 8	(b) 11
(c) 5	(d) 7

2. 13 : 19 :: 21 : ?

(a) 41	(b) 81
(c) 141	(d) 14

3. Eagle : Swoops :: Duck : ?

(a) waddles	(b) floats
(c) swims	(d) flits

4. APPLE : 50 :: ORANGE : ?

(a) 60	(b) 69
(c) 61	(d) 63

5. Accommodation : Rent :: Journey : ?

(a) Freight	(b) Octroi
(c) Fare	(d) Expense

6. Fire : Smoke :: ?

(a) Children : School	(b) Cloud : Rain
(c) Moon : Sky	(d) Shoe : Polish

7. Grenade : Gun :: ?

(a) Sister : Brother	(b) Father : Mother
(c) Man : Woman	(d) Head : Brain

8. TSH : IRQ :: QPK :: ?

(a) LNO	(b) LON
(c) PWK	(d) PON

9. AEZ : FPY :: BGX : ?

(a) HWW	(b) IYY
(c) HTX	(d) HYW

10. Length : Metre :: Power : ?

(a) Calories	(b) Degree
(c) Watt	(d) Kilogram

11. Square : Cube :: Circle : ?

(a) Ellipse	(b) Parabola
(c) Cone	(d) Sphere

12. Paper : Tree :: Glass : ?

(a) Window	(b) Sand
(c) Stone	(d) Mirror

13. ACFJ : ZXUQ :: EGIN : ?

(a) VUSQ	(b) VRPM
(c) UTRP	(d) VTRM

14. ACEG : DFHJ :: QSUW : ?

(a) TVXZ	(b) TQST
(c) MNPR	(d) EGIJ

15. EGIK : FILO :: FHJL : ?

(a) JGMP	(b) JGPM
(c) GJPM	(d) GJMP

16. 10 : 91 :: 9 : ?

(a) 69	(b) 72
(c) 9	(d) 97

17. 7 : 56 :: 9 : ?

(a) 63	(b) 81
(c) 90	(d) 99

18. 20 : 50 :: 100 : ?

(a) 150	(b) 250
(c) 200	(d) 156

Directions (Qs. 19 to 24) : Select the related word/ letters/number from the given alternatives. [SSC CGL 2013]

19. 11 : 132 :: ?

(a) 10 : 100	(b) 9 : 90
(c) 13 : 169	(d) 15 : 250

20. $\frac{1}{9} : \frac{1}{81} :: \frac{3}{?}$

$\frac{1}{169}$	$\frac{1}{125}$
(c) $\frac{1}{120}$	(d) $\frac{1}{127}$

21. AB : ZY :: CD : ?

(a) WX	(b) UV
(c) XW	(d) VU

22. Sheep : mutton :: Deer : ?

(a) meat	(b) flesh
(c) venision	(d) veal

23. Cobbler : Leather :: Tailors ?

(a) Cloth	(b) Shirt
(c) Droper	(d) Thread

24. FLOWER : REWOLF : FRUITS : ?

(a) STUIRF	(b) STIURF
(c) STUIFR	(d) STRUIF

Directions (Qs. 25 to 30): In the following questions, select the related word/letters/number from the given alternatives. [SSC CGL 2015]

25. Haematology : Blood :: Phycology : ?

- (a) Fungi
- (b) Fishes
- (c) Algae
- (d) Diseases

26. Pride of Lions :: _____ of cats

- (a) Herd
- (b) School
- (c) Clowder
- (d) Bunch

27. MAN : PDQ :: WAN : ?

- (a) ZDQ
- (b) NAW
- (c) YQD
- (d) YDQ

28. AEFJ : KOPT :: ? : QUVZ

- (a) GLKP
- (b) GKLP
- (c) HLKP
- (d) HKQL

29. 2 : 32 :: 3 : ?

- (a) 243
- (b) 293
- (c) 183
- (d) 143

30. D × H : 4 × 8 as M × Q : ?

- (a) 12 × 17
- (b) 12 × 16
- (c) 13 × 17
- (d) 14 × 18

Directions (Qs. 31 to 36): Select the related word/letters/number from the given alternatives.

[SSC CGL 2015]

31. Insects : Entomology :: Snakes : ?

- (a) Agrology
- (b) Mycology
- (c) Cetology
- (d) Ophiology

32. Kidneys : Nephron :: Central Nervous System : ?

- (a) Brain
- (b) Cerebrum
- (c) Spinal
- (d) Neurons

33. Y² : 4 :: V² : ?

- (a) 16
- (b) 49
- (c) 9
- (d) 25

34. JOKE : GLHB :: RISK : ?

- (a) OFPH
- (b) SJTL
- (c) ULVN
- (d) QHRJ

35. 4 : 17 :: 7 : ?

- (a) 49
- (b) 51
- (c) 48
- (d) 50

36. DFHJ : WUSQ :: HJLN : ?

- (a) PRTW
- (b) RTVX
- (c) TWYZ
- (d) SQOM

Directions (Qs. 37 to 42): Select the related word/letters/number from the given alternatives.

[SSC CGL 2015]

37. 16 : 22 :: 36 : ?

- (a) 44
- (b) 24
- (c) 46
- (d) 26

38. MIKE : OGMC :: CIAD : ?

- (a) EICB
- (b) AJCF
- (c) ENCF
- (d) CGCB

39. 9 : 50 :: ?

- (a) 15 : 225
- (b) 18 : 190
- (c) 22 : 110
- (d) 20 : 105

40. $\sqrt{AFI} = M : \sqrt{ADD} = L : \sqrt{ABA} = ?$

- (a) O
- (b) K
- (c) I
- (d) N

41. PALAEONTOLOGY : FOSSIL :: PHRENOLOGY : ?

- (a) THYROID
- (b) PANCREAS
- (c) LUNGS
- (d) SKULL

42. Identify the pair which 'DOES NOT' exhibit the same relationship as the Capitalized pair:

ETYMOLOGY : WORDS [SSC CGL 2015]

- (a) ANATOMY : BODY
- (b) ARCHEOLOGY
- (c) PHILOSOPHY : LANGUAGE
- (d) PSYCHOLOGY : MIND

Directions (Qs. 43 to 49): Select the related words/letters/number from the given alternatives.

[SSC CHSL 2013]

43. Cobbler : Leather :: Carpenter : ?

- (a) Furniture
- (b) Wood
- (c) Hammer
- (d) Chair

44. Foot : ? :: Hand : Wrist

- (a) Length
- (b) Shoe
- (c) Ankle
- (d) Leg

45. Chair : Wood :: ?

- (a) Book : Print
- (b) Mirror : Glass
- (c) Plate : Food
- (d) Purse : Money

46. EDUCATION : NOTTACUDE :: INTELLIGENCE : ?

- (a) ECENGILLTEIN
- (b) ECNGEILLTENI
- (c) ECNEGILLETNI
- (d) ECNEGILLTENI

47. AZCX : BYDW :: HQJO : ?

- (a) GREP
- (b) IPKM
- (c) IPKN
- (d) GRJP

48. 08 : 66 :: ? : 38

- (a) 2
- (b) 6
- (c) 12
- (d) 19

49. 32 : 21 :: 35 : ?

- (a) 51
- (b) 53
- (c) 32
- (d) 26

Miscellaneous Question Bank

Directions (Qs. 50 to 58): Select the related word/letters/number from the given alternatives.

50. Vacation : Holiday :: Vocation : ?
 (a) Money (b) Career
 (c) Degree (d) Pleasure

51. 32 : 28 :: 160 : ?
 (a) 80 (b) 120
 (c) 140 (d) 110

52. SNAKE : VQDNH :: CRADLE : ?
 (a) FUDGOH (b) EVFGOF
 (c) EUDGOH (d) FVDGPH

53. FE : HG :: ML : ?
 (a) QP (b) PO
 (c) ON (d) JI

54. \sqrt{AFI} : 13 :: \sqrt{DDA} : ?
 (a) 21 (b) 24
 (c) 22 (d) 12

55. Perch : Fresh water :: ? : Salt water
 (a) Crocodile (b) Snake
 (c) Cod (d) Frog

56. 196 : 256 :: ? : 400
 (a) 144 (b) 452
 (c) 324 (d) 204

57. 414 : 636 :: 325 : ?
 (a) 414 (b) 222
 (c) 636 (d) 547

58. Eyes : Tears :: ____ : ____
 (a) Hunger : Bread (b) Sea : Water
 (c) Heart : Artery (d) Volcano : Lava

Directions (Qs. 59 to 67): Select the related word/letters/number from the given alternatives.

[SSC CHSL 201]

59. Bullock : Cart :: Horse : ?
 (a) Plough (b) Ride
 (c) Race (d) Tonga

60. Motor : Coil : ?
 (a) Wheel : Bearing (b) Regiment : Soldier
 (c) Table : Chair (d) Wheel : Car

61. Blacksmith : Hammer : ?
 (a) Pen : Writer (b) Carpenter : Wood
 (c) Surgeon : Forceps (d) Cloth : Tailor

Directions (Qs. 68 to 76): Select the related word/letters/number from the given alternatives.

[SSC CHSL 2015]

68. Velocity : Speed :: Veracity : ?
(a) Idea (b) Falsehood
(c) Truth (d) Principle

69. Iodine : Goitre :: ?
(a) Fat : Obesity
(b) Insulin : Diabetes
(c) Hormones : Haemophilia
(d) Mango : Anemia

70. Doctor : Medicine :: ? : Judgement
(a) Lawyer (b) Court
(c) Policeman (d) Judge

71. 134 : ACD :: 567 : ?
(a) DEF (b) HIJ
(c) FGH (d) EFG

72. BONUS : ACNPMMOTVRT :: BUCKET : ?
(a) ACMNMOTURT (b) ACTVBDJLDFSU
(c) ACMNMOTVRT (d) SUOBN

73. ADFM : CFHO :: CFHO : ?
(a) EHQJ (b) EHJQ
(c) EQHJ (d) EHJR

74. 196 : 1372 :: 256 : ?
(a) 2048 (b) 4048
(c) 3436 (d) 6344

CLASSIFICATION

Directions (Qs. 77 to 93): Find the odd number/letters/word/number pair from the given alternatives. [SSC CGL 2012]

77. (a) SP (b) NL
(c) ZW (d) TQ

78. (a) Major (b) Colonel
(c) Brigadier (d) Admiral

79. (a) Life Insurance Corporation
(b) New India Assurance Company Ltd.
(c) United India Insurance Company Ltd.
(d) National Insurance Company Ltd.

80. (a) Hurdle (b) Disease
(c) Barrier (d) Obstacle

81. (a) Mar (b) Remedy
(c) Maim (d) Mutilate

82. (a) Socrates (b) Beethoven
(c) Mozart (d) Bach

83. (a) (132, 5) (b) (125, 8)
(c) (124, 7) (d) (112, 4)

84. (a) 6246 – 6296 (b) 7137 – 7267
(c) 4344 – 4684 (d) 5235 – 5465

85. (a) Pathology (b) Geology
(c) Cardiology (d) Radiology

86. (a) Rivulet (b) Stream
(c) River (d) Pond

87. (a) Konark (b) Madurai
(c) Dilwara (d) Ellora

88. (a) RTW (b) QOM
(c) IKG (d) IKM

89. (a) EFH (b) OPQ
(c) BCE (d) IJL

90. (a) DH (b) FJ
(c) HK (d) PR

91. (a) 24 (b) 49
(c) 80 (d) 15

92. (a) 121 (b) 324
(c) 523 (d) 729

Directions (Qs. 94 to 99): Find the odd number/letters/number pair from the given alternatives.
[SSC CGL 2013]

94. (a) TPOC (b) BKDF
(c) OLTF (d) BILQ

95. (a) Distribution (b) Dispersion
(c) Diversion (d) Dilution

96. (a) 6 (b) 24
(c) 64 (d) 120

97. (a) Bachelor (b) Widow
(c) Spinster (d) Wife

98. (a) 88 (b) 97
(c) 132 (d) 121

99. (a) T (b) E
(c) B (d) O

Directions (Qs. 100 to 105): In the following questions, find the odd word/number/letters/number pair from the given alternatives.

[SSC CGL 2015]

100. (a) Morning (b) Noon
(c) Evening (d) Night

101. (a) Liberty (b) Society
(c) Equality (d) Fraternity

102. (a) DWFU (b) EVHS
(c) HSKP (d) KQNN

103. (a) CBEF (b) EDGH
(c) IHKL (d) GFHJ

104. (a) 4025 (b) 7202
(c) 6023 (d) 5061

105. (a) 96 : 80 (b) 64 : 48
(c) 80 : 60 (d) 104 : 78

Directions (Qs. 106 to 110): Find the odd numbers/letters/number pair from the given alternatives.
[SSC CGL 2015]

Miscellaneous Question Bank

Directions (Qs. 111 to 114): Find the odd number/letters/number pair from the given alternatives.

[SSC CGL 2015]

115. Identify which one of the given alternatives will be another member of the group of that class.

[SSC CGL 2015]

[SSC CGL 2015]

[SSC CGL 2015]

121. Find out the set among the four sets which is like the given set. (13 : 20 : 27) **[SSC CHSL 2013]**

(a) $(3 : 11 : 18)$ (b) $(18 : 25 : 32)$
 (c) $(18 : 27 : 72)$ (d) $(7 : 14 : 28)$

Directions (Qs. 122 to 130): Find the odd word/letters/number from the given alternatives.

[SSC CHSL 2015]

125. (a) Solid (b) Plump
(c) Fathom (d) Thick

126. (a) Whim (b) Quirk
(c) Caprice (d) Foible

127. (a) FUEV (b) QPSR
(c) VUXW (d) YXWV

128. (a) RQP (b) HGF
(c) NPR (d) DCB

129. (a) IJKL (b) PONM
(c) HGFE (d) DCBA

130. (a) 3463 (b) 5725
(c) 6514 (d) 8948

Directions (Qs. 131 to 139): Find the odd word/number/letters/number pair from the given alternatives.

131. (a) EGI	(b) BDE
(c) MOQ	(d) LNP
132. (a) VNHK	(b) NQMJ
(c) NBJM	(d) MONR
133. (a) Elope	(b) Degrade
(c) Abase	(d) Humilate
134. (a) AC	(b) BD
(c) CD	(d) DF
135. (a) M.L.A.	(b) Prime Minister
(c) President	(d) Minister
136. (a) 56	(b) 2
(c) 128	(d) 16
137. (a) Swing	(b) Googly
(c) Bouncer	(d) Yorker
138. (a) 49	(b) 36
(c) 65	(d) 100
139. (a) 67626	(b) 84129
(c) 32418	(d) 47632

Directions (Qs. 140 to 148): Find the odd word/number/letters/number pair from the given alternatives:

- | | | | |
|----------|----------|-----|----------|
| 144. (a) | GHJM | (b) | PQSV |
| (c) | BCEH | (d) | TUWY |
| 145. (a) | MKHD | (b) | JHEA |
| (c) | QNKH | (d) | XVSO |
| 146. (a) | (2, 11) | (b) | (3, 30) |
| (c) | (7, 345) | (d) | (5, 128) |
| 147. (a) | 210 | (b) | 529 |
| (c) | 289 | (d) | 196 |
| 148. (a) | 121 | (b) | 144 |
| (c) | 189 | (d) | 169 |

SERIES

Directions (Qs. 149 to 158): A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CGL 2012]

152. AZ, CX, EV, ?
(a) HT (b) HU
(c) GS (d) GT

153. D9Y, J27S, P81M, V243G, ?
(a) A324B (b) C729B
(c) B729A (d) A729B

155. CIM, HNR, MSW, ?
(a) SXA (b) UYB (c) RXB (d) ZEH

Directions (Qs. 160 to 163): Identify wrong number in the series. [SSC CGL 2012]

Directions (Qs. 164 to 168): A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CGL 2013]

168. Choose the correct alternative to complete the series.
Lily, Daisy, Datura, ? [SSC CGL 2015]

- (a) Sun Flower (b) Hibiscus
(c) Marigold (d) Jasmine

Directions (Qs. 169 to 170): In the following questions, which one set of letters when sequentially placed at the gaps in the given letter series shall complete it? [SSC CGL 2015]

Miscellaneous Question Bank

170. a _ _ dba _ _ bcad _ _ da _ _ cd
 (a) bccdbcab (b) abcdccba
 (c) cbcddcba (d) aabbccdd

Directions (Qs. 171 to 172): In the following questions, a series is given, which one term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CGL 2015]

171. 4, 6, 10, 16, 24, ___?
 (a) 28 (b) 30
 (c) 34 (d) 40

172. 3, 5, 9, 17, ___?
 (a) 26 (b) 65
 (c) 33 (d) 42

Directions (Qs. 173 to 175): A series is given, with one/two term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CGL 2015]

173. FAK IEM LIO ?
 (a) MNO (b) OPO
 (c) NOP (d) OMQ

174. 3, 5, 35, 10, 12, 35, ___, ___?
 (a) 17, 19 (b) 19, 35
 (c) 19, 24 (d) 22, 35

175. 36, 34, 30, 28, 24, ___?
 (a) 20 (b) 22
 (c) 26 (d) 23

176. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

[SSC CGL 2015]

- BR_ _ NB_ _ O_ _ NB
 (a) OWRW (b) OWOW
 (c) WNWN (d) RORO

Directions (Qs. 177 to 178): A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CGL 2015]

177. 1, 2, 2, 4, 3, 8, 7, 10, ___?
 (a) 13 (b) 8
 (c) 11 (d) 9

178. 0, 7, 26, 63, ___?
 (a) 96 (b) 124
 (c) 123 (d) 87

Directions (Qs. 179 to 181): A series is given, with one term missing. Choose, the correct alternative from the given ones that will complete the series.

[SSC CHSL 2013]

179. AMN, BOP, CQR, ___?
 (a) BAS (b) DST
 (c) EQP (d) FRS

180. 5, 6, 9, 14, 21, ___?

- (a) 28 (b) 30
 (c) 31 (d) 29

181. 4, 11, 30, 67, 128, ___?

- (a) 219 (b) 228
 (c) 231 (d) 237

182. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

mc_ _ m_ _ a_ _ ca_ _ ca_ _ c_ _ mc [SSC CHSL 2013]

- (a) a e m m m a (b) c a m c a m
 (c) a a a c m m (d) a c m m m c

183. Some letters are given below in the first line and numbers are given below them in the second line. numbers are the codes for the alphabets and vice-versa. Choose the correct number-code for the given set of alphabets.

[SSC CHSL 2013]

C	W	E	A	Z	X	J	Y	K	L
3	9	5	7	4	8	1	0	2	6

J W X C L Z

- (a) 1 9 8 3 6 4 (b) 1 9 8 2 6 4
 (c) 1 9 8 3 5 4 (d) 1 9 7 3 5 4

Directions (Qs. 184 to 186): A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CHSL 2015]

184. 127, 131, 139, ___, 151, 157, 163, 167.

- (a) 141 (b) 143
 (c) 147 (d) 149

185. 1, 1, 2, 3, 5, ___, 13, 21

- (a) 6 (b) 8
 (c) 7 (d) 9

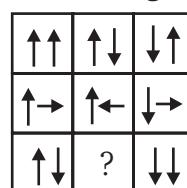
186. 361, ___, 169, 121, 49, 25.

- (a) 289 (b) 196
 (c) 256 (d) 324

187. Which answer figure will complete the pattern in the question figure?

[SSC CHSL 2015]

Question Figure:



Answer Figures:

- | | |
|-----|-----|
| (a) | (b) |
| (c) | (d) |

188. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

[SSC CHSL 2015]

- | | | |
|--|--------------------------|--------------------------|
| aac ____ bba ____ cc ____ baa ____ cb ____ | (a) abaac (b) cabcb | (c) bacbc (d) bcacb |
|--|--------------------------|--------------------------|

Directions (Qs. 189 to 193): A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CHSL 2015]

189. 8, 13, 18, 23, ?_, 33, 38

- | | |
|--------------------|--------------------|
| (a) 23 (b) 26 | (c) 33 (d) 28 |
|--------------------|--------------------|

190. 1001, 1004, 1012, 1027, ?_

- | | |
|------------------------|------------------------|
| (a) 1036 (b) 1051 | (c) 1050 (d) 1048 |
|------------------------|------------------------|

191. HIJPQRDEF ?_ VW

- | | |
|------------------|------------------|
| (a) N (b) H | (c) U (d) J |
|------------------|------------------|

192. AC, EG, IK ?_

- | | |
|--------------------|--------------------|
| (a) ON (b) LM | (c) MO (d) OP |
|--------------------|--------------------|

193. 8, 24, ?_, 80, 120

- | | |
|--------------------|--------------------|
| (a) 72 (b) 54 | (c) 40 (d) 48 |
|--------------------|--------------------|

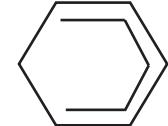
194. Find the pattern and select figure from alternatives which should come after the question figures.

[SSC CHSL 2015]

Question Figures:



Answer Figure.

- | | |
|---|---|
| (a)  | (b)  |
| (c)  | (d)  |

Directions (Qs. 195 to 197): In the following questions, which one set of letters when sequentially placed at the gaps in the given letters series shall complete it?

[SSC CHSL 2015]

195. opo_ _ po_ppo_ _ pppo_ op_ p

- | | |
|------------------------------|------------------------------|
| (a) opopooo (b) opoooop | (c) opopoop (d) oooppoo |
|------------------------------|------------------------------|

196. i _ _ ij _ 1 _ _ 1

- | | |
|-------------------------------|-----------------------------|
| (a) jklkjjj (b) klijkkkl | (c) jkljkl (d) jklkjlk |
|-------------------------------|-----------------------------|

197. ab _ _ b _ bbaa _

- | | |
|--------------------------|--------------------------|
| (a) babba (b) abbab | (c) baaab (d) abaab |
|--------------------------|--------------------------|

Directions (Qs. 198 to 199): A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

[SSC CHSL 2015]

198. 3, 11, 31, 57, 91, 133, ?_

- | | |
|----------------------|----------------------|
| (a) 181 (b) 143 | (c) 183 (d) 151 |
|----------------------|----------------------|

199. 8, 16, 48, 96, 288, 576, ?_

- | | |
|------------------------|------------------------|
| (a) 1052 (b) 1728 | (c) 2880 (d) 1152 |
|------------------------|------------------------|

200. Which figures have equal frequency?

[SSC CHSL 2015]

7 8 9 7 6 5 3 4 2 8 9 7 2 4 5 9 2 9 7 6 4 7

- | | |
|------------------------------|------------------------------|
| (a) 8, 6, 5 (b) 3, 7, 5 | (c) 2, 5, 3 (d) 2, 4, 5 |
|------------------------------|------------------------------|

Directions (Qs. 201 to 205): Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

[SSC CHSL 2015]

201. adb_ _ ac_ da_ _ cddcb_ _ dbc_ _ cbda

- | | |
|----------------------------------|----------------------------------|
| (a) c c b b a (b) b b c a d | (c) b c c b a (d) c b b a a |
|----------------------------------|----------------------------------|

202. a_ _ b_ _ ca_ _ b_ _ c_ _ a_ _ cc

- | | |
|--------------------------------------|--------------------------------------|
| (a) a b a b a c (b) a c b c a b | (c) a b a b c a (d) a c a c a b |
|--------------------------------------|--------------------------------------|

203. oopqop_ qoo_ qo_ oqo_ pq

- | | |
|-------------------------|------------------------|
| (a) oopop (b) poop | (c) oppo (d) popo |
|-------------------------|------------------------|

204. _ _ babbba_ a_ _

- | | |
|--------------------------|--------------------------|
| (a) babbb (b) baaab | (c) ababb (d) bbaba |
|--------------------------|--------------------------|

205. a_ _ baa_ _ baa_ _ ba

- | | |
|----------------------|----------------------|
| (a) bab (b) bbb | (c) bba (d) aab |
|----------------------|----------------------|

CODING AND DECODING

206. If PEAR is written as GFDN, how is REAP written in this code?

[SSC CGL 2012]

- | | |
|------------------------|------------------------|
| (a) FDNG (b) NFDG | (c) DNGF (d) NDFG |
|------------------------|------------------------|

225. If ROME is written as MORE then DARE is written as:
[SSC CGL 2015]

- | | |
|----------|----------|
| (a) RDEA | (b) RAED |
| (c) RDAE | (d) RADE |

226. In a certain code, LUTE is written as MUTE and GATE is written as HATE, then how BLUE will be written in that code?

EAT OUR IS AS AT **[SSC CGL 2015]**

- | | |
|----------|----------|
| (a) FLUD | (b) FLUE |
| (c) GLUE | (d) CLUE |

227. In a certain code language '481' means 'sky is blue', '246' means 'sea is deep' and '698' means 'sea looks blue'. What number is the code for 'blue'?

[SSC CGL 2015]

- | | |
|-------|-------|
| (a) 8 | (b) 6 |
| (c) 1 | (d) 9 |

228. If A = 1, ACT = 24, then FAT = ?

[SSC CHSL 2013]

- | | |
|--------|--------|
| (a) 26 | (b) 25 |
| (c) 27 | (d) 24 |

229. If 'GLOSSORY' is coded as 97533562 and GEOGRAPHY = 915968402, then 'GEOLOGY' can be coded as

[SSC CHSL 2013]

- | | |
|-------------|-------------|
| (a) 915692 | (b) 9157592 |
| (c) 9057592 | (d) 9157591 |

230. If 'NEUROTIC' can be written as 'TICRONEU' then how can 'PSYCHOTIC' be written?

[SSC CHSL 2013]

- | | |
|---------------|---------------|
| (a) TICOCHPSY | (b) TICCHOPSY |
| (c) TICCOHPSY | (d) TICHCOPSY |

231. If 'Stress' is coded as Rtres. Then 'Pulse' will be coded as-

[SSC CHSL 2015]

- | | |
|-----------|-----------|
| (a) Fulse | (b) Rulse |
| (c) Qulse | (d) Oulse |

232. If ARMS equal 1234 then MARS will equal to:

[SSC CHSL 2015]

- | | |
|----------|----------|
| (a) 4213 | (b) 4321 |
| (c) 1243 | (d) 3124 |

233. If FATHER is coded as FBIES, what should be the code for the word SISTER? **[SSC CHSL 2015]**

- | | |
|------------|------------|
| (a) SJSUES | (b) SKSVET |
| (c) SHSSEQ | (d) TJTUFS |

234. In certain code CONVENTIONAL is WRITTEN as NOCNEVOITLAN. How is ENTHRONEMENT in that code written?

[SSC CHSL 2015]

- | | |
|------------------|------------------|
| (a) TNEORHMNTNE | (b) TNEROHEMNTNE |
| (c) TNEORMETNHNE | (d) TNEROHEMNTE |

235. If 0, 1, 2, 3,..., 9 is written as a, b, c, d,...j, then find $dc \times f - (bf - d) \times d$. **[SSC CHSL 2015]**

- | | |
|---------|---------|
| (a) abc | (b) bcf |
| (c) abb | (d) bcc |

236. ELEPHANT is written as 57589143, LEAP can be written as

[SSC CHSL 2015]

- | | |
|----------|----------|
| (a) 5618 | (b) 7518 |
| (c) 6712 | (d) 6518 |

237. In a certain code TEACHER is written as ZYXDOYK and RAIL as KXQM. How will be CHAIR written?

[SSC CHSL 2015]

- | | |
|-----------|-----------|
| (a) DOQXK | (b) DOKQX |
| (c) DOXQK | (d) DQOXK |

BLOOD RELATION

238. Looking at a woman sitting next to him. Amit said, "She is the sister of the husband to my wife". How is the woman related to Amit? **[SSC CGL 2013]**

- | | |
|--------------|------------|
| (a) Daughter | (b) Sister |
| (c) Wife | (d) Niece |

239. Pointing to lady Simon said, "She is the daughter of the only sister of my father". How is lady related to Simon?

[SSC CHSL 2013]

- | | |
|------------|-------------------|
| (a) Mother | (b) Aunt |
| (c) Sister | (d) Cousin sister |

240. Karan has a brother 'Prem' and a sister 'Neesha'. Karan's wife is 'Naj' and has a daughter 'Naksha'. Naksha got married with Neesha's son Akbar and has a baby girl 'Riya'. What is relation between 'Naksha' and 'Neesha'? **[SSC CHSL 2015]**

- | |
|-------------------------------|
| (a) Niece and Aunt |
| (b) Mother and grand daughter |
| (c) Sister |
| (d) Mother and daughter |

241. P + Q implies that P is the brother of Q, P – Q implies that P is the mother of Q, whereas P × Q implies P is the sister of Q. Which of the following implies M is the maternal uncle of R? **[SSC CHSL 2015]**

- | | |
|-------------------|---------------|
| (a) M – R + K | (b) M + K × Q |
| (c) None of these | (d) M + K – R |

FORMATION OF WORDS

242. In this question, from the given alternatives select the word which cannot be formed by using the letters of the given word. **[SSC CGL 2012]**

APPROPRIATE

- | | |
|------------|-------------|
| (a) PIRATE | (b) APPROVE |
| (c) PROPER | (d) RAPPORT |

243. If the first four letters of a term HIPPNOWADIASM are written in reverse order, the next five letters are written without changing their order and then, the remaining letters are again written in reverse order, then which letter is in the middle of the word?

[SSC CGL 2012]

- | | |
|-------|-------|
| (a) O | (b) W |
| (c) A | (d) I |

244. From the given alternative select the word which cannot be formed using the letters given in the word.

MERCHANDISE

[SSC CGL 2013]

- | | |
|-----------|------------|
| (a) MESH | (b) DICE |
| (c) CHARM | (d) CHANGE |

245. From the given alternative words select the word which can be formed using the letters of the given word.

[SSC CGL 2013]

- | | |
|------------|-------------|
| REPUTATION | |
| (a) PONDER | (b) REQUIRE |
| (c) RETIRE | (d) TUTOR |

246. Find the hidden meaningful word from the coded alphabets if the alphabets are in reverse order.

[SSC CGL 2013]

- | | |
|------------------------|------------------------|
| (a) 11, 15, 26, 13, 22 | (b) 15, 11, 22, 26, 13 |
| (c) 11, 22, 15, 13, 26 | (d) 26, 22, 15, 13, 11 |

247. From the given alternative words, select the word which cannot be formed using the letters of the given word:

[SSC CGL 2015]

- | | |
|------------|-----------|
| CUMBERSOME | |
| (a) MOUSE | (b) SOBER |
| (c) ROME | (d) MERCY |

248. Name a single letter, which can be prefixed to the following words in order to obtain entirely new words?

[SSC CGL 2015]

- | | |
|---------------------------|-------|
| TILL TABLE PILE TAB PRING | |
| (a) S | (b) B |
| (c) H | (d) C |

249. Unscramble the following letters to frame a meaningful word. Then find out the correct numerical position of the letters:

[SSC CGL 2015]

- | | |
|--------------------------|--|
| B C U S M E L R N A | |
| 1 2 3 4 5 6 7 8 9 10 | |
| (a) 6 1 4 3 2 5 8 7 9 10 | |
| (b) 3 1 5 7 10 4 2 6 9 8 | |
| (c) 3 9 4 2 8 10 5 1 7 6 | |
| (d) 2 1 3 4 6 8 9 7 5 10 | |

Directions (Qs. 250 to 252): From the given alternative words, select the words which cannot be formed using the letters of the given word.

[SSC CGL 2015]

250. SUPERINTENDENT

- | | |
|-------------|-------------|
| (a) INTENSE | (b) DENTIST |
| (c) DOCTOR | (d) NURSE |

251. INCONVENIENCE

- | | |
|----------------|--------------|
| (a) CONCEIVE | (b) CONVINCE |
| (c) CONSCIENCE | (d) CONVENE |

252. DISTRIBUTION

- | | |
|---------------|------------|
| (a) SITUATION | (b) TUTION |
| (c) DISTURB | (d) TRUST |

253. Select from the alternatives an appropriate term that is identical to the term given in the question.

[SSC CGL 2015]

A C E G

- | | |
|-------------|-------------|
| (a) O Q S U | (b) G H J N |
| (c) I J L M | (d) B D E F |

254. From the given alternative words, select the word which can not be formed using the letters of the given word:

ENVIRONMENT

- | | |
|-------------|--------------|
| (a) EMINENT | (b) ENTRANCE |
| (c) ENTER | (d) MOVEMENT |

255. Which single letter can be prefixed to the following words in order to obtain entirely new words? (Same letter has to be prefixed in all the five words of each.

EAT OUR IS AS AT

[SSC CGL 2015]

- | | |
|-------|-------|
| (a) S | (b) B |
| (c) C | (d) H |

256. Name a single letter that can be suffixed to the following words to form new words?

HAT BAR BAT PIN BATH [SSC CGL 2015]

- | | |
|-------|-------|
| (a) E | (b) B |
| (c) D | (d) A |

257. From the given alternatives select the word which can be formed using the letters given in the word.

PREPARATION

- | | |
|---------------|------------|
| (a) PAMPER | (b) REPEAT |
| (c) PARTITION | (d) PARROT |

258. From the given alternatives select the word which cannot be formed using the letters of the given word.

INTERVENTION

- | | |
|---------------|---------------|
| (a) ENTER | (b) INTENTION |
| (c) INVENTION | (d) ENTERTAIN |

Directions (Qs. 259 to 260): From the given alternative words, select the word which cannot be formed using the letters of the given word:

[SSC CHSL 2015]

259. Correspondence

- | | |
|----------------|--------------|
| (a) Correspond | (b) Condense |
| (c) Respondent | (d) Respond |

Miscellaneous Question Bank

323. I 25 15 40 8

II 65 25 90 [?]

III 45 15 60 12

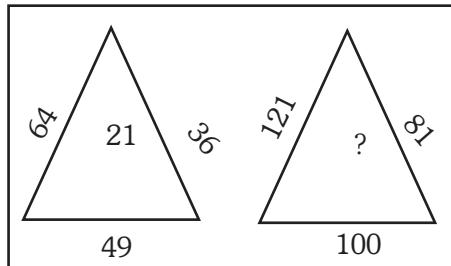
(a) 18

(c) 24

(b) 6

(d) 12

324.



(a) 10

(c) 40

(b) 30

(d) 20

325. 18 21 24

3 9 3

$$\begin{array}{r} 6 \\ 21 \end{array} \quad \begin{array}{r} 4 \\ 26 \end{array} \quad \begin{array}{r} 8 \\ ? \end{array}$$

(a) 29

(c) 27

(b) 22

(d) 24

Directions (Qs. 326 to 327) : Select the missing number from the given responses.**[SSC CHSL 2013]**

326. 2 24 48

3 9 27

4 ? 40

(a) 10

(c) 12

(b) 16

(d) 32

327. 81 36 25

49 100 36

9 64 16

139 200 ?

(a) 107

(c) 27

(b) 77

(d) 50

Directions (Qs. 328 to 329) : Some equations are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis.**[SSC CHSL 2013]**328. $4 \times 6 \times 9 = 694$, $5 \times 3 \times 2 = 325$, $7 \times 8 \times 2 = ?$

(a) 729

(c) 827

(b) 872

(d) 279

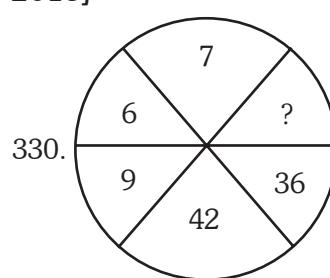
329. If $2463 = 36$ and $5552 = 30$, then $6732 = ?$

(a) 32

(b) 36

(c) 34

(d) 39

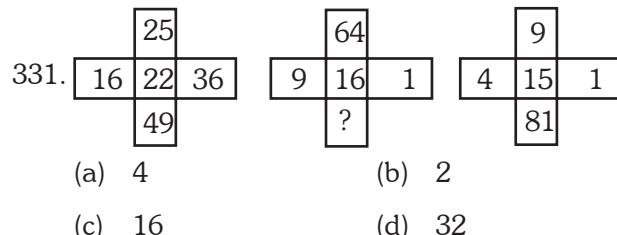
Directions (Qs. 330 to 333) : Select the missing number from the given responses. [SSC CHSL 2015]

(a) 54

(b) 78

(c) 34

(d) 24

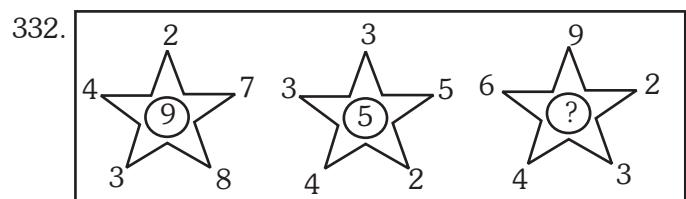


(a) 4

(b) 2

(c) 16

(d) 32



(a) 11

(b) 10

(c) 7

(d) 4

333. 5 6 7 8

10 18 21 40

7 9 10 ?

(a) 13

(b) 11

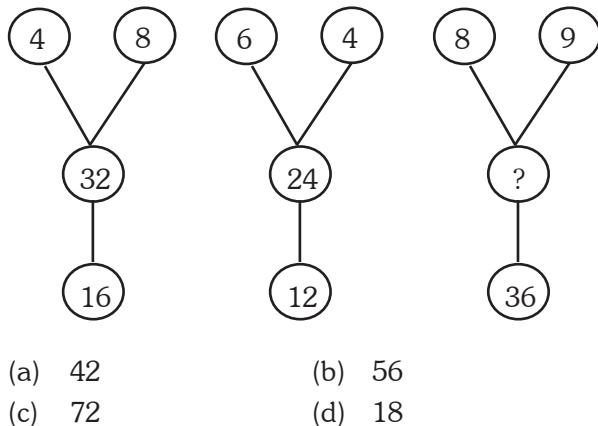
(c) 20

(d) 15

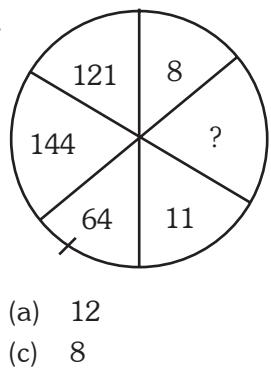
Directions (Qs. 334 to 337) : Select the missing number from the given responses.

[SSC CHSL 2015]

334.



335.



336.

3	4	5
2	3	4
1	2	3
14	29	?

(a) 32
(b) 40
(c) 30
(d) 50

337.

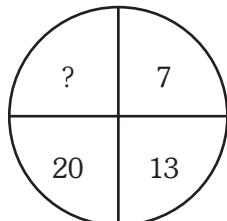
113	118	?
112	?	116
?	110	115
?	29	?

- (a) 111, 114, 117
(b) 117, 19, 111
(c) 114, 111, 117
(d) 109, 111, 117

Directions (Qs. 338 to 343): Find the odd number/letters/word/number pair from the given alternatives.

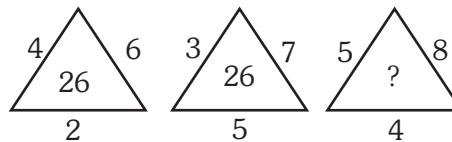
[SSC CHSL 2015]

338.



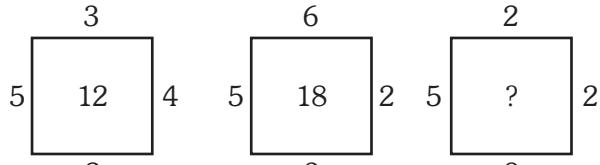
- (a) 28
(c) 29
(b) 30
(d) 26

339.



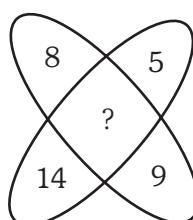
- (a) 38
(c) 28
(b) 44
(d) 37

340.



- (a) 18
(c) 15
(b) 16
(d) 17

341.



- (a) 142
(c) 144
(b) 148
(d) 146

342.

- (a) 35
(c) 22
(b) 32
(d) 19

343.

- (a) 9
(c) 4
(b) -4
(d) -8

LOGICAL SEQUENCE OF WORDS

344. Arrange the following words as per order in the dictionary.

[SSC CGL 2013]

- | | |
|------------------------|-----------------|
| (1) necrology | (2) necromancy |
| (3) necropolis | (4) necrophilia |
| (a) (1), (2), (3), (4) | |
| (d) (1), (2), (4), (3) | |
| (c) (2), (1), (3), (4) | |
| (d) (2), (1), (4), (3) | |

Miscellaneous Question Bank

345. Which one of the given responses would be meaningful order of the following?

[SSC CGL 2013]

- | | |
|------------------------|------------------------|
| (1) Plant | (2) Seed |
| (3) Fruit | (4) Seedling |
| (a) (4), (2), (3), (1) | (b) (2), (3), (1), (4) |
| (c) (4), (1), (3), (2) | (d) (3), (2), (4), (1) |

346. Which one of the given responses would be a meaningful order of the following?

[SSC CGL 2015]

- | | |
|-------------------|-------------------|
| 1. Elephant | 2. Cat |
| 3. Mosquito | 4. Tiger |
| 5. Whale | |
| (a) 5, 3, 1, 2, 4 | (b) 1, 3, 5, 4, 2 |
| (c) 3, 2, 4, 1, 5 | (d) 2, 5, 1, 4, 3 |

Directions (Qs. 347 to 348) : Following words as per order in the dictionary. [SSC CGL 2015]

- | | |
|---------------------|-------------------|
| 347. (1) Convincere | (2) Converge |
| (3) Convenience | (4) Convalesce |
| (5) Converse | |
| (a) 1, 4, 3, 2, 5 | (b) 4, 3, 2, 1, 5 |
| (c) 4, 3, 2, 5, 1 | (d) 4, 2, 5, 3, 1 |
-
- | | |
|-------------------|-------------------|
| 348. (1) Consume | (b) Consciousness |
| (3) Conscience | (d) Conservation |
| (5) Consequence | |
| (a) 3, 2, 5, 4, 1 | (b) 3, 1, 2, 5, 4 |
| (c) 3, 5, 2, 4, 1 | (d) 3, 2, 1, 5, 4 |

Directions (Qs. 349 to 350) : Which one of the given responses would be a meaningful order of the following? [SSC CGL 2015]

- | | | | | |
|---------------|---------|---------------|---------|-----------|
| 349. 1. Crop | 2. Root | 3. Stem | 4. Seed | 5. Flower |
| (a) 4 2 3 5 1 | | (b) 2 3 5 1 4 | | |
| (c) 2 4 5 1 3 | | (d) 2 3 4 1 5 | | |

- | | | | |
|--------------|----------|----------------|----------|
| 350. 1. Frog | 2. Eagle | 3. Grasshopper | 4. Snake |
| 5. Grass | | | |

- | | | | |
|-------------------|--|-------------------|--|
| (a) 5, 3, 4, 2, 1 | | (b) 5, 3, 1, 4, 2 | |
| (c) 3, 4, 2, 5, 1 | | (d) 1, 3, 5, 2, 4 | |
351. Which one of the given responses would be a meaningful order of the following?

[SSC CHSL 2013]

- | | |
|----------------|----------------|
| (1) Twilight | (2) Dawn |
| (3) Noon | (4) Night |
| (a) 2, 1, 3, 4 | (b) 2, 3, 1, 4 |
| (c) 1, 2, 3, 4 | (d) 1, 3, 2, 4 |

352. Arrange the following words as per order in the dictionary; [SSC CHSL 2013]

- | | |
|----------------|----------------|
| (1) Aqueous | (2) Aquarium |
| (3) Aquiline | (4) Aquatic |
| (a) 4, 3, 2, 1 | (b) 1, 2, 3, 4 |
| (c) 2, 4, 1, 3 | (d) 3, 1, 4, 2 |

353. Arrange the following words as per the reverse order in a dictionary. [SSC CHSL 2015]

- | | |
|-----------------|------------------|
| 1. multitude | 2. multinational |
| 3. multiplier | 4. multinomial |
| 5. multilingual | |
| (a) 1 3 4 2 5 | (b) 5 4 3 2 1 |
| (c) 4 5 3 2 1 | (d) 1 3 2 4 5 |

354. Arrange the following words as per order in the dictionary. [SSC CHSL 2015]

- | | | | |
|-------------|-------------|-------------|-----------|
| 1. Silt | 2. Silicon | 3. Silicate | 4. Silken |
| (a) 2 1 4 3 | (b) 4 1 3 2 | | |
| (c) 3 2 4 1 | (d) 1 4 3 2 | | |

355. Which one of the given responses would be a meaningful order of the following in ascending order? [SSC CHSL 2015]

- | | |
|-------------|-------------|
| 1. atom | 2. matter |
| 3. molecule | 4. electron |
| (a) 3 1 4 2 | (b) 4 1 3 2 |
| (c) 1 2 3 4 | (d) 3 4 1 2 |

356. Which one of the given responses would be a meaningful order of the following?

- | | |
|-------------------|-------------------|
| 356. (1) Stone | (2) Sand |
| (3) Rock | (4) Boulder |
| (5) Hill | |
| (a) 2, 1, 3, 4, 5 | (b) 1, 4, 2, 3, 5 |
| (c) 5, 3, 2, 1, 4 | (d) 5, 4, 2, 1, 3 |

Directions (Qs. 357 to 358) : Arrange the following words as per order in the dictionary. [SSC CHSL 2015]

- | | |
|-----------------------|--------------------|
| 357. (1) Electrolysis | (2) Electrotyping |
| (3) Electrician | (4) Electroplating |
| (5) Electrification | |
| (a) 5, 3, 1, 4, 2 | (b) 3, 5, 1, 4, 2 |
| (c) 5, 3, 2, 4, 1 | (d) 3, 5, 4, 1, 2 |
-
- | | |
|------------------|----------------|
| 358. (1) Yashmak | (2) Yacht |
| (3) Yawl | (4) Yawn |
| (a) 2, 3, 4, 1 | (b) 2, 4, 3, 1 |
| (c) 2, 1, 3, 4 | (d) 2, 1, 4, 3 |

359. Which one of the given responses would be a meaningful order of the following?

[SSC CHSL 2015]

- | | |
|----------------|----------------|
| 1. Plant | 2. Flower |
| 3. Sowing | 4. Seedling |
| (a) 3, 1, 2, 4 | (b) 4, 3, 1, 2 |
| (c) 3, 4, 1, 2 | (d) 3, 2, 4, 1 |

360. Four words are given. Arrange them in decreasing order of the number of vowels occurring in the word, each vowel being counted with multiplicity. Should there be a tie, use dictionary order.

[SSC CHSL 2015]

- | | |
|------------------|-----------------|
| 1. Assassination | 2. Rejuvenation |
| 3. Mississippi | 4. Acrimonious |
| (a) 4, 1, 3, 2 | (b) 4, 2, 1, 3 |
| (c) 4, 3, 1, 2 | (d) 4, 1, 2, 3 |

SYLLOGISM

Directions : In Question Nos. 361 two statements are given followed by two conclusions i and II. You have to consider the statements/inferences to be true even if they seem to be at variance from commonly known facts. You are to decide which of the given conclusions, if any, follow from the given statements. Indicate your answer.

[SSC CHSL 2013]

361. Statements:

- I. Some chairs are made up of wood.
- II. Some tables are made up of wood.

Inferences:

- I. All wooden things are either chairs or tables.
 - II. Some chairs are tables.
- (a) Only inference I follows.
 (b) Only inference II follows.
 (c) Both inferences I and II follow.
 (d) None of the inference follows.

362. **Directions:** Which conclusion is true with respect to the given statements. [SSC CHSL 2015]

Statement:

1. All squares are rectangles.
2. All rectangles are polygons.

Conclusion:

- (a) Square is a polygon.
 (b) Squares is not a rectangle.
 (c) Square is not a polygon.
 (d) Square is a rectangle and polygon.

363. Two statements are given each followed by two conclusions I and II. You have to consider the statements to be true, even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusion, if any, follows from the given statements. [SSC CHSL 2015]

Statements:

1. Some bricks are sticks.
2. No stick is red.

Conclusions:

- I. No brick is red.
 - II. Some bricks are not red.
- (a) Only conclusion I follows.
 (b) Only conclusion II follows.
 (c) Neither I nor II follow.
 (d) Either I or II follow.

Directions (Qs. 364 to 365) : One or two statements is given followed by two conclusions/assumptions, I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions/assumptions can definitely be drawn from the given statement. Indicate your answer. [SSC CGL 2015]

364. Statements:

- I. Some Politicians are social workers.
- II. All Doctors are social workers.

Conclusions:

- I. Some Doctors are politicians
 - II. Some Social workers are Doctors as well as Politicians
- (a) Neither conclusion I nor II follow.
 (b) Only conclusion I follow.
 (c) Both conclusions I and II.
 (d) Only conclusion II follow.

365. Statements:

The crop condition continues to be critical even after the rains.

Conclusions:

- I. The crop condition was not critical before rains.
 - II. The crop condition was expected to improve after the rains.
- (a) Only conclusion II follow.
 (b) Neither conclusion I and II
 (c) Both conclusions I and II follow.
 (d) Only conclusion I follow.

Directions (Qs. 366 to 367): Two statements are given followed by two conclusions, assumptions, I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions/assumptions can definitely be drawn from the given statement. Indicate your answer. [SSC CGL 2015]

366. Statement

- I. All poets are day dreamers.
- II. All painters are day dreamers.

Conclusions:

- I. All painters are poets.
- II. Some day dreamers are not painters.
- (a) Neither I Nor II follows
- (b) Both I and II follows
- (c) Only II follows
- (d) Only I follows

367. Statement

- I. Some men are good.
- II. Some men are wise.

Conclusions:

- I. Some wise men are good.
- II. Some good men are wise.
- (a) Only II follows
- (b) Only I follows
- (c) Both I and II follow
- (d) Neither I Nor II follows

STATEMENT AND CONCLUSION

Directions (Qs. 368 to 369): In the questions one/two statements are given, followed by two conclusions I and II. You have to consider the statements to be true, even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow from the given statements.

[SSC CGL 2012]

368. Statements:

1. Temple is a place of worship.
2. Church is also a place of worship.

Conclusions:

- I. Hindus and Christians use the same place for worship.
- II. All churches are temples.
- (a) Neither conclusion I nor II follows
- (b) Both conclusions I and II follow

- (c) Only conclusion I follows
- (d) Only conclusion II follows

369. Statements:

1. The human organism grows and develops through stimulation and action.

Conclusions:

- I. Inert human organism cannot grow and develop.
- II. Human organisms don't reach to stimulation and action.
- (a) Neither conclusion I nor II follows
- (b) Both conclusions I and II follow
- (c) Only conclusion I follows
- (d) Only conclusion II follows

370. Statements: [SSC CGL 2012]

1. Due to contamination of water, large number of people were admitted to hospital.
2. The symptoms were of typhoid.

Conclusions:

- I. Contamination of water may lead to typhoid.
- II. Typhoid is a contagious disease.
- (a) Neither conclusion I nor II follows
- (b) Both conclusions I and II follow
- (c) Only conclusion I follows
- (d) Only conclusion II follows

371. Statements: [SSC CGL 2012]

1. 60% of the government employees went on strike.
2. Mr. Gopal is a government employee.

Conclusions:

- I. Mr. Gopal went on strike.
- II. Mr. Gopal did not participate on the strike.
- (a) Only I follows
- (b) Only II follows
- (c) Both conclusion I and II follows
- (d) Either conclusion I or II follows

372. In each of the following question, there are two statements labelled as Assertion (A) and Reason (R). [SSC CGL 2013]

(A) Autism is a developmental disability.

(R) Heredity and lower development of brain are the causes of the Autism.

- (a) Both **(A)** and **(R)** are false.
- (b) Both **(A)** and **(R)** are true.
- (c) **(A)** is true and **(R)** is false.
- (d) **(A)** is false and **(R)** is true.

373. One statement is given followed by two Conclusions I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can definitely be drawn from the given statement. Indicate your answer. [SSC CGL 2013]

Most Indians are aware that they have a great heritages, but few would include science in it.

Conclusion:

- I. Many Indians consider science to have made Indian heritage great.
 - II. Many Indians are not aware that India has a great scientific heritage.
- (a) Only Conclusion I follows
 - (b) Only Conclusion II follows
 - (c) Both Conclusions I and II follow
 - (d) Neither Conclusions I nor II follow

Directions (Qs. 374 to 395): In the following questions, one statement is given followed by two Conclusions, I and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can definitely be drawn from the given statement. Indicate your answer. [SSC CGL 2015]

374. **Statement:** Every school should promote partnerships that will increase parental involvement and participation for promoting the growth of children.

Conclusions I : For the growth of the children, parents should be involved in various school activities.

II: Involvement of parents in school activities has no influence on the growth of the children.

- (a) Only I follows
- (b) Only II follows
- (c) Neither I nor II follows
- (d) Both I and II follow

375. **Statement:** Aggressive animals can be trained with care and affection to behave as the occasion demands.

Conclusions I : Trained dogs cannot be aggressive.

II: Animals are always aggressive unless care and affection is given to them.

- (a) Only I follows
- (b) Only II follows
- (c) Neither I nor II follows
- (d) Both I and II follow

Directions Q. 376 : Two statements are given followed by two conclusions i and II. You have to consider the statements/inferences to be true even if they seem to be at variance from commonly known facts. You are to decide which of the given conclusions, if any, follow from the given statements. Indicate your answer.

[SSC CHSL 2013]

376. **Statements:**

- I. For protection of Indian museums Central Govt. is responsible.

II. Victoria Memorial Hall is national property.

Conclusions:

- I. Indian museum is national property.
 - II. Historical property of nation is protected by the Central Government.
- (a) Only conclusion I follows.
 - (b) Only conclusion II follows.
 - (c) Both conclusion I and II follow.
 - (d) None of the conclusion follows.

377. **Directions:** In the question two statements are given each followed by two conclusions, I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

[SSC CHSL 2015]

Statement:

1. Some clerks are poor;
2. A is poor.

Conclusion:

- I. A is clerk.
 - II. A has a large family.
- (a) Both conclusions I and II
 - (b) Only conclusion II
 - (c) Only conclusion I follows.
 - (d) Neither conclusion I nor conclusion II follows.

Directions (Qs. 378 to 380): Statements are given each followed by two conclusions/ assumptions, I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions/assumptions, if any, followd from the given statements.

[SSC CHSL 2015]

378. **Statements:**

- I. Regular polygon has equal sides and equal angles.
- II. Square is a regular polygon.

Conclusions:

- I. Squqre has equal sides.
 - II. Square has equal angles.
- (a) Conclusion I follows.
 - (b) Conclusion II follows.
 - (c) Neither I or nor II follows.
 - (d) Conclusions I & II both follows.

392. In a box there are 5 different black balls, 3 different white balls and 2 different red balls. How many ways to select 2 balls but not both same colour?

[SSC CHSL 2015]

- | | |
|--------|--------|
| (a) 40 | (b) 31 |
| (c) 30 | (d) 25 |

393. Lakshmi is elder than Meenu. Leela is elder than Meenu but younger than Lakshmi. Latha is younger than both Meenu. Who is the youngest?

[SSC CHSL 2013]

- | | |
|-------------|-----------|
| (a) Lakshmi | (b) Meenu |
| (c) Leela | (d) Latha |

394. In a row of letters, a letter is 5th from left end and 12th from the right end. How many letters are there in a row?

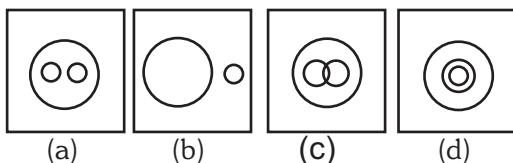
[SSC CHSL 2013]

- | | |
|--------|--------|
| (a) 15 | (b) 16 |
| (c) 17 | (d) 18 |

LOGICAL VENN DIAGRAM

395. Which of the following diagrams represents the correct relationship between Herbivores, Tigers and an Animals?

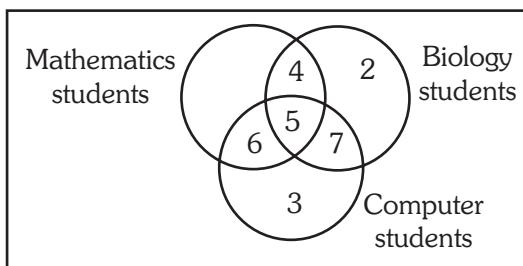
[SSC CGL 2013]



396. Identify the region that represents students studying Biology and Computer not mathematics.

[SSC CGL 2013]

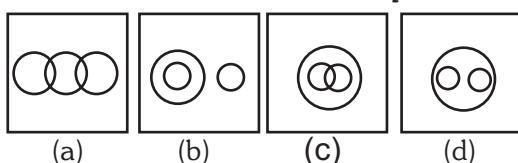
Question Figure



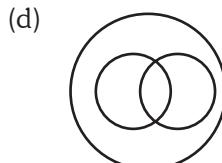
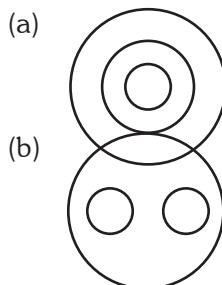
- | | |
|-------|-------|
| (a) 2 | (b) 7 |
| (c) 4 | (d) 6 |

397. Which of the following diagrams represents the correct relationship between Books, Novels and Dictionaries?

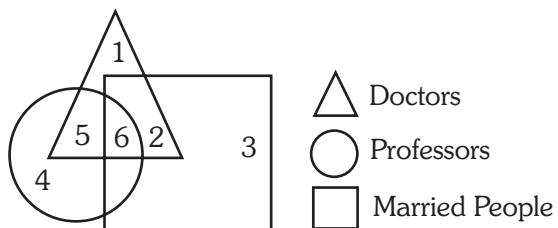
[SSC CGL 2013]



398. Identify the diagram that best represents the relationship among the classes given below: Animals, land animals, sea animals [SSC CGL 2015]



399.

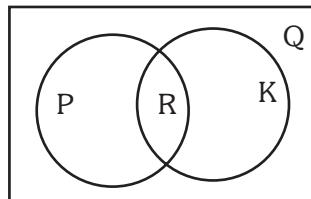


[SSC CGL 2015]

Which number indicates doctors who are not married?

- | | |
|-------|-------|
| (a) 6 | (b) 4 |
| (c) 2 | (d) 1 |

400.



[SSC CGL 2015]

In the fig:

Q represents all quadrilaterals

K represents all Kites

R represents all Rhombus

P represents all Parallelogram

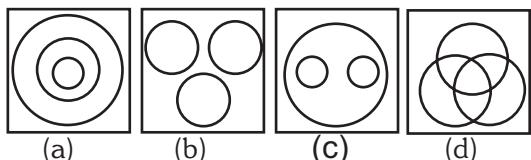
The statement 'Rhombus is also a Kite' can be described as

- | |
|------------------------------|
| (a) P and K is nothing but R |
| (b) P or K is nothing but R |

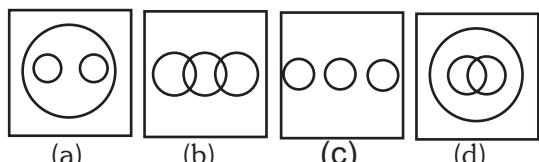
- (c) P and R is nothing but K
 (d) P or R is nothing but K

Direction (Qs. 401 to 403): Identify the diagram that best represents the relationship among classes given below: [SSC CGL 2015]

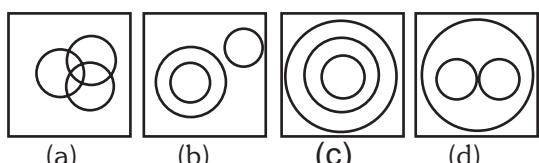
401. Tigers, Lions, Animals?



402. Language, English and Kannada?



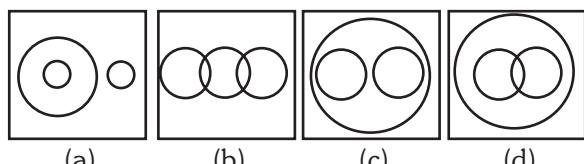
403. Professors, Researchers, Scientists



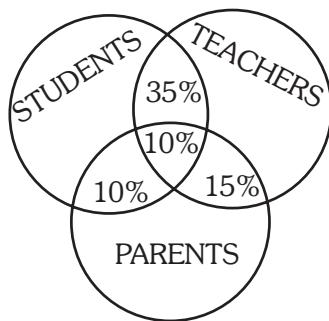
404. Identify the diagram that best represents the relationship among the classes given below:

[SSC CGL 2015]

Soda Water, Mineral Water, Liquid



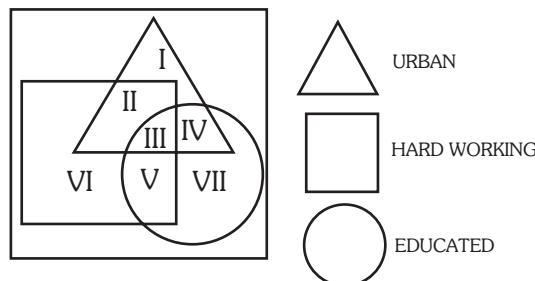
405. In the given figure 10% are students and parents, and the 10% are students, teachers and parents, 15% are Teachers and Parents, 35% are Students and Teachers. How many percentage are only Teachers, Parents and Students. [SSC CGL 2015]



- (a) 40, 45, 65
 (b) 45, 40, 65
 (c) 65, 40, 45
 (d) 40, 65, 45

406. Which one of the areas marked I - VII represents the urban educated who are not hardworking?

[SSC CGL 2015]

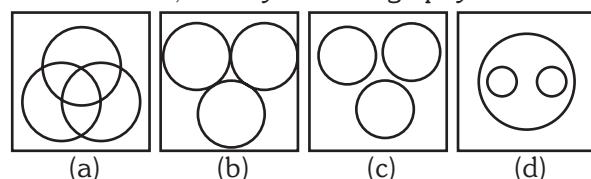


- (a) III
 (b) II
 (c) I
 (d) IV

407. Identify the diagram that best represents the relationship among classes given below:

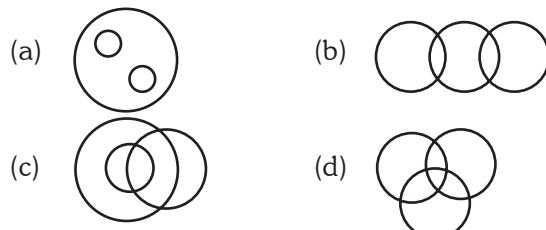
[SSC CHSL 2015]

Social science, History and Geography



408. Which combination figure best represents the relationship between mosquitoes, ants and insects?

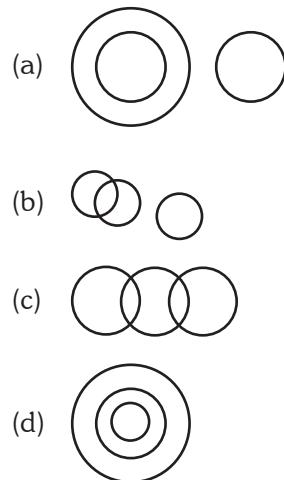
[SSC CHSL 2015]



409. Identify the diagram that best represents the relationship among classes given below:

Earth, Milky-way, Universe [SSC CHSL 2015]

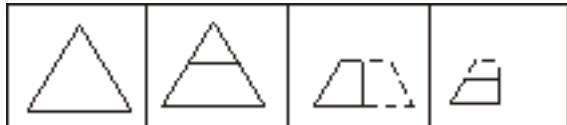
Answer Figures:



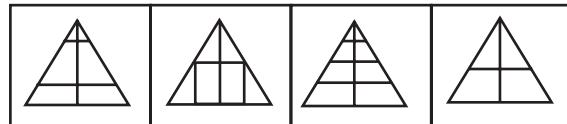
PAPER FOLDING CUTTING

410. A sheet of paper has been folded as shown by the question figure. You have to figure out from amongst the four answer figures how it will appear when opened? **[SSC CGL 2012]**

Question figures:



Answer figures:



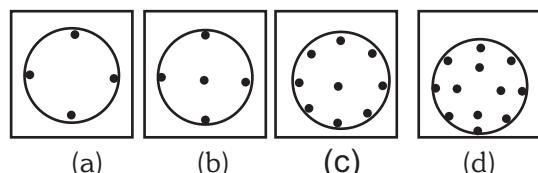
(a) (b) (c) (d)

411. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures indicate how it will appear when opened **[SSC CGL 2013]**

Question figure



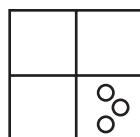
Answer figures



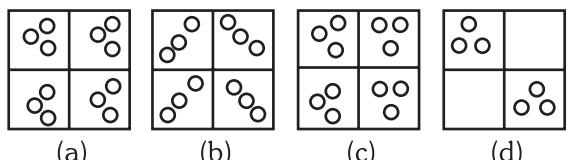
(a) (b) (c) (d)

412. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened. **[SSC CGL 2015]**

Question figure:



Answer figures:

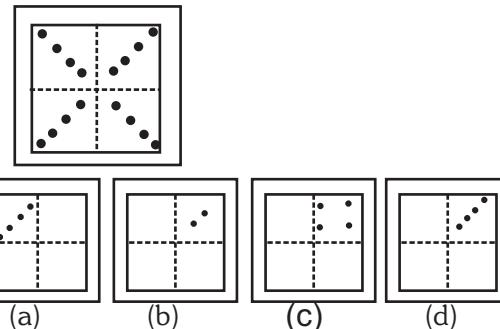


(a) (b) (c) (d)

413. If a paper is folded in a particular manner and a punch is made, when unfolded this paper appears as given below in the question figure. Find out the

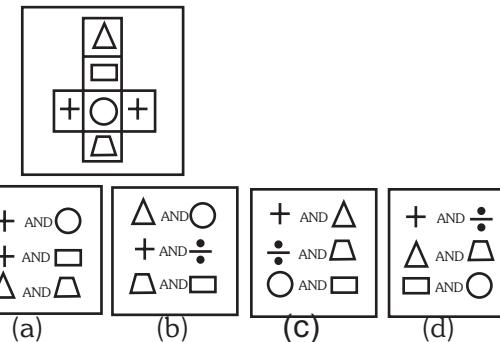
manner in which the paper is folded and the punch is made from the answer figures given.

[SSC CGL 2015]



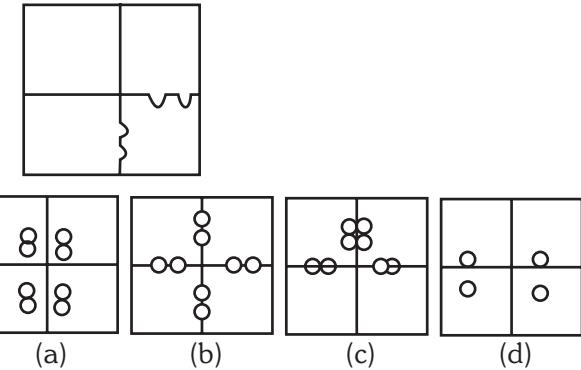
414. If a paper is folded as shown in figure to form a cube, then the pairs of opposite faces are:

[SSC CGL 2015]



415. A piece of paper is folded and cut as shown below in the given question figures. From the given answer figures, indicate how it will appear when opened.

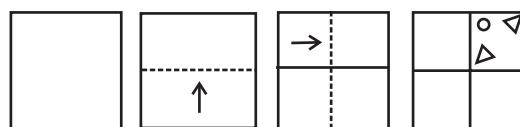
[SSC CGL 2015]



416. A piece of paper is folded and cut/punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?

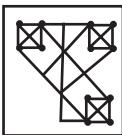
[SSC CHSL 2013]

Question Figure:

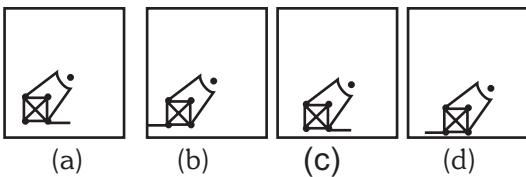


Answer Figures:

424. Question figure

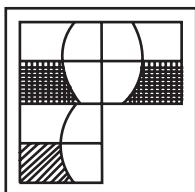


Answer figures

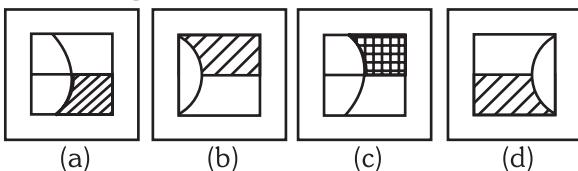


Directions (Qs. 425 to 426): In the following questions, which answer figure will complete the pattern in the given figure? [SSC CGL 2015]

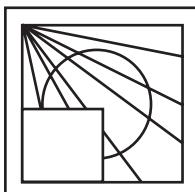
425. Question figure:



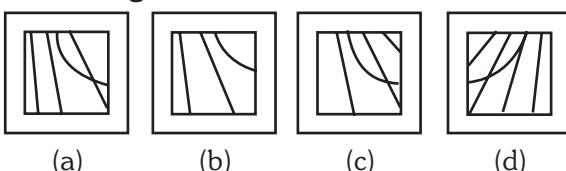
Answer figures:



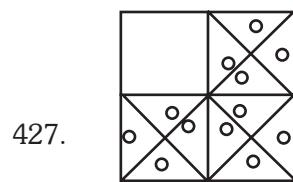
426. Question figure:



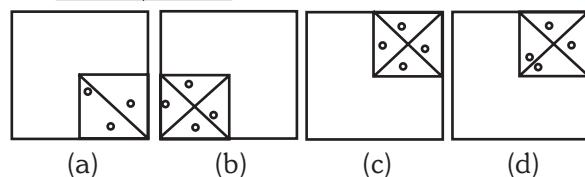
Answer figures:



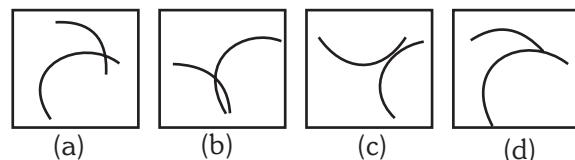
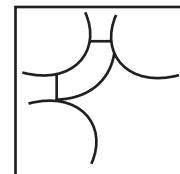
Directions (Qs. 425 to 428): Which answer figure will complete the pattern in the question figure? [SSC CGL 2015]



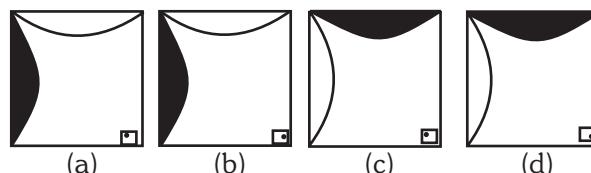
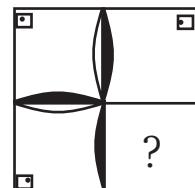
427.



428.



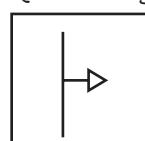
429. Which answer figure will complete the pattern in the question figure? [SSC CHSL 2015]



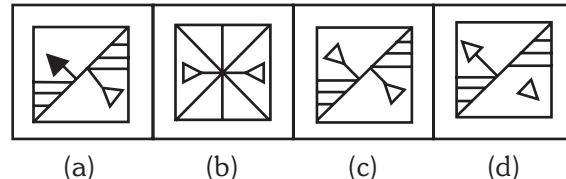
EMBEDDED HIDDEN FIGURES

430. From the answer figure, select the one in which the question figure is hidden/embedded. [SSC CGL 2012]

Question figures:



Answer figures:

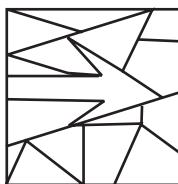


Miscellaneous Question Bank

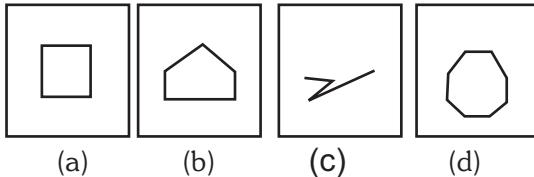
431. From the given answer the figure, select the one which is hidden/embedded, in the question figure.

[SSC CGL 2013]

Question figure



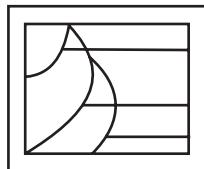
Answer figures



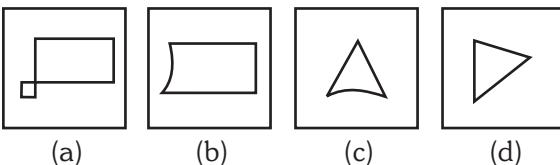
432. From the given answer figures, select the one which is hidden/embedded in the question figure:

[SSC CGL 2015]

Question figure:

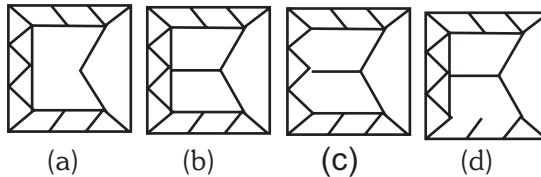
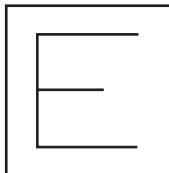


Answer figures:



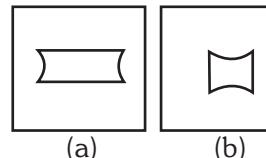
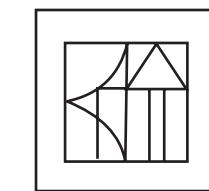
433. Select the answer figure in which the question figure is hidden.

[SSC CGL 2015]

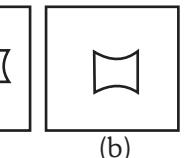


434. From the given answer figures, select the one which is hidden/embedded in the question figure.

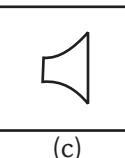
[SSC CGL 2015]



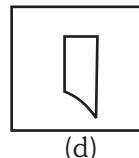
(a)



(b)



(c)



(d)

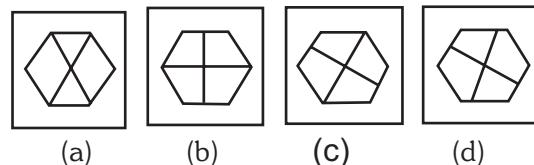
435. From the given answer figures, select the one in which the question figure is hidden/embedded.

[SSC CHSL 2013]

Question Figure:



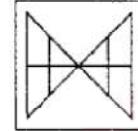
Answer Figures:



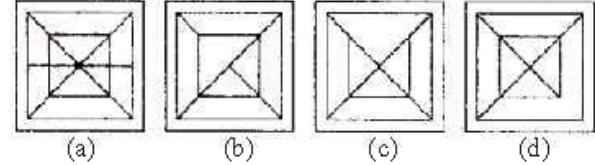
436. From the given answer figures, select the one in which the question figure is hidden/embedded.

[SSC CHSL 2015]

Question figure :



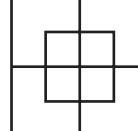
Answer figures:



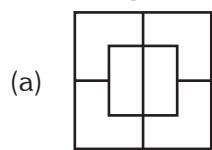
437. From the given answer figures, select the one in which the question figure is hidden/embedded.

[SSC CHSL 2015]

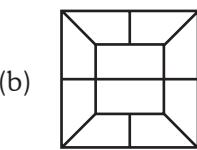
Question Figure:



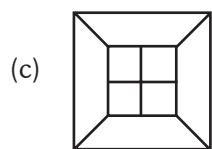
Answer Figures:



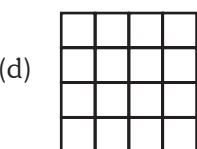
(a)



(b)



(c)

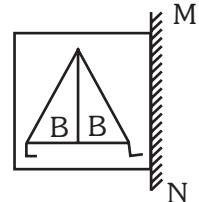


(d)

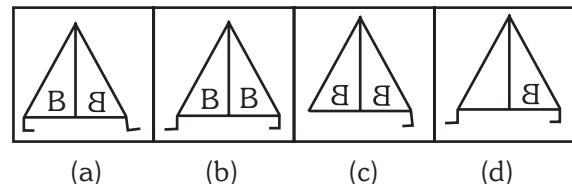
MIRROR/WATER IMAGE

438. Which of the answer figures is exactly the mirror image of the question figure if a mirror is placed on the line MN? **[SSC CGL 2012]**

Question figures:



Answer figures:



(a)

(b)

(c)

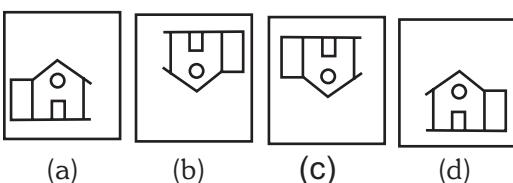
(d)

439. Which of the answer figure is exactly the water image of the given figure? **[SSC CGL 2013]**

Question figure



Answer figures:



(a)

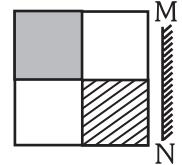
(b)

(c)

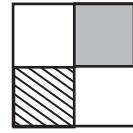
(d)

440. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure? **[SSC CGL 2015]**

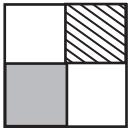
Question figure:



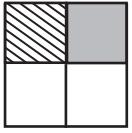
Answer figures:



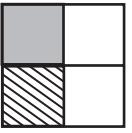
(a)



(b)



(c)



(d)

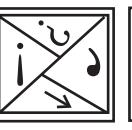
441. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?

[SSC CGL 2015]

(a)



(b)

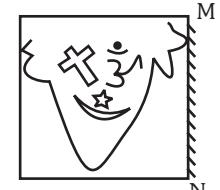


(c)



(d)

442. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure? **[SSC CGL 2015]**



(a)



(b)

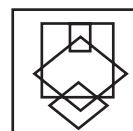
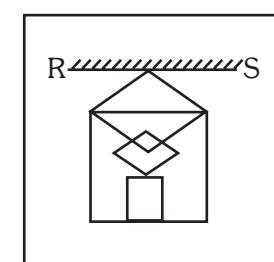


(c)

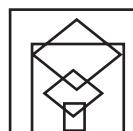


(d)

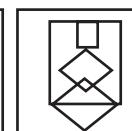
443. If a mirror is placed on the line RS, then which of the answer figures is the right image of the given figure?

[SSC CHSL 2015]

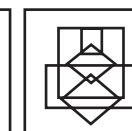
(a)



(b)



(c)



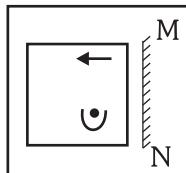
(d)

Miscellaneous Question Bank

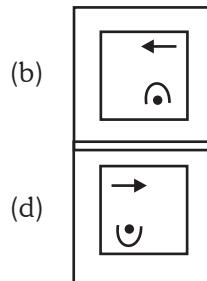
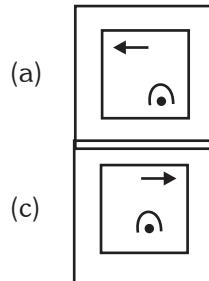
444. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?

[SSC CHSL 2015]

Question Figure:



Answer Figures:



445. Out of the given alternatives select one which exactly matches with the mirror image of the word.

REASONING

- (a) GNINOSAER
- (b) G N I N O S A E R
- (c) G A S O N I N G
- (d) G N I N O S A E R

446. If the mirror image of a clock shows quarter past three, then what is the original time?

[SSC CHSL 2015]

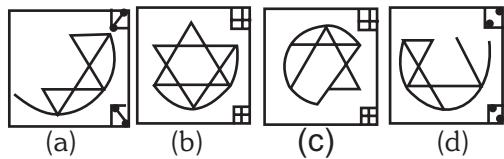
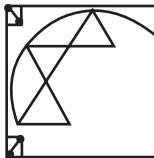
- (a) 9, 15
- (b) 8, 15
- (c) 3, 15
- (d) 8, 45

FIGURE FORMATION

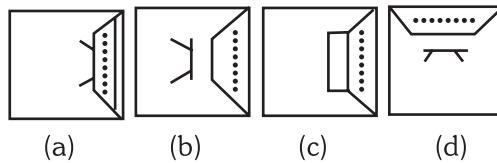
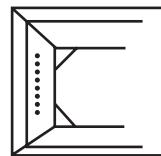
Directions (Qs. 447 to 451): In which answer figure will complete the pattern in the question figure?

[SSC CGL 2015]

447.



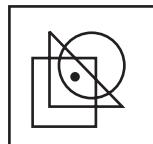
448.



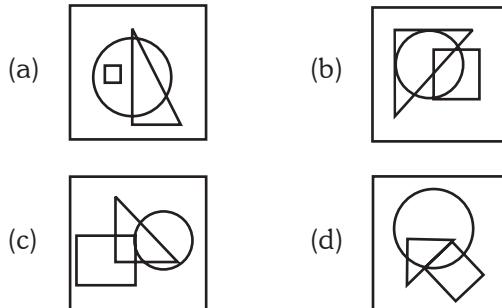
449. Select the figure which satisfies the same conditions of placement of the dots as in question figure.

[SSC CHSL 2015]

Question Figure:



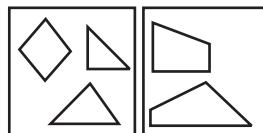
Answer Figures:



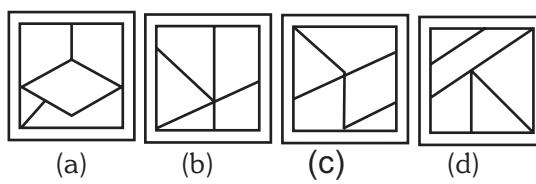
450. Identify the answer figure from which the pieces given in the question figures have been cut.

[SSC CGL 2013]

Question figure



Answer figures



451. In a row of men, Manoj is 30th from the right and Kiran is 20th from the left. When they interchange their position, Manoj becomes 35th from the right. What is the total number of men in the row?

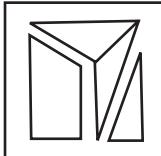
[SSC CGL 2015]

- | | |
|--------|--------|
| (a) 45 | (b) 44 |
| (c) 54 | (d) 34 |

Directions (Qs. 452 to 453) : Among the four answer figures which can be formed from the cut out pieces given in question figure.

[SSC CGL 2015]

452.



- | | |
|--|--|
| | |
| | |

(a)

(b)

(c)

(d)

453.



- | | |
|--|--|
| | |
| | |

(a)

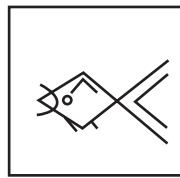
(b)

(c)

(d)

454. From the answer figures, select the cut pieces from which the question figure is formed/made.

[SSC CGL 2015]



- | | |
|--|--|
| | |
| | |

(a)

(b)

(c)

(d)

455. Identify the answer figure from which the pieces given in the question figure have been cut.

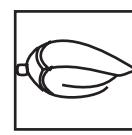
[SSC CGL 2015]



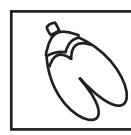
(a)



(b)



(c)



(d)

456. How many Ms occur in the following series such that it is preceded by W and followed by V?

[SSC CHSL 2013]

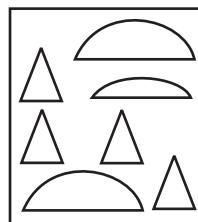
X U V M R S T M W N V M W O P M W U V M W A
C W M V H P N V V W M W T U N

- | | |
|-------|-------|
| (a) 3 | (b) 2 |
| (c) 1 | (d) 5 |

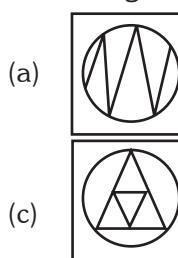
457. Identify the answer figure from which the pieces given in the question figure have been cut.

[SSC CHSL 2015]

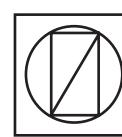
Question Figures:



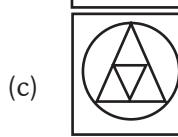
Answer Figures:



(a)



(b)



(c)

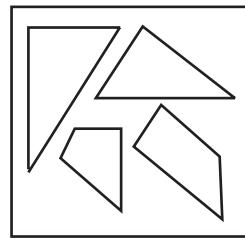


(d)

458. Identify the answer figure from which the pieces given in the question figure have been cut.

[SSC CHSL 2015]

Question Figure:



Answer Figures.

- (a) 56, 44, 67, 40 (b) 97, 21, 66, 29
 (c) 75, 00, 10, 92 (d) 68, 33, 65, 58

465. Direction: A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g., 'A' can be represented by 01, 14 etc. and 'O' can be represented by 59, 67 etc. similarly, you have to identify the set for the word 'PEARL'

[SSC CGL 2015]

Matrix-I

	0	1	2	3	4
0	P	A	G	R	Z
1	G	R	Z	P	A
2	Z	P	A	G	R
3	A	G	R	Z	P
4	R	Z	P	A	G

Matrix-II

	5	6	7	8	9
5	E	M	L	N	O
6	L	E	O	M	N
7	O	N	E	L	M
8	N	O	M	E	L
9	M	L	N	O	E

- (a) 00, 55, 22, 11, 96 (b) 00, 66, 14, 32, 56
 (c) 13, 77, 30, 14, 88 (d) 12, 88, 43, 32, 89

466. A word represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g. 'A' can be represented by 03, 10 etc. and 'D' can be represented by 58, 65 etc. Similarly, you have to identify the set for the word 'BEAK'.

MATRIX-I

	0	1	2	3	4
0	C	B	O	A	T
1	A	C	T	B	O
2	B	O	A	T	C
3	T	C	B	O	A
4	O	A	T	C	B

MATRIX-II

	5	6	7	8	9
5	R	E	K	D	L
6	D	L	R	E	K
7	E	K	D	L	R
8	L	R	E	K	D
9	K	D	L	R	E

[SSC CGL 2015]

- (a) 44 75 22 88
 (b) 20 10 87 57
 (c) 44 88 10 75
 (d) 32 76 75 22

467. Direction: A word is represented by only one set of numbers as given in any one of the alternatives. The set of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of matrix I are numbered from 0 to 4 and that of matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by it's row and next by it's column, e.g. 'A' can be represented by 01, 14 etc. and 'E' can be represented by 55, 66 etc. Similarly, you have to identify the set for the word 'ORGAN'.

[SSC CGL 2015]

Matrix-I

	0	1	2	3	4
0	P	A	G	R	Z
1	G	R	Z	P	A
2	Z	P	A	G	R
3	A	G	R	Z	P
4	R	Z	P	A	G

	5	6	7	8	9
5	E	M	L	N	O
6	L	E	O	M	N
7	O	N	E	L	M
8	N	O	M	E	L
9	M	L	N	O	E

- (a) 98, 03, 44, 22, 58
 (b) 86, 40, 23, 14, 96
 (c) 67, 22, 31, 58, 22
 (d) 75, 03, 11, 22, 76

468. A word is represented by only set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix-I are numberd from 0 to 4 and that of Matrix-2 are numbered from 5 to 9. A letter from these matrix can be represented first by its row and next by its column, e.g., 'M' can be represented by 01, 10 etc., and 'R' can be represented by 58, 85 etc. Similarly, you have to identify the set for the word 'NOW'.

[SSC CHSL 2015]

Matrix-I

	0	1	2	3	4
0	I	M	W	S	Q
1	M	W	S	Q	I
2	W	S	Q	I	M
3	S	Q	I	M	W
4	Q	I	M	W	S

Matrix-II

	5	6	7	8	9
5	O	A	D	R	N
6	A	D	R	N	O
7	D	R	N	O	A
8	R	N	O	A	D
9	N	O	A	D	R

(a) 86, 58, 11

(b) 55, 78, 11

(c) 95, 55, 34

(d) 95, 67, 02

469. A word is represented by only one set of number as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g., A can be represented by 02, 11 etc, and L can be represented by 56, 67 etc. Similarly, you have to identify the set for the word BEARD.
- [SSC CHSL 2015]**

MATRIX-1

	0	1	2	3	4
0	S	P	A	R	E
1	P	A	R	E	S
2	A	R	E	S	P
3	R	E	S	P	A
4	E	S	P	A	R

MATRIX-2

	5	6	7	8	9
5	D	L	I	U	B
6	B	D	L	I	U
7	U	B	D	L	I
8	I	U	B	D	L
9	L	I	U	B	D

(a) 87, 13, 43, 21, 88 (b) 88, 13, 43, 44, 21

(c) 88, 87, 43, 21, 13 (d) 87, 13, 43, 88, 21

470. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column e.g., I can be represented by 23, 32 etc. and A can be represented by 56, 65 etc. Similarly, you

have to identify the set for the word RIM given in question.

[SSC CHSL 2015]

Matrix - I

	0	1	2	3	4
0	I	M	W	S	Q
1	M	W	S	Q	I
2	W	S	Q	I	M
3	S	Q	I	M	W
4	Q	I	M	W	S

Matrix - II

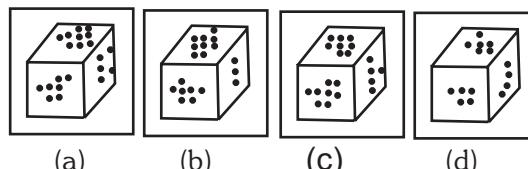
	5	6	7	8	9
5	O	A	R	D	N
6	A	R	D	N	O
7	R	D	N	O	A
8	D	N	O	A	R
9	N	O	A	R	D

- (a) 58, 43, 34 (b) 75, 14, 24
 (c) 76, 41, 34 (d) 58, 43, 11

CUBES AND DICE

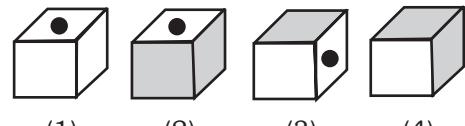
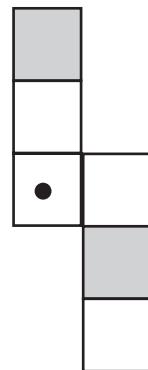
471. If the difference between the no. of dots on the opposite faces is 3, find out the figure which is correct?
- [SSC CGL 2013]**

Answer figures



- (a) (b) (c) (d)

472. The figure given on the left hand side is folded to form a box. Choose from the alternatives (1), (2), (3) and (4) the boxes that is similar to the box formed.
- [SSC CGL 2015]**



- (1) (2) (3) (4)

- (a) (2) and (3) only (b) (1), (3) and (4) only
 (c) (2) and (4) only (d) (1) and (4) only

473. Six faces of the dice are A, B, C, D, E and F. A is adjacent to B. B is adjacent to D but not C. E is adjacent to D and F. What is the side opposite to A?

[SSC CHSL 2015]

- | | |
|-------|-------|
| (a) C | (b) F |
| (c) D | (d) E |

PUZZLE TEST

474. Seven persons A, B, C, D, E, F and G are standing in a straight line.

[SSC CGL 2015]

D is to the right of G.

C is between A and B.

E is between F and D.

There are three persons between G and B.

Who is on the extreme left?

- | | |
|-------|-------|
| (a) A | (b) B |
| (c) D | (d) G |

475. Six students A, B, C, D, E, F are sitting on the ground. A and B belong to Ruby House, while the rest belong to Emerald House. D and F are tall, while others are short. C and D are wearing glasses while others are

not wearing. Which girl of Emeralds House is tall and is wearing glass?

[SSC CGL 2015]

- | | |
|-------|-------|
| (a) C | (b) B |
| (c) D | (d) A |

476. P, Q, R, S, T, U are 6 members of a family in which there are two married couples. T, a teacher is married to a doctor who is mother of R and U. Q, the lawyer is married to P. P has one son and one grandson. Of the two married ladies one is a house wife. There is also one student and one male engineer in the family. Which of the following is true about the grand-daughter of the family? [SSC CGL 2015]

- | | |
|------------------------|----------------------|
| (a) She is a lawyer | (b) She is a student |
| (c) She is an engineer | (d) She is a doctor |

477. Eight friends A, B, C, D, E, G and H are sitting around table in the same order at equal distances. Their positions are in clockwise direction. If G, who is sitting in the north exchange seat with C, and B exchange seat with F. Now who is sitting to the right of F?

- | | |
|-------|-------|
| (a) G | (b) E |
| (c) A | (d) B |

[SSC CHSL 2015]

SOLUTION**ANALOGY**

1. (a) $8 : 12 = (8 \times 2 - 4) :: 6 : (6 \times 2 - 4) = 8$
2. (a) $13 : 19 :: 21 : 41$
i.e., $1^2 = 1$ & $3^2 = 9$, $2^2 = 4$, $1^2 = 1$
3. (a) Eagle's dive is known as swoops or fly
Duck will waddles.
4. (a) Apple = $1 + 16 + 16 + 12 + 5 = 50$
Orange = $15 + 18 + 1 + 14 + 7 + 5 = 60$
5. (c) Rent is the charge that we pay for accomodation and for journey, fare is there.
6. (b) Fire causes smoke and Rain causes through cloud.
7. (d) Grenade and gun are fire arms whereas head and brain are body organs.

8. (b) $\text{TSH} \xrightarrow{+1} \text{IRQ} :: \text{QPK} \xrightarrow{+1} \text{LON}$.

9. (a)

A	E	Z	\rightarrow	F	P	Y
+5				+11		
+11				-1		
-1						

Similarly, $B \xrightarrow{+6} G \xrightarrow{+16} X \rightarrow H \xrightarrow{-1} W \xrightarrow{-1} W$

B	G	X	\rightarrow	H	W	W
+6				+16		
-1				-1		

10. (c) Metre is a unit of length likewise watt is a unit of power.
11. (d) As cube is 3-D of square. Similarly sphere is 3-D of circle.
12. (b) As paper is product of Tree. Similarly glass is a product of sand.
13. (d) As,

$$\begin{array}{ll} A C F J & \text{similarly } E G I N \\ \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow \\ Z X U Q & V T R M \end{array}$$

14. (a) As,
- | | |
|------------------------|------------------------|
| $A \xrightarrow{+3} D$ | $Q \xrightarrow{+3} T$ |
| $C \xrightarrow{+3} F$ | $S \xrightarrow{+3} V$ |
| $E \xrightarrow{+3} H$ | $U \xrightarrow{+3} X$ |
| $G \xrightarrow{+3} J$ | $W \xrightarrow{+3} Z$ |

15. (d) As,
 $E \xrightarrow{+1} F$ Similarly
 $G \xrightarrow{+2} I$ $F \xrightarrow{+1} G$
 $I \xrightarrow{+3} L$ $H \xrightarrow{+2} J$
 $K \xrightarrow{+4} O$ $J \xrightarrow{+3} M$
 $L \xrightarrow{+4} P$

16. (b) The relationship is $x : (x^2 - 9)$.
17. (c) The relationship is $x : x(x + 1)$
18. (b) $50 = 20 \times 2 + 20/2$, So $100 \times 2 + 100/2 = 250$
19. (b) $11 : (11 \times 12) = 132 :: 9 : (9 \times 10) = 90$
20. (a) $\frac{1}{9} : \frac{1}{9^2} :: \frac{1}{13} : \frac{1}{13^2}$
21. (c) $AB : ZY :: CD : XW$
Left hand first two letters moves from increasing order and next portion of letters moves from decreasing order.
22. (c) Meat of deer is known as venision and veal is the meat of young calf.
23. (a) Cobbler works with leather and tailor works with cloth.
24. (b) The given word FLOWER has been reverse into REWOLF; similarly, the word FRUITS has been reverse into STIURF.
25. (c) Haematology is the study of Blood.
Similarly, Phycology is the study of Algae.
26. (c) Groups of Lions are called Pride,
Similarly, Group of cats are called Clowder.
27. (a)
- | | | |
|-------|-------|-------|
| M | A | N |
| [+ 3] | [+ 3] | [+ 3] |
| P | D | Q |
- Similarly,
- | | | |
|-------|-------|-------|
| W | A | N |
| [+ 3] | [+ 3] | [+ 3] |
| Z | D | Q |
28. (b)
- | | | | |
|--------|--------|--------|--------|
| A | E | F | J |
| [+ 10] | [+ 10] | [+ 10] | [+ 10] |
| K | O | P | T |
- Similarly,
- | | | | |
|--------|--------|--------|--------|
| Q | U | V | Z |
| [- 10] | [- 10] | [- 10] | [- 10] |
| G | K | L | P |
29. (a) $2^5 = 32$,
Similarly, $3^5 = 243$.
30. (c) $1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8$
A B C D E F G H...
 $D \times H = 4 \times 8$
 $M \times Q = 13 \times 17$

31. (d) Insects : Entomology :: Snakes : Ophiology.
Ophiology is the study of Snake.
- Similarly, Agrology is the study of Agriculture, Mycology is the study of Fungi, Cetology is the study of whale.
32. (d) Kidneys unit is Nephron, Central Nervous system's unit is Neurons.
33. (d) $Y^2 : 4 :: V^2 : 25$
In the first pair, the opposite letter of Y is B.
 $\rightarrow B^2 = 4$
Similarly, the opposite letter of V is E.
 $\rightarrow E^2 = 25$.
34. (a) JOKE : GLHB :: RISK : OFPH
Each letter is shifted backward by three letters.
35. (d) $4 : 17 :: 7 : 50$
 $4 : 4^2 + 1 :: 7 : 7^2 + 1$
36. (d) DFHJ : WUSQ :: HJLN : SQOM
The first pair has opposite letters respectively. Similarly, in the second pair, the missing term is SQOM.
37. (a)
 $16 : 22 :: 36 : ?$
 $\Rightarrow (4)^2 : (5^2 - 3) :: 6^2 : (7^2 - 5) = 44$
Hence, 44 is the answer.
38. (d)
-
39. (d) $9 : 50 \Rightarrow 9 : (9 \times 5 + 5)$
Similarly, $20 : (20 \times 5 + 5) = 105$
40. (b)
 $\sqrt{AFI} = M : \sqrt{ADD} = L :: \sqrt{ABA} = ?$
By substituting the values
- $\sqrt{169} = (13) = M : \sqrt{144} = 12 = L :: \sqrt{121} = 11 = K$
- The 11th letter is K.
41. (d) The study of fossils is called Paleontology.
Similarly study of skull is called Phrenology.
42. (c) The study of word is called Etymology. The study of Antiques is called Archeology.
The study of mind is called Psychology.
The study of body is called Anatomy.
The pair that does not exhibit the same meaning or

- relationship is "Philosophy: Language".
43. (b) Cobbler works with leather.
Carpenter works with wood.
44. (c) Hand's hinge is wrist which provides mobility and flexibility.
Similarly for foot, Ankle is the hinge.
45. (b) Chair is made up of wood.
Similarly, Mirror is made up of Glass.
46. (c)
47. (c)
-
48. (b) $8 : 66 :: ? : 38$
 $8 : (8 \times 8) + 2 :: 6 : (6 \times 6) + 2$
Hence option (b) is correct.
49. (a)
50. (b) Vacation means occupation. So, career is near to that.
51. (c) $32 : 28 :: 160 : 140$
 $(4 \times 8) : (4 \times 7) :: (20 \times 8) : (20 \times 7)$
52. (a)
-
53. (c)
54. (a) $\sqrt{DDA} = \sqrt{441} = \sqrt{(21)^2} = 21$
55. (c) Only Cod lives in salt water.
56. (c) $196 : 256 :: ? : 400$
i.e. $(14)^2 : (16)^2 :: (18)^2 : (20)^2$
57. (d) Difference between all the numbers is 2.
-
58. (d) From eyes tears comes out.
Similarly, Lava comes out from volcano.
59. (d) The vehical that bull pulls is known as bullock cart.
The vehical that horse pulls is known as tonga.
60. (a)

90. (c) D H F J H K P R
 4 8 6 10 8 11 16 18
 Hence HK is odd one out.
91. (b) $24 = 5^2 - 1$ $80 = 9^2 - 1$
 $49 = 7^2 - 0$ $15 = 4^2 - 1$
92. (c) All are squares except (c).
93. (d) $704 \div 11 = 64$ $256 \div 4 = 64$
 $832 \div 13 = 64$ $310 \div 5 = 62$
94. (c) Except (c) in the remaining groups contain only consonants.
95. (d) Except (d), remaining are synonyms.
96. (a) Remaining numbers are divisible by 4.
97. (a) Remaining are females.
98. (b) Remaining numbers are composite.
99. (c) Remaining are vowels.
100. (d) Night is the only one where the moon is in sky.
 The rest timing is related with sun.
101. (a) Liberty is a odd word because liberty means freedom but rest are synonyms of brotherhood.
102. (d) 1 2 3 4 5 6
 A B C D E F
 $D = 4$, $w = 4$ (from backward count)
 $F = 6$, $U = 6$ (From backward)
 Similarly, $K = 11$, $Q = 10$
103. (d) The pattern is CB (Inter changing their place) EF, But, GF (Inter change) HJ (It should be 'I' instead of 'J')
104. (b) 7202 is a even number but rest are the odd numbers.
105. (a) $104 : 78 = 104/26 : 78/26$.
 $= 4 : 3$
 $64 : 48 = 64/16 : 48/16$
 $= 4 : 3$
 $80 : 60 = 80/20 : 60/20$
 $= 4 : 3$
 But, $96 : 80 = 96/16 : 80/16$
 $= 6 : 5$
- The odd is $96 : 80$ because its ratio is $6 : 5$ but rest of ratio is $4 : 3$.
106. (c) Except Kidnap, the rest are the words related to Killing.
107. (c) Except in 338 in all other numbers the product of the first two digits is equal to the third digit.
108. (c) Except 44 - 31, the difference of the remaining pairs are perfect squares.

109. (c) The given terms are

L	K	M	I	H	J
12	11	13	9	8	10

O	N	P	S	T	R
15	14	16	19	20	18

Except STR, the rest follows a similar pattern as shown above.

110. (c) Except Bristol, the rest belong to Switzerland.
111. (c) Except 13 which is prime number rest all are composite.
112. (b) Except option (b) rest all has vowel.
113. (d) The reason is—
 (a) $(108 \div 3 = 36)$ (b) $(69 \div 3 = 23)$
 (c) $(42 \div 3 = 14)$ (d) Cannot follow
114. (b) All are external organs except option(b) i.e., vestibular
115. (a) As Shimla is one of the capital of States of India and follows the league in the question.
116. (c) Except option (c) all are numbers i.e., EIGHT \rightarrow GHIET; VEENS \rightarrow SEVEN etc.
117. (a) Except option (a), all are means to buy only.
118. (c) WAR cannot be WORSHIP.
119. (d)

B	D	F	H	M	O	Q	S
\uparrow							
$+2$	$+2$	$+2$	$+2$	$+2$	$+2$	$+2$	$+2$

S	U	W	Y	T	V	Z	E
\uparrow							
$+2$	$+2$	$+2$	$+2$	$+4$	$+6$		
120. (a) $8(3 + 5) — 15(3 \times 5)$
 $25 = (5)^2 — 36 = (6)^2$
 $49 = (7)^2 — 64 = (8)^2$
 $81 = (9)^2 — 100 = (10)^2$
121. (b) The gap between the numbers are 7. i.e.
 $13 \xrightarrow{+7} 20 \xrightarrow{+7} 27$
122. (a)
123. (d) As 17 is prime number or another method to find the answer is except 17 all are divisible by 3.
124. (d) $853 \rightarrow 8 = (5 + 3)$, $734 \rightarrow 7 = (3 + 4)$
 $532 \rightarrow 5 = (3 + 2)$, $751 \rightarrow 7 \neq (5 + 1)$
125. (c) Fathom its one of the unit of length and rest are adjective defining states or shape of any substance.

Miscellaneous Question Bank

126. (d)

127. (a) Except (a) all are adjacent letters.

128. (c) Except (c) all are written from right to left.

129. (a) All are written right to left but option (a) is written from left to right.

130. (c) Only in option (c) the last numbers (i.e., both end numbers are not same).

131. (a) E ↓ G ↓ I (b) B ↓ D E
F H(c) M ↓ O ↓ Q (d) L ↓ N ↓ P
N P

132. (d)

133. (a) Elope means to run-away where as rest all are related with respect.

134. (c) (a) A ↓ C (b) B ↓ D
B C
(c) CD (d) D ↓ F
E

Hence, only option (c) is differ from the rest.

135. (c) President is the only person, who does not represent any house or parliament.

136. (a) $2^1 = 2, 16 = 2^4, 128 = 2^7 \text{ & } 56 = 7 \times 2^3$

137. (b) Googly is odd here, as swing, bouncer and yorker can be done during pace balling. Whereas googly can be done only on spin balling.

138. (c) Except option (c) rest all are perfect squares.

139. (d) Adding all the numbers of the different options gives a value which is divisible by 3. Except option (d)

- (a) $6 + 7 + 6 + 2 + 6 = 27$ divisible by 3
 (b) $8 + 4 + 1 + 2 + 9 = 24$ divisible by 3
 (c) $3 + 2 + 4 + 1 + 8 = 18$ divisible by 3
 (d) $4 + 7 + 6 + 3 + 2 = 22$ not divisible by 3

140. (c) Except Eye, rest all are abdominal organ.

141. (d) **Catalysis:** A process of acceleration of Chemical Reaction.**Condensation:** Conversion of vapour into liquid.**Conduction:** Transfer of heat or electricity.**Coagulation:** A process of clotting of blood.

As Coagulation process takes place inside a body.

142. (c) Except option (c) all are mammal whereas scarab is an insect.

143. (d) Except option (d) all are separated by 1 letter

P [Q] R [S] T [U] V

L [M] N [O] P [Q] R

A [B] C [D] E [F] G

M [N] O [P] Q [R]

144. (d) G H [I] J [K] [L] M

P Q [R] S [T] [U] V

B C [D] E [F] [G] H

T U [V] W [X] [Y]

Hence, only option (d) which is different from rest.

145. (c)

146. (c) (a) $(2, 2^3 + 3 = 11)$ (b) $(3, 3^3 + 3 = 30)$ (c) $(7, 7^3 + 2 = 345)$ (d) $(5, 5^3 + 3 = 128)$ 147. (d) All numbers are not a perfect square except option (d), which is a perfect square of $14^2 = 196$.148. (c) Except (c) all are perfect square. i.e. $11^2 = 121, 12^2 = 144, 13^2 = 169$.**SERIES**

149. (b) Counting from right hand side i.e.,

Y X ↓ U T S ↓ 3 letters O N M L ↓ 4 letters G F E D C ↓ 5 letters

(Droping of 2 letters) (Droping of 3 letters) (Droping of 4 letters)

150. (a) D → H → L → P → T
+4 +4 +4 +4
D → E → I → J → N
+4 +4 +4 +4

151. (c)

B → E → I → N → T → A
+3 +4 +5 +6 +7152. (d) A → C → E → G
+2 +2 +2
Z → X → V → T
-2 -2 -2

153. (c)

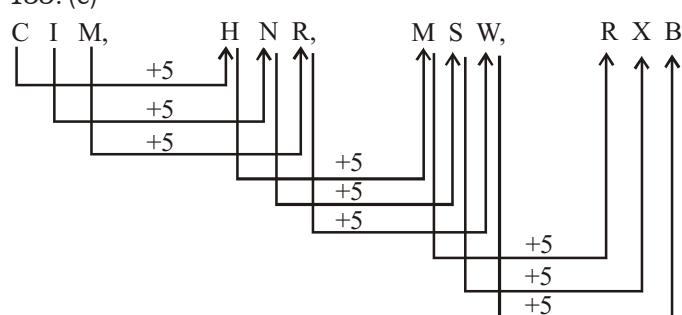
154. (a) B C F G 2, 3, 6, 7

J K N O 10, 11, 14, 15

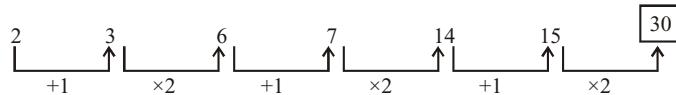
R S V W 18, 19, 22, 23

Next sequence = 26, 27, 30, 31 = 26, 1, 4, 5 = Z A
D E (subtract the excess value by 26)

155. (c)



156. (b)



157. (b) 4th term $23 = 5 \times 4 + 3 = 23$

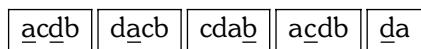
3rd term $122 = 5 \times 23 + 7 = 122$

2nd term $? = 5 \times 122 + 11 = 621$

1st term $3120 = 5 \times 621 + 15 = 3120$

158. (b)

159. (c) The pattern is-



160. (c)

$9 \times 2 + 1 = 18 + 1 = 19$

$19 \times 2 + 2 = 38 + 2 = 40$

$40 \times 2 + 3 = 80 + 3 = 83$

$83 \times 2 + 4 = 166 + 4 = 170$

170 $\times 2 + 5 = 340 + 5 = 345$. Hence 340 is wrong.

161. (d) $21 + 7 = 28$

$28 + 5 = 33$

$33 + 3 = \boxed{36}$

$36 + 1 = 37$

$37 - 1 = 36$

Hence, 35 is wrong.

162. (a) $5 + 8 = 13$, $13 + 16 = 29$, $29 + 32 = 61$

$61 + 64 = \boxed{125}$ $125 + 128 = 253$

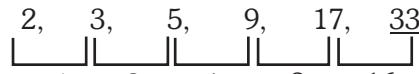
∴ 120 is wrong.

163. (b) $0 + 7 = 7$, $7 + 21 = 28$, $28 + 35 = 63$

$63 + 61 = 124$, $124 + 87 = \boxed{211}$

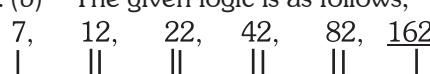
∴ 215 is wrong.

164. (c) The given logic is as follows,



$= 17 + 16 = 33$

165. (b) The given logic is as follows,

where, $5 \times 2 = 10$

$10 \times 2 = 20$

$20 \times 2 = 40$

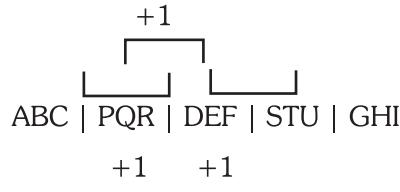
$40 \times 2 = 80$

166. (b) The given logic is as,

A	C	F
+1	+1	+0

B	D	F
+1	+1	+1
C	E	G
+1	+1	+1
<u>D</u>	<u>F</u>	<u>H</u>

167. (b) The given logic is as follows.



168. (d)

169. (a) c c b a b b c a a a b c c c b a b

170. (a)

171. (c)
$$\begin{array}{ccccccccc} 4 & 6 & 10 & 16 & 24 & 34 \\ \underbrace{+2}_{+2} & \underbrace{+4}_{+2} & \underbrace{+6}_{+2} & \underbrace{+8}_{+2} & \underbrace{+10}_{+2} & & \\ & & & & & & & \end{array}$$

172. (c)
$$\begin{array}{ccccccccc} 3 & 5 & 9 & 17 & 33 \\ \underbrace{+2}_{2 \times 2} & \underbrace{+4}_{4 \times 2} & \underbrace{+8}_{8 \times 2} & \underbrace{+16}_{&} & & & & \\ & & & & & & & \end{array}$$

173. (d) FAK . IEM LIO OMQ

The given series is

F A K

$+3 +4 +2$

I E M

$+3 +4 +2$

L I O

$+3 +4 +2$

O M Q

174. (a) 3, 5, 35, 10, 12, 35, 17, 19

The given logic is

3, 5, 35

$+7 +7 0$

10, 12, 35

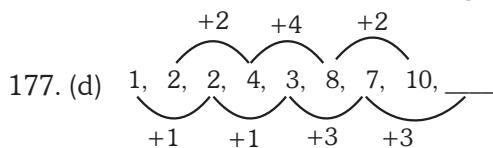
$+7 +7$

17 19

175. (b)
$$\begin{array}{ccccccccc} 36 & 34 & 30 & 28 & 24 & 22 \\ \underbrace{-2}_{-2} & \underbrace{-4}_{-4} & \underbrace{-2}_{-2} & \underbrace{-4}_{-4} & \underbrace{-2}_{-2} & & \\ & & & & & & & \end{array}$$

Miscellaneous Question Bank

176. (a) Given sequence is, B R Q W N/ B R O W N/ B O W R W is the set of missing letters.



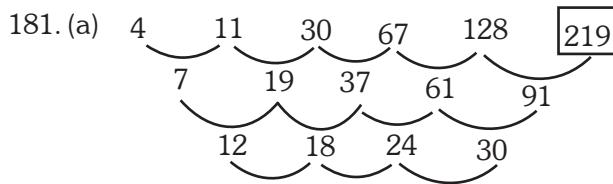
178. (b) The logic is-

$$0, \quad 7, \quad 26, \quad 63, \quad ? \\ (1^3 - 1), (2^3 - 1), (3^3 - 1), (4^3 - 1), (5^3 - 1) = 124$$

179. (b) AMN, BOP, CQR, DST

180. (b)

$$5 \xrightarrow{+1} 6 \xrightarrow{+3} 9 \xrightarrow{+5} 14 \xrightarrow{+7} 21 \xrightarrow{+9} [30].$$



182. (a) m c a m c a m c a m c a m c a m c

183. (a) J W X C L Z
1 9 8 3 6 4

184. (c)

$$127 \quad 131 \quad 139 \quad \underline{147} \quad 151 \quad 157 \quad 163 \quad 167 \\ \underbrace{\quad}_{4} \quad \underbrace{\quad}_{8} \quad \underbrace{\quad}_{8} \quad \underbrace{\quad}_{4} \quad \underbrace{\quad}_{6} \quad \underbrace{\quad}_{6} \quad \underbrace{\quad}_{4}$$

185. (b) 1, 1, 2, 3, 5, ?, 13, 21

i.e., $\begin{cases} 1+1=2 & 2+3=5 & 5+8=13 \\ 1+2=3 & 3+5=8 & 8+13=21 \end{cases}$

186. (a) 361, ?, 169, 121, 49, 25

$$\Rightarrow 361 = 19^2, 17^2 = 289, 13^2 = 169, 11^2 = 121 \\ 49 = 7^2, 25 = 5^2$$

187. (d)

188. (b) The pattern is –

[a a c c b b], [a a c c b b], [a a c c b b]

189. (d)

$$8, \quad 13, \quad 18, \quad 23, \quad 28, \quad 33, \quad 38 \\ \underbrace{\quad}_{5}, \quad \underbrace{\quad}_{5}, \quad \underbrace{\quad}_{5}, \quad \underbrace{\quad}_{5}, \quad \underbrace{\quad}_{5}, \quad \underbrace{\quad}_{5}$$

190. (b) The pattern is–

$$3 \leftarrow 5 \rightarrow 8 \leftarrow 7 \rightarrow 15 \leftarrow 9 \rightarrow 24 \\ \underbrace{\quad}_{\text{1001}}, \quad \underbrace{\quad}_{\text{1004}}, \quad \underbrace{\quad}_{\text{1012}}, \quad \underbrace{\quad}_{\text{1027}}, \quad \underbrace{\quad}_{\text{1051}}$$

191. (c) H I J P Q R D E F ? V W

only U can complete the series of letters.

192. (c) A \downarrow C, E \downarrow G, I \downarrow K, M \downarrow O
B F J N

193. (d) The pattern is–

$$8, 24, ?, 80, 120 \\ (3^2 - 1), (5^2 - 1), (7^2 - 1), (9^2 - 1), (11^2 - 1) \\ = 8 = 24 = 48 = 80 = 120$$

194. (a) In every step, two lines erase as we move from left to right in the question figure.

195. (a)

196. (d) The pattern is

[i j k l] [i j k l] [i j k l]

197. (c) The pattern is

[a b b a] [a b] [a b b a] [a b]

198. (c) 3, 11, 31, 57, 91, 133, _____

$$(1 \times 2) + 1 = 2 + 1 = 3$$

$$(3 \times 4) - 1 = 12 - 1 = 11$$

$$(5 \times 6) + 1 = 30 + 1 = 31$$

$$(7 \times 8) + 1 = 56 + 1 = 57$$

$$(9 \times 10) + 1 = 90 + 1 = 91$$

$$(11 \times 12) + 1 = 132 + 1 = 133$$

$$(13 \times 14) + 1 = 182 + 1 = 183$$

199. (b) 8, 16, 48, 96, 288, 576, _____

$$8 \times 2 = 16, 16 \times 3 = 48, 48 \times 2 = 96$$

$$96 \times 3 = 288, 288 \times 2 = 576, 576 \times 3 = 1728$$

200. (a)

7 [8] 9 7 [6] [5] 3 4 2 [8] 9 7 2 4 [5] 9 2 9 7 [6] 4 7

All members comes twice.

201. (d) the pattern is–

adbcc acbd abcd dcba dbca cbda

202. (d)

203. (c)

[o o p q] [o p o q] [o o p q] [o p o q] [o o p q]

204. (a) **b a b a bb b a b a b b**

205. (b) **a b b a [] a b b a [] a b b a**

CODING AND DECODING

206. (b) P E A R R E A P
| | | | | | | |
G F D N N F D G

207. (d) $5 - 4 = 1, 4 - 3 = 1 \Rightarrow 1 + 1 = 2$
 $6 - 0 = 6, 5 - 1 = 4 \Rightarrow 6 + 4 = 10$
 $6 - 2 = 4, 7 - 2 = 5 \Rightarrow 4 + 5 = \boxed{9}$
208. (a) F L A T T E R and M O T H E R
 7 2 3 8 8 5 9 4 6 8 1 5 9
 therefore, M A M M O T H
 4 3 4 4 6 8 1

209. (a) $16 \Rightarrow (2 + 2)^2 = 4^2$
 $9 \Rightarrow (3 + 0)^2 = (3)^2$
 $\therefore 64 \Rightarrow (4 + 4)^2 = (8)^2$

210. (c)

211. (c) GRAPE = 2 7 3 5 4

FOUR = 1 6 8 7

So, G = 2, R = 7, A = 3, P = 5, E = 4,

F = 1, O = 6, U = 8,

R = 7

GROUP = 2 7 6 8 5

212. (a) As

$$\begin{array}{ccccccc} W & A & Y & I & N \\ -3 \downarrow & -3 \downarrow & -3 \downarrow & -3 \downarrow & -3 \downarrow \\ T & X & V & F & K \end{array}$$

Similarly,

$$\begin{array}{ccccc} L & B & U & K \\ -3 \downarrow & -3 \downarrow & -3 \downarrow & -3 \downarrow \\ I & Y & R & H \end{array}$$

213. (b) As,

$$\begin{array}{ccccccc} P & A & R & T & N & E & R \\ -1 \downarrow & -1 \downarrow \\ O & Z & Q & S & M & D & Q \end{array}$$

Similarly,

$$\begin{array}{ccccccc} S & E & G & M & E & N & T \\ -1 \downarrow & -1 \downarrow \\ R & D & F & L & D & M & S \end{array}$$

214. (c) As,

$$\begin{array}{ccccccc} D & O & C & T & O & R \\ +2 \downarrow & +2 \downarrow \\ F & Q & E & V & Q & T \end{array}$$

Similarly,

$$\begin{array}{ccccccc} P & A & T & I & E & N & T \\ +2 \downarrow & +2 \downarrow \\ R & C & V & K & G & P & V \end{array}$$

215. (c) Given,

(i) She is brave \rightarrow Sue Re Nik

(ii) She is always smiling \rightarrow Pi Sor Re Nik

(iii) is always cheerful \rightarrow Sor Re Zhi

By comparing (i), (ii) and (iii), 'Pi' is the code for 'smiling'.

216. (b) $\frac{15}{20} \times \frac{5}{4} \times \frac{2}{3} \times \frac{8}{5} = 1$

217. (b) The given logic is as follows,

Sum of the digits + second digit = Answer.

i.e., $1 + 4 = 5 + 4 = 9$

$$2 + 8 = 10 + 8 = 18$$

$$\text{Similarly, } 7 + 8 = 15 + 8 = 23.$$

218. (c) Given word,

	P	K	R	O	K
Place Value :	16	11	18	15	11
Code (Sum) :	7	2	9	6	2
Similarly,					
Word	N	J	M	L	Z
Place Value :	14	10	13	12	26
Code (Sum) :	5	1	4	3	8

219. (b) The given logic is as follows-

Word : F A T H E R

Logic : +2 +2 +2 +2 +2 +2

Code : H C V J G T

Similarly, the code for 'SHIP' is 'UJKR'.

220. (c) Given, coded word:

Z B Y X M N Q B
 S T R A I G H T

221. (d) M O U S E

+3 +3 -2 -2
 P R U Q C

Similarly, S H I F T

+3 +3 -2 -2
 V K I D R

222. (a)

2 $\boxed{5}$ $\boxed{3}$ = Books are old

$\boxed{5}$ 4 6 = Man is old

$\boxed{3}$ 7 8 = buy good books

Books = 3, Old = 3.

Are = 2.

223. (b)

F $\boxed{A S H I O}$ N

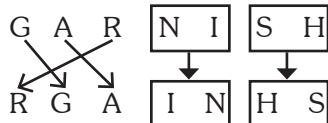
F $\boxed{O I H S A}$ N

The marked box letters reverse their position when the answer figure formed. Similarly, We can arrange-

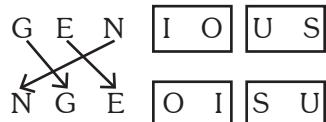
P **R O B L E** M

P **E L B O R** M

224. (a)

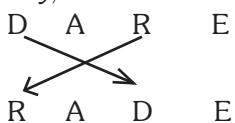


Similarly,



225. (d) R O M E

Similarly,



226. (d) L U T E → M U T E ; G A T E → H A T E
+1 +1

Similarly, BLUE → CLUE

227. (a)

228. (c) FAT = 6 + 1 + 20 = 27

229. (b)

230. (b) N E U R O T I C

T I C R O N E U
P S Y C H O T I C
T I C C H O P S Y
-1

231. (d) PULSE → OULSE

232. (d) ARMS → MARS

233. (a) FATHER → FB TIES

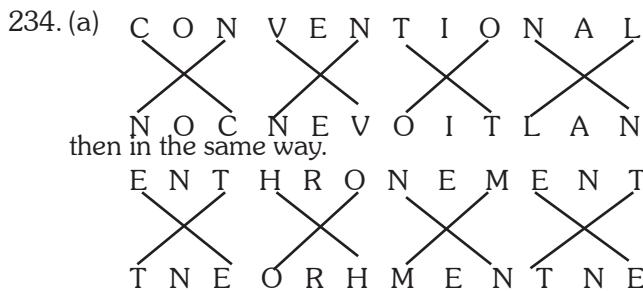
Here,

A → B

H → I

R → S

As, Letters are exchanged by their next letter similarly.
SISTER will be SJSUES



then in the same way.

The values of alphabets.....

$$= 3.2 \times 5 - (1.5 - 3) \times 3$$

$$= 6 \times 5 - (5 - 3) \times 3$$

$$= 30 - 6 = 24 = 2 + 4 = 6 = \text{bcc}$$

236. (b)

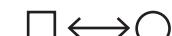
ELEPHANT LEAP
5 7 5 8 9 1 4 3 7 5 1 8

237. (c) CHAIR → DOXQK

BLOOD RELATION

238. (b)

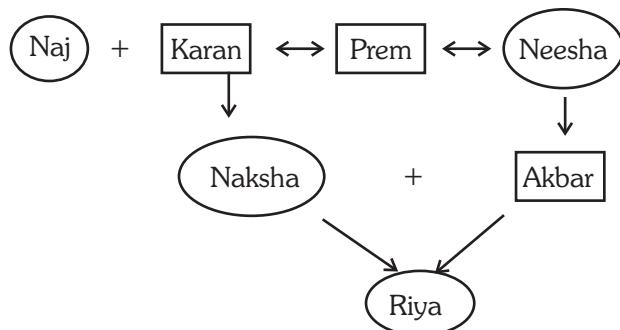
239. (d)



Simon

Pointing Lady

240. (a)

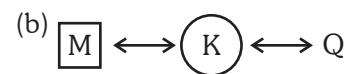
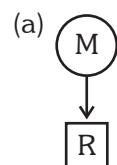


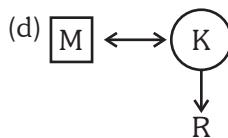
There is two relationship between Naksha and Neesha.

(i) Aunt and Niece

(ii) Mother-in-law and daughter-in-law

241. (d)





Hence, option (d) satisfies the question.

FORMATION OF WORDS

242. (b)

243. (b)

244. (d) The word CHANGE cannot be formed by using the letters of the given word.

245. (d) The word TUTOR can be formed by using the given word.

246. (a)

247. (d)

248. (a) The new words are - STILL, STABLE, SPILE, STAB, SPRING.

249. (c) 3 9 4 2 8 10 5 1 7 6

U N S C R A M B L E

250. (c) SUPERINTENDENT → DOCTOR.

Except DOCTOR, the other words can be formed from the word SUPERINTENDENT.

251. (c) INCONVENIENCE → CONSCIENCE

Except CONSCIENCE, the other words can be formed from the word INCONVENIENCE.

252. (a) DISTRIBUTION → SITUATION

Except SITUATION, the other words can be formed from the word DISTRIBUTION.

253. (a) $A \xrightarrow{+2} C \xrightarrow{+2} E \xrightarrow{+2} G$

Similarly, $O \xrightarrow{+2} Q \xrightarrow{+2} S \xrightarrow{+2} U$

254. (b)

255. (d)

256. (a) The new words are-

HATE BARE BATE PINE BATHE

257. (d)

258. (d)

259. (c)

260. (b)

261. (b) 'O' is not present in SYNTHESIS.

262. (a) 'O' is not present.

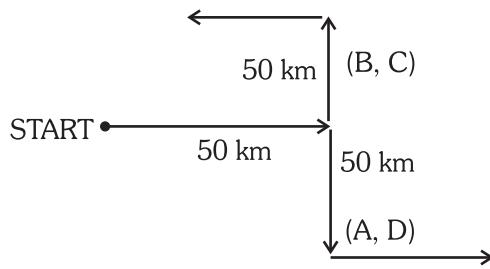
263. (b)

264. (d)

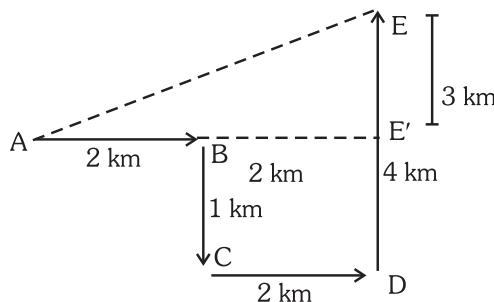
265. (b)

266. (c)

DIRECTION AND DISTANCE



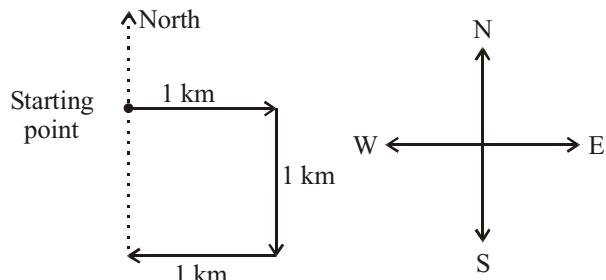
267. (a)



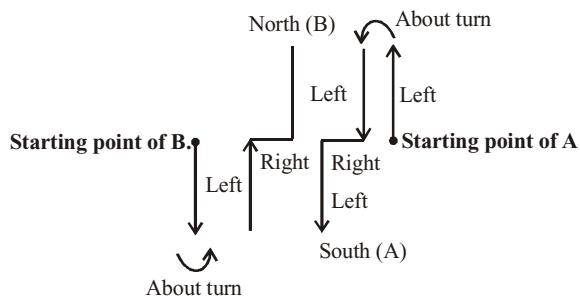
$$AE = \sqrt{(EE')^2 + (AE')^2}$$

$$= \sqrt{4+16} = \sqrt{25} = 5\text{ km}$$

268. (a)

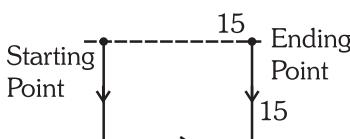


269. (d)



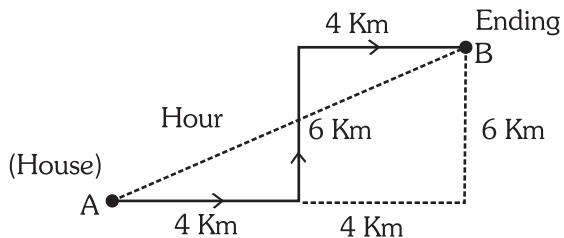
About turn-turning in reverse direction.

270. (a)



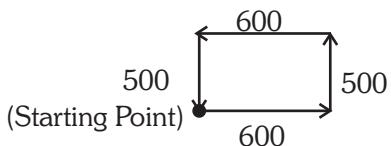
∴ She is 15 m. towards the East from the starting point.

271. (d)

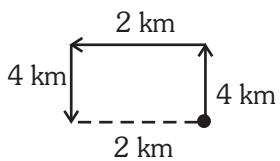


$$AB = \sqrt{AC^2 + BC^2} = \sqrt{64 + 36} = \sqrt{100} = 10 \text{ Km.}$$

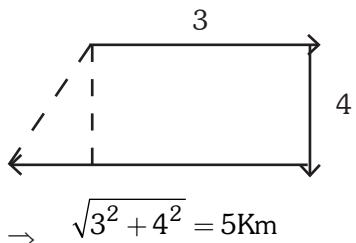
272. (c)



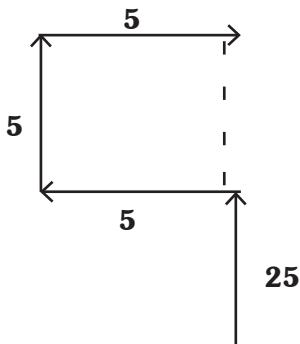
273. (c)



274. (d)

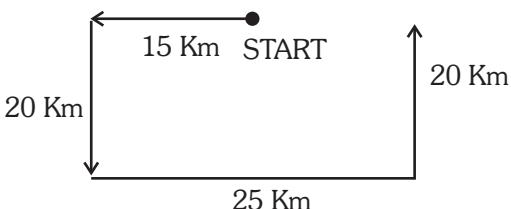


275. (a)



$$\therefore 25 + 5 = 30 \text{ km}$$

276. (c)



Sohan is 10 Km away from his house.

277. (b) The logic is-

$$4 \underline{\quad} 5 \underline{\quad} 1 = 514; 3-5-6 = 563; 0-6-8 = 680$$

278. (d) The perimeter of rectangle is 6.

$$\text{i.e., } 2(l + b) = 6 \Rightarrow l + b = 3$$

Area of rectangular field = 2 Km^2

$$\therefore l \times b = 2 \text{ Km}^2$$

$$(3 - b) \times b = 2 \text{ Km}^2$$

$$\Rightarrow 3b - b^2 = 2$$

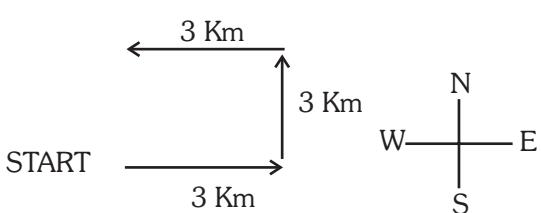
$$\Rightarrow b^2 - 3b + 2 = 0$$

$$\Rightarrow b^2 - 2b - b + 2 = 0$$

$$\Rightarrow (b - 2)(b - 1) = 0$$

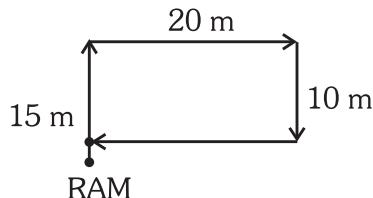
\therefore The difference is $l - b = 2 - 1 = 1 \text{ Km}$

279. (a)



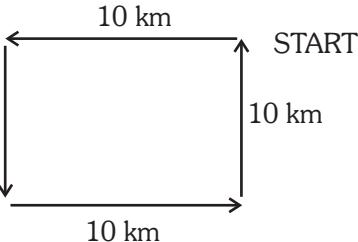
"A" is in north direction from his starting point.

280. (a)



RAM is 5 m away from his original position.

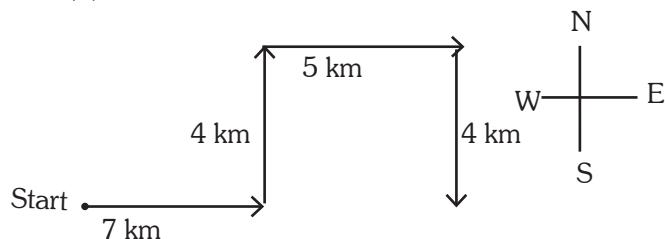
281. (a)



Sita reaches the position, from where it started.

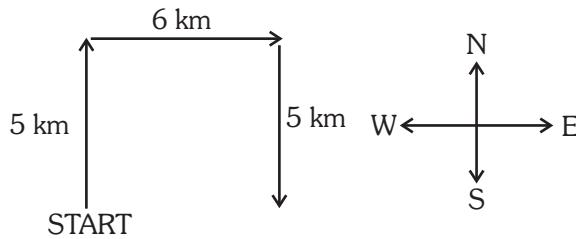
282. (d) Laxmi is 15 km away.

283. (a)



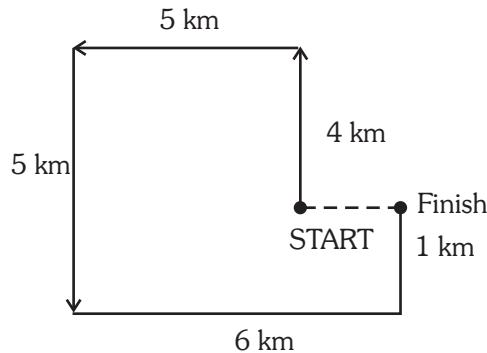
He is in east direction from his starting point.

284. (d)



Sunder is 6 km far from the starting point.

285. (a)



Have to run in west direction to reach the point of start.

MATHEMATICAL OPERATION

286. (a)

287. (a)

288. (b)

289. (c) $2 \times 4 - 3 + 4$.

$$\begin{aligned} & 8 - 3 + 4 \\ & = 9 \end{aligned}$$

290. (b) $9 + 5 + 4 = 18 \div 9 + 16$
 $= 18 = 18$.

291. (b)

After changing ' $+$ ' = \div , ' $-$ ' = \times
 \times ' = ' $+$ ' ' \div ' = ' $-$

the equation, $46 - 6 + 4 \times 5 \div 3 = 71$

$\text{CHS} = 46 \times 6 \div 4 + 5 - 3$

$$\begin{aligned} & = 276 \div 4 + 5 - 3 \\ & = 69 + 5 - 3 \\ & = 74 - 3 = 71 \text{ R.H.S.} \end{aligned}$$

292. (b) $18 + 6 - 4 \times 2 \div 3 = 26$

After chaning, the equation is,

$$\begin{aligned} \text{L.H.S.}, & 18 \times 6 \div 4 + 2 - 3 \\ & 108 \div 4 + 2 - 3 \\ & 27 + 2 - 3 \\ & 29 - 3 = 26 \text{ R.H.S.} \end{aligned}$$

293. (c) The given expression is $42 * 4 * 12 * 9 = 0$

From option (c), $42, - 4 \div 12 \times 20 + 9$.

By coding, the equation becomes,

$$\text{LHS} \Rightarrow 42 \times 4 + 12 \div 20 - 9$$

By applying the operations in sequence, from left to right,

$$168 + 12 \div 20 - 9$$

$$180 \div 20 - 9$$

$$9 - 9 = 0 = \text{R. H. S.}$$

294. (c) After changing ' $+$ ' and ' $-$ ', 8 and 7 the appropriate equation is,

$$6 + 8 \times 2 - 7 = 0.$$

$$\text{L.H.S.} = 6 - 7 \times 2 + 8$$

$$6 - 14 + 8$$

$$14 - 14 = 0 = \text{R. H. S.}$$

295. (a) or (d)

$$\text{Given, } X - Y - Z \Rightarrow X \geq Y \geq Z$$

Both options (a) and (d) indicate that $X < Y$, which goes against the given information.

So, either (a) or (d).

$$296. (b) 5 \times 6 \div 5 + 8 = 14$$

$$297. (d) 40 + 12 \div 3 \times 6 - 60$$

$$= 40 + 4 \times 6 - 60$$

$$= 40 + 24 - 60$$

$$= 64 - 60 = 4$$

$$298. (c) 25 \div 3 \times 7 - 8 + 12 = 19.3$$

$$299. (d) 4 \times 3 \times 4 = 48$$

$$300. (a) a \circ b \# c \square d$$

$$a > b < c = d. \text{ i.e } b < d$$

$$301. (a) 9 \div 4 \times 2 + 5 \div 10 - 3$$

$$= \frac{9}{4} \times 2 + \frac{5}{10} - 3$$

$$= \frac{9}{2} + \frac{1}{2} - 3$$

$$= \frac{10}{2} - 3 = 5 - 3 = 2$$

$$302. (b) 162 - 52 \div 26 + 15 \times 5$$

$$= 162 - 2 + 75 = 235$$

NUMBER PUZZLE

$$303. (a) 2 \times 3 \times 5 \times 4 = 120$$

$$120 \times 120 = 14400$$

304. (d) The product of any two numbers in a sector is equal to the central number in previous sector.

305. (c) First column, $10 + 12 + 4 + 10 = 36 \div 2 = 18$

2nd Column, $11 + 12 + 15 + 5 = 40 \div 2 = 20$

3rd Column, $15 + 8 + 10 + 13 = 46 \div 2 = 23$

306. (d)

307. (b)

Miscellaneous Question Bank

308. (c) The sum of the numbers in each column is same.
i.e., $24 + 31 + 26 = 81$

$$\begin{aligned} \text{Similarly, } 81 + 37 + ? + 19 \\ \rightarrow ? = 81 - 56 = 25 \end{aligned}$$

309. (d) The fourth number in each column is obtained by subtracting the third number from the product of the first and the second numbers.

$$6 \times 7 - 5 = 37$$

$$\text{Similarly, } 4 \times 5 - 6 = 14.$$

310. (a) The given logic is as follows,

The fourth number in each column is obtained by subtracting the second number from the sum of the first and third numbers.

$$\text{i.e., } (8 + 2) - 6 = 4$$

$$\begin{aligned} \text{Similarly, } (13 + ?) - 10 = 18 \\ = ? = 28 - 13 = 15 \end{aligned}$$

311. (c) $2 \times 8 + 1 = 17$

$$17 \times 8 + 1 = 137$$

$$137 \times 8 + 1 = 1097$$

312. (c) $7 + 14 + 12 + 3 = 36$ (From the fig. 1)

Similarly,

$$16 + 9 + 11 - 54$$

$$36 - 54 = 18$$

313. (c)

9	11	13
[+ 4]	[+ 4]	[+ 4]
13	15	17
[- 3]	[- 3]	[- 3]
10	12	14
[+ 4]	[+ 4]	[+ 4]
14	16	18
[- 3]	[- 3]	[- 3]
11	13	15
3	2	
4	24	

314. (c) $= 4 \times 3 \times 2 = 24$

2	-1
-2	4

$$= -2 \times 2 - 1 = 4$$

6	5
0	?

$$= 0 \times 6 \times 5 = 0$$

315. (b)

7	5	3
8	4	9
2	8	x
112	160	$162(3 \times 9 \times x = 162)$
$(7 \times 8 \times 2 = 112)$	$(5 \times 4 \times 8 = 160)$	$\therefore x = 6$

316. Option (a)

$$\begin{aligned} (11 \times 12) - (6 \times 9) &= 78 \\ (14 \times 10) - (7 \times 8) &= 84 \end{aligned}$$

317. (d) The given logic is missing number is $9^3 = 729$.

1^3	6^3	7^3
2^3	5^3	8^3
3^3	4^3	9^3
35	401	1575

318. (c) The given numbers can be written as-

$$2^2 + 1, 3^2 + 1, \underline{\quad}, 7^2 + 1, 11^2 + 1.$$

Hence, the missing number is $5^2 + 1 = 26$.

319. (a) The given logic is, in every column,
 $(2 + 6) = 32, (3 + 7) 5 = 50$.

Similarly, $(8 + 12) 10 = 200$

320. (b) $4 \times 3 \times 2 + 8 = 32$

$$5 \times 3 \times 1 + 9 = 24$$

$$7 \times 3 \times 3 + 7 = 70$$

$$2 \times 9 \times 4 + 12 = 84$$

321. (a) The pattern is-

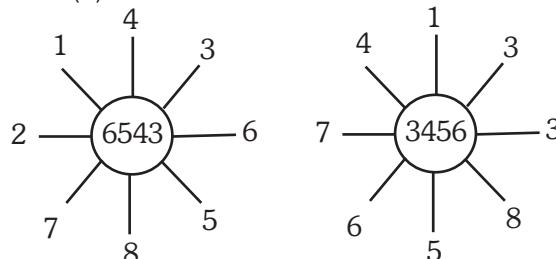
$$2 (2 \times 2) 2$$

$$3 (3 \times 3) 3$$

$$4 (4 \times 4) 4$$

$$8 (8 \times 8) \boxed{8}$$

322. (a)



The logic is

$$\text{The 1st digit} = (8 + 4) \div 2 = 6$$

$$\text{The 2nd digit} = (7 + 3) \div 2 = 5$$

$$\text{The 3rd digit} = (2 + 6) \div 2 = 4$$

$$\text{The 4th digit} = (1 + 5) \div 2 = 3$$

Similarly, the missing number is 5364.

323. (a) The logic is —

in each row, $25 + 15 = 40 \div 5 = 18$

Similarly, $62 + 25 = 90 \div 5 = 18$

324. (b) The logic is —

The number inside the triangle is the sum of the square root of the outer numbers.

325. (a) The logic is -

$$\text{The each column, } (18 - 3 + 6) = 21$$

$$\text{Similarly, } (24 - 3 + 8) = 29$$

326. (a) $2 \times 24 = 48$

$$3 \times 9 = 27$$

$$4 \times \boxed{10} = 40$$

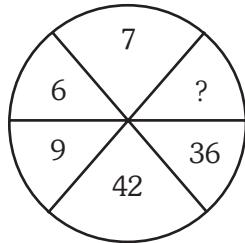
327. (b)
$$\begin{array}{r} 81 & 36 & 25 \\ 49 & 100 & 36 \\ 9 & 64 & 16 \\ + & + & + \\ \hline 139 & 200 & \boxed{77} \end{array}$$

328. (c) $4 \times 6 \times 9 = 694$, $5 \times 3 \times 2 = 325$
In the above problem, the left most number changes its place and moves to right end side of the answer figure.

Hence, $7 \times 8 \times 2 = 827$

329. (a) In this particular problem, the logic is-
 $2463 \Rightarrow (2+4+6) \times 3 = 12 \times 3 = 36$
 $5552 \Rightarrow (5+5+5) \times 2 = 15 \times 2 = 30$
 $6732 \Rightarrow (6+7+3) \times 2 = 16 \times 2 = \boxed{32}$

330. (a)



$$\begin{aligned} 6 \times 6 &= 36 \\ 7 \times 6 &= 42 \\ 9 \times 6 &= 54 \end{aligned}$$

331. (c)
$$\begin{array}{|c|c|c|} \hline & 25 & \\ \hline 16 & 22 & 36 \\ \hline & 49 & \end{array} \longrightarrow \begin{array}{|c|c|c|} \hline & 5^2 & \\ \hline 4^2 & 22 & 6^2 \\ \hline & 7^2 & \end{array}$$

$$\begin{array}{|c|c|c|} \hline & 64 & \\ \hline 9 & 16 & 1 \\ \hline & x & \end{array} \longrightarrow \begin{array}{|c|c|c|} \hline & 8^2 & \\ \hline 3^2 & 16 & 1^2 \\ \hline & x^2 & \end{array}$$

$$\begin{array}{|c|c|c|} \hline & 9 & \\ \hline 4 & 15 & 1 \\ \hline & 81 & \end{array} \longrightarrow \begin{array}{|c|c|c|} \hline & 3^2 & \\ \hline 2^2 & 15 & 1^2 \\ \hline & 9^2 & \end{array}$$

$$\begin{aligned} 22 &= 5 + 4 + 7 + 6 \\ 16 &= 8 + 3 + 1 + x \end{aligned}$$

$$x = 4$$

$$x^2 = x = 16$$

$$15 = 3 + 2 + 9 + 1$$

332. (b) The logic is

Similarly,

$$(9 + 6 + 2) - (4 + 3) = 17 - 7 = 10$$

333. (a)

$$\begin{array}{cccc} 5 & 6 & 7 & 8 \\ 5 \times (7-5) & 6 \times (9-6) & 7 \times (10-7) & 8 \times (13-8) \\ = 10 & = 18 & = 21 & = 40 \\ 7 & 9 & 10 & \boxed{13} \end{array}$$

334. (c)

335. (a) $8 \times 8 = 64$, $12 \times 12 = 144$
 $11 \times 11 = 121$

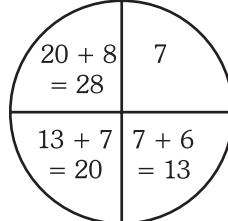
336. (d)

3	4	5
2	3	4
1	2	3
14	29	?

$$\therefore \begin{aligned} 3^2 + 2^2 + 1 &= 14 \\ 4^2 + 3^2 + 2^2 &= 29 \\ 5^2 + 4^2 + 3^2 &= 50 \end{aligned}$$

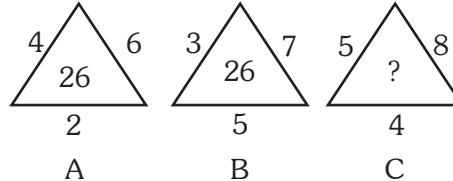
337. (a)

338. (a)



The difference increases by 1 from clockwise direction.

339. (b)



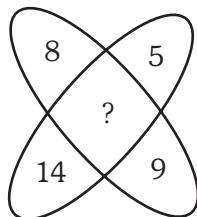
340. (a) The logic is -

$$5 \begin{array}{|c|} \hline 12 \\ \hline 2 \end{array} 4 \rightarrow (5 \times 3 \times 4 \times 2) \div 10 = \frac{120}{10} \rightarrow 12$$

Similarly,

2

$$5 \boxed{?} 2 \rightarrow (5 \times 2 \times 2 \times 9) \div 10 = \frac{180}{10} = 18$$



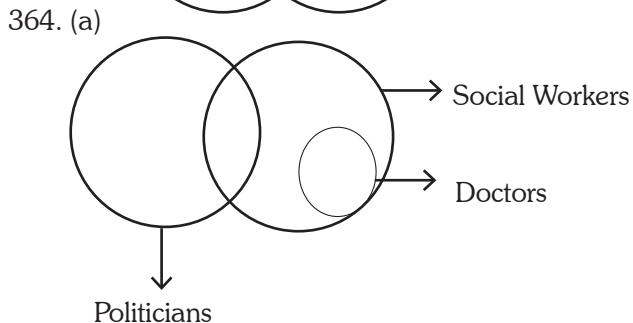
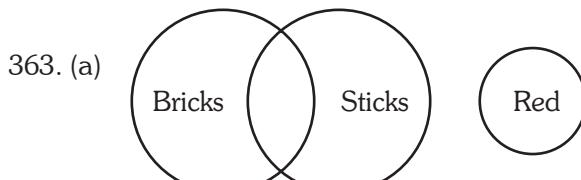
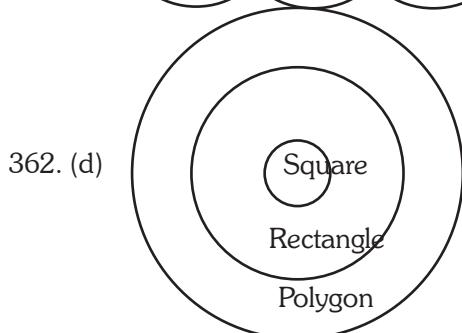
$$(8 \times 9) + (14 \times 5) \\ = 72 + 70 = 142$$

342. (d) $25 + 27 = 52$
 $23 + 30 = 53$
 $21 + 33 = 54$
 $36 + x = 55$
 $x = 19$

343. (b) $12 \times 16 + 5 = 197$
 $16 \times 16 + 7 = 263$
 $18 \times 20 + x = 356$
 $x = -4$

LOGICAL SEQUENCE OF WORDS

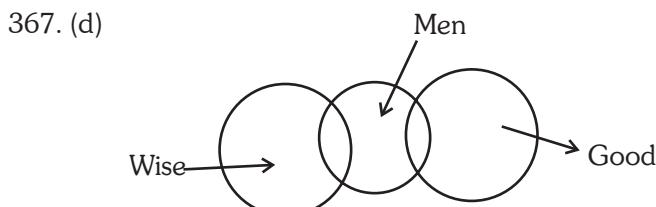
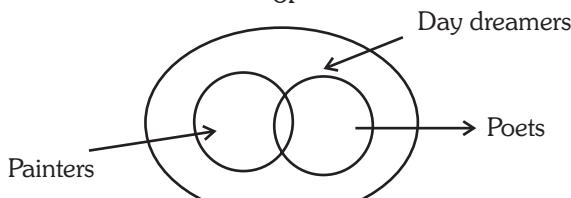
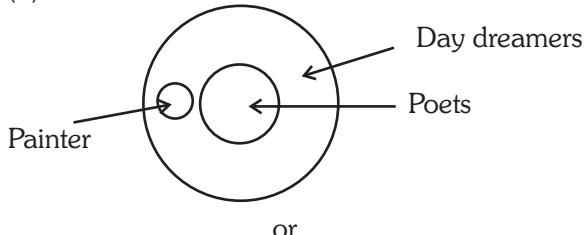
344. (b)
 345. (c) $4 \rightarrow 1 \rightarrow 3 \rightarrow 2$
 346. (c) Arrange in the increasing body shape.
 347. (c) The dictionary order is 4, 3, 2, 5, 1.
 348. (a) The dictionary order is 3, 2, 5, 3, 4, 1.
 349. (a)
 350. (b)
 351. (d) Twilight \rightarrow Noon \rightarrow Dawn \rightarrow Night
 352. (c)
 353. (b)
 354. (c)
 355. (b) 4132 356. (a)
 357. (b) 358. (c)
 359. (b) 360. (a)

SYLLOGISM

Conclusion I, does not follow.
 Conclusion II, does not follow.
 Neither I nor II follows.

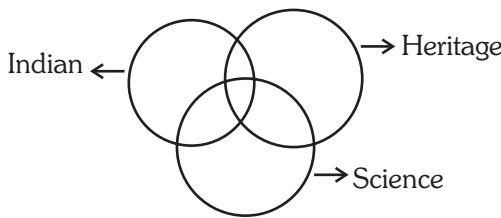
365. (a)
 Conclusion I does not follow.
 Conclusion II follows.

366. (a)

**STATEMENT AND CONCLUSION**

368. (a) Temple and Church are place of worship. It does not imply that hindus and christians use the same place for worship.
 Therefore, neither I nor II follows.
369. (a) Growth and development of human organism is a continuous process. Some changes takes place in human body now and then. Therefore neither and then, Therefore neither conclusion I nor II follows.
370. (b)

371. (c)



Conclusion I, follows.

Conclusion II, also follows.

∴ Both I and II follows.

372. (a) Conclusion I follows.

Conclusion II does not follows.

373. (b) Conclusion I does not follows.

Conclusion II follows.

374. (a)

375. (d)

376. (c)

377. (d) It is not necessary that A is a clerk though he is poor.

378. (d)

379. (d)

380. (b)

ARITHMETIC REASONING

381. (c) Given, The number of cupboards = 54.

The number of racks = $54 \times 28 = 1512$ The number of boxes = $1512 \times 10 = 15120$

One day 500 boxes were sold and 250 boxes were purchased.

$$\text{The number of boxes} = 15120 - (500 - 250) \\ = 14870$$

$$\therefore \text{The number of shirts} = 4 \times 14870 = 59,480.$$

382. (b) According to the given information,

Mahesh's age = 60

Ram's age = 55

Raju's age = 51

Babu's age = 45

The age difference between Mahesh and Babu = $60 - 45 = 15$.

383. (b)

Let the distance be $(AB) = D$

and usual time = T

According to, First Condition -

$$D = 40 \times \left(T + \frac{15}{60} \right) \dots(i)$$

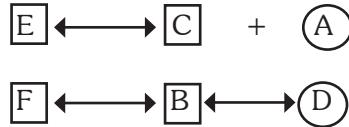
$$\text{Second Condition} - D = 30 \times \left(T + \frac{24}{60} \right) \dots(ii)$$

$$\Rightarrow 40 \left(T + \frac{1}{4} \right) = 30 \left(T + \frac{2}{5} \right)$$

$$\Rightarrow T = \frac{6}{5} - 1 \Rightarrow T = \frac{1}{5} \text{ hr}$$

$$\therefore \text{Total Distance} = 40 \times \left(\frac{1}{5} + \frac{1}{4} \right) = 40 \times \frac{9}{20} = 18 \text{ km}$$

384. (a)



Where, B, C, E, F are males.

385. (c) Let, D = no. of Deer,

P = no. of Peacocks.

$$D + P = 80$$

$$4D + 2P = 200$$

$$2D + P = 100$$

$$\Rightarrow 2(80 - P) + P = 100$$

$$160 - 100 = P$$

$$\therefore 60 = P$$

386. (c) The difference of Ann's shares

$$= 3x = 21 \therefore x = 7$$

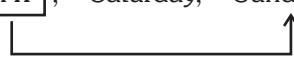
$$\text{Ken lost } 4x - 2x = 2x = 14$$

387. (d) By options

Rohan must be 16 years. As we subtract 8 years.

Now 8 years is the double form Nikhil's age

Friday

388. (c) Wed, Thurs, **[DAY]**, Saturday, Sunday

$$389. (a) \frac{3}{4} \text{ of } 320 = 240$$

$$\frac{1}{8} \text{ of (Remaining i.e., 80)} = 10$$

Left with 70.

390. (d) According to question,

$$(A - 2) = 2(B - 2)$$

$$\Rightarrow A - 2 = 2B - 4$$

$$\Rightarrow A = 2B - 2 \quad \text{-----(i)}$$

and $A - B = 2$ (given)

$$\therefore \text{from (i) } A = 2(A - 2) - 2$$

$$\Rightarrow A = 2A - 4 - 2$$

$$\Rightarrow -A = -6$$

$$\Rightarrow A = 6$$

391. (a) Shortcut formula be $\frac{x}{100+x} \times 100$

75

i.e Akash's % = $\frac{75}{(100+75)} \times 100 = 42.85\%$ 392. (b) 5C_1 and 3C_1 + 5C_1 and 2C_1 + 3C_1 and 2C_1

$$5 \times 3 + 5 \times 2 + 3 \times 2 = 15 + 10 + 6 = 31$$

393. (d) Lakshmi > Leela > Meenu > Hari > Latha

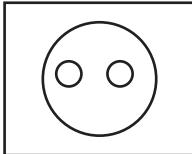
394. (b) 11 letters + **[]** + Four letters = $11 + 1 + 4 = 16$ **LOGICAL VENN DIAGRAM**

395. (a) All tigers are animals, and all herbivores are animals.

396. (b) Region 7 represents the students studying Biology and computer but not mathematics.

397. (d) All novels are books.

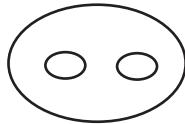
All dictionaries are books.
No novel is a dictionary.



398. (d) Some animals live both in water and land.
 399. (d)
 400. (d)
 401. (c) Animals are the total group to where the tigers and lions are the two different types of species which falls under the animal group.
 402. (a) English and Kannada are different types of languages.
 403. (a) Some professors are researchers,
Some professors are both Researchers & Scientists.
Some Scientists are professors.
Some Scientists are Researchers.
 404. (c) Both soda water and mineral water are liquids.
 405. (d) Given, only students and parents = 10%
only students and teachers = 35%
only parents and teachers = 15%
All parents, teachers and students = 10%
only teachers = $100 - (35 + 10 + 15) = 40$
only parents = $100 - (10 + 10 + 15) = 65$
only students = $100 - (35 + 10 + 15) = 45$
 $\therefore 40, 65, 45$

406. (d)

407. (d)



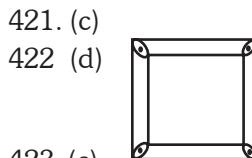
because History and Geography is a part of Social Science.

408. (a)

409. (d)

PAPER FOLDING CUTTING

410. (a) 411. (d)
 412. (c) Complete the figure.
 413. Option (d) is obtained when the question figure is folded.
 414. (b) From the given figure,
(Δ and O), (+ and \div) and (Δ and \square) are the opposite pairs.
 415. (b) 416. (c) 417. (d) 418. (b) 419. (c)
 420. (c) QMPN ROPQNP MQRO

**COMPLETION OF FIGURE**

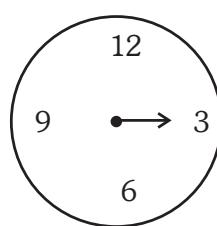
421. (c)
 422. (d)
 423. (c)
 424. (c)
 425. (a) Complete the figure.
 426. (c)
 427. (b)
 428. (d)
 429. (d)

EMBEDDED HIDDEN FIGURES

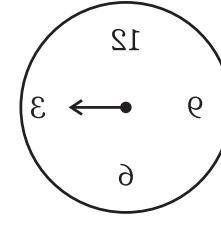
430. (d)
 431. (c)
 432. (b)
 433. (b)
 434. (d)
 435. (a)
 436. (a)
 437. (d)

MIRROR/WATER IMAGE

438. (*)
 439. (b)
 440. (a)
 441. (a) The mirror image of the question figure.
 442. (c)
 443. (c)
 444. (d)
 445. (c) REASONING |||
 446. (c)



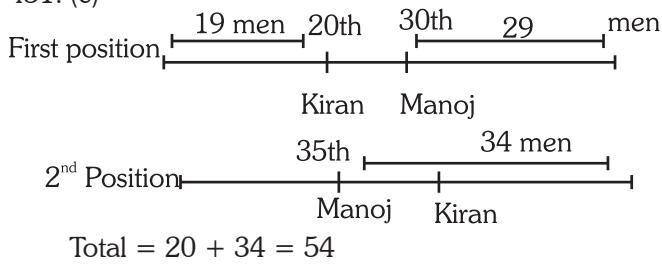
Clock



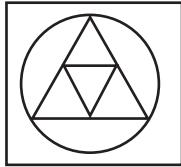
Mirror Image

FIGURE FORMATION

447. (a) Completes the question figure.
 448. (a) Completes the question figure.
 449. (d)
 450. (c)
 451. (c)



452. (c) is embedded in the question figure.
 453. (d) There is no appropriate choice. But the closest answer figure is choice (d).
 454. option (d) has all pieces to form the question figure.
 455. (c)
 456. (b)



457. (c)
 458. (c)

COUNTING OF FIGURES

459. (d)
 460. (a) There are 24 triangles.
 461. (c)

MATRIX FORMATION

462. (a) G → 58, 66, 77, 85, 98
 U → 04, 12, 23, 31, 40
 I → 00, 13, 21, 34, 42
 D → 56, 69, 75, 87, 99
 E → 01, 14, 20, 32, 43
463. (c) S → 56, 68, 79, 85, 97
 H → 01, 14, 20, 33, 42
 R → 00, 13, 22, 31, 44
 I → 04, 10, 23, 32, 41

464. (d)
 465. (c) PEARL - 13, 77, 30, 14, 88
 466. (a) According to the question, we have to find the representations of "BEAK".
 B representd by 01, 13, 20, 32, 44
 E representd by 56, 68, 75, 87, 99
 A representd by 03, 10, 22, 34, 41
 K representd by 57, 69, 76, 88, 95

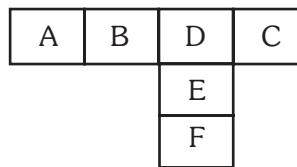
By options we get BEAK - 44, 75, 22, 88

467. (a)

468. (b) 55, 78, 11
 469. (a) B E A R D
 B represents by 59 65 76 87 98
 E represents by 04 13 22 31 40
 A represents by 02 11 20 34 43
 R represents by 03 12 21 30 44
 D represents by 55 66 77 88 99

470. (b) **CUBES AND DICE**

471. (d) Among, the given diagrams only (d), we can arrange 1, 2, 3, 4, 5 and 6 dots in such a way that the difference in the number of dots on opposite faces is three.
 472. (d) Figure (1) and (4) only.
 473. (c) The shape will be



∴ A will be opposite of D.

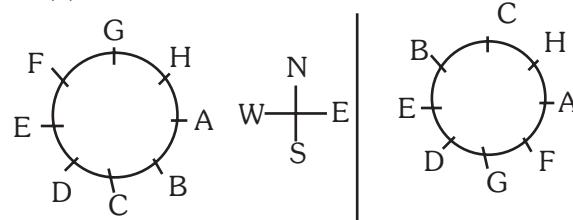
PUZZLE TEST

474. (d) Left G D E F B C A Right

475. (c)

476. (d)

477. (c)



Early Arrangement

Arrangement according to question

∴ A is right of F.

SPEED TEST - 1

Time : 25 Minutes
Total Qs. : 25
Max. Marks : 25

Direction (Qs. 1-9) : In the following, select the related word/ letter/ numbers from the given alternatives.

- 1.** Car : Garage :: __?__ : Hanger
(a) Aeroplane (b) Ship
(c) Train (d) Bus

2. Governor : __?__ : President : Country
(a) Organization (b) District
(c) State (d) Constituency

3. Heart : Cardiologist :: Brain : __?__
(a) Ophthalmologist (b) Neurologist
(c) Gynecologist (d) Nephrologist

4. GFEH : RQPS :: LKJM : __?__
(a) LKNM (b) IHJG
(c) VUWX (d) ONMP

5. CEIM : DGLQ :: FGIO : __?__
(a) GLIS (b) GMIS
(c) GMSI (d) GILS

6. HIJK : GFED :: NOPQ : __?__
(a) MLKJ (b) BCDE
(c) FDEC (d) EFGH

7. 235 : 587 :: 435 : __?__
(a) 789 (b) 988
(c) 989 (d) 788

8. 17 : 102 :: 23 : __?__
(a) 216 (b) 138
(c) 413 (d) 112

9. 4 : 36 :: __?__ : 49
(a) 6 (b) 7
(c) 5 (d) 8

Direction (Qs. 10-11) : In the following Nine questions, select the odd word/ letter/ numbers from the given alternatives.

- 10.** Find out the odd pair
(a) Crayon – Chart (b) Pencil – Lead
(c) Pen – ink (d) Brush – paint

11. Find out the odd word
(a) RIN (b) HAMAM
(c) CINTHOL (d) PEARS

Direction (Qs. 12-14) : Find out the odd Letter:

12. (a) CAP (b) RFD
(c) TIW (d) PET

13. (a) MLKA (b) STUA
(c) HGFA (d) RQPA

14. (a) IMQU (b) LORU
(c) WZCF (d) ADGJ

15. Find out the odd number:

- 16.** Find out the odd number pair :
(a) 27, 135 (b) 54, 216
(c) 61, 244 (d) 24, 96

Direction (Qs. 19-21) : In the following questions, arrange the following words as per order in the dictionary.

Direction (Qs. 22-25) : Complete the letter series and choose the correct answer from the alternatives.

SPEED TEST - 2

Time : 20 Minutes
Total Qs. : 20
Max. Marks : 20

- 1.** Find the series : EZ, FY, GX, ___?
 (a) WH (b) GW
 (c) WG (d) HW

2. Find out the incorrect term
 2, 5, 10, 3, 6, 18, 4, 7, 30
 (a) 10 (b) 6
 (c) 30 (d) 7

3. Rabhu jogged 2 km southwards, then he turned right and walked 5km. he again turned right and walked and jogged 8 km. in which direction was he seen moving last?
 (a) East (b) West
 (c) North (d) South

4. In 5 years, ₹ 5000/- becomes ₹ 9000/-. In the same rate at what time ₹ 600/- becomes ₹ 900/- .
 (a) 2 years (b) 5 years
 (c) 3 years (d) 6 years

5. Complete the Series 1, 5, 13, 25, 41, 61, ___?
 (a) 77 (b) 85
 (c) 91 (d) 81

6. In a certain code ONE is coded as 231, FIVE is coded as 9641, then how will NINE coded?
 (a) 3361 (b) 3631
 (c) 3316 (d) 3613

7. If PNL J : 2468, then QOKL : ?
 (a) 1367 (b) 1376
 (c) 1276 (d) 3591

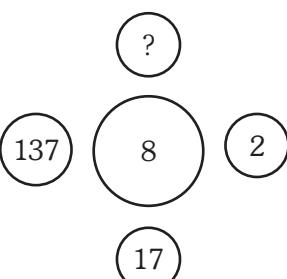
8. Five students are standing one behind the other in a play ground facing the instructor. Malini is behind anjana, but in front of Gayathri. Meena is in front of sheena, but behind Gayathri. What is the position of Meena.
 (a) Extreme left (b) Extreme Right
 (c) Second from left (d) Second from right

9. A watch is read 4:30. If the minutes hand shows the east direction. Hour hand shows which direction?
 (a) North (b) South – east
 (c) South (d) North – east

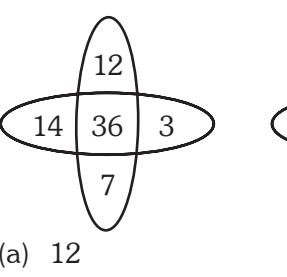
10. From the given alternatives, select the word which cannot be formed using the letters of the given word: CUMERSOME
 (a) MOUSE (b) SOBER
 (c) ROME (d) MERCY

11. Name a single letter, which can be prefixed to the following words in order to obtain entirely new words?
 TILL TABLE PILE TAB PRING
 (a) S (b) B
 (c) H (d) C

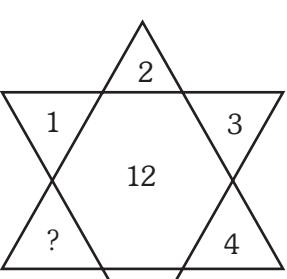
Direction (Qs. 12-16): In the following five questions, select the missing terms.

12. 

(a) 97 (b) 907
 (c) 1097 (d) 9107

13. 

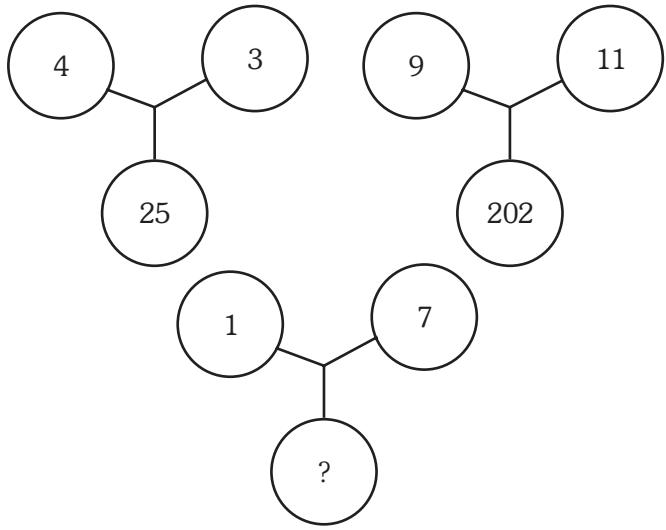
(a) 12 (b) 17
 (c) 18 (d) 16

14. 

(a) 12 (b) 6
 (c) 8 (d) 1

- $$\begin{array}{r}
 \textbf{15.} \quad 3 \quad 21 \quad 7 \\
 \quad \quad 4 \quad ? \quad 3 \\
 \quad \quad 2 \quad 16 \quad 8
 \end{array}$$

16.



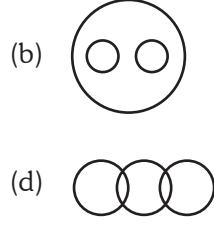
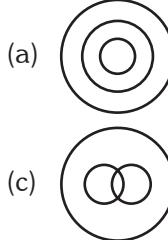
17. Sunita rode her scooter northwards, then turned left and then again rode to her left 4 km. she found herself exactly 2 kms west of her starting point. How far did she ride northwards initially?

- 18.** Pinky walks a distance of 600 meters. towards east, turns left and moves 500 meters, then turns left and walks 600 meters. And then turns left again and moves 500 meters. and halts. At what distance in meters is she from the starting point?

19. MAN : PDQ :: WAN : ?

- 20.** Identify the diagram that best represent the relationship among the classes given below:

Animals, Land animals and sea animals



SPEED TEST - 3

Time : 20 Minutes
Total Qs. : 20
Max. Marks : 20

1. How many such pairs of letters are there in word CHARIOT, each of which has as many letters between them in the word as in the ENGLISH alphabet?
 (a) None (b) One (c) Two (d) Three
 (e) More than three
2. What should come next in the following number series?
 6 8 8 1 2 6 8 6 1 2 3 6 8 8 1 2 3 4 6 8 6 1 2 3 4 5 6 8 ?
 (a) 6 (b) 5 (c) 4 (d) 8
 (e) None of these
3. 'CF' is related to 'HK' in the same way as 'MP' is related to
 (a) SU (b) RT (c) RU (d) ST
 (e) RS
4. In a certain code 'UNDER' is written as '6 1 52@' and 'DEAF' is written as '52 # 7'. How is 'FRAUD' written in that code?
 (a) 7@56# (b) @7#65
 (c) 7@#65 (d) 765@#
 (e) None of these
5. How many such pairs of digits are there in number '36725918' each of which has as many digits between them in the number as when the digits are arranged in descending order within the number?
 (a) None (b) One (c) Two (d) Three
 (e) More than three
6. The positions of how many digits will remain the same if the digits in the number 86217945 are rearranged in the ascending order?
 (a) None (b) One (c) Two (d) Three
 (e) More than three
7. In a certain code FLOWER is written as EKNVDQ. How is SUPREME written in that code?
 (a) TQDROLD (b) RTODQLD
 (c) TQDDROL (d) RTOQDLD
 (e) None of these
8. If '@' means '×', '©' means '÷', '%' means '+' and '\$' means '-' then $6\% 12 \odot 3 @ 8 \$ 3 = ?$
 (a) 37 (b) 35 (c) 39 (d) 33
 (e) None of these
9. In a certain code, 'MOUSE' is written as 'PRUQC', How is 'SHIFT' written in that code?
 (a) VKIRD (b) VKIDR
 (c) VJIDR (d) VIKRD
 (e) None of these
10. How many meaningful English words can be made with the letters 'OEHM' using each letter only once in each word?
 (a) None (b) One (c) Two (d) Three
 (e) More than three
11. Among A, B, C, D and E each scoring different marks in a test, C scored more than D but not as much as E. E scored more than A who scored less than B. who did score third highest marks ?
 (a) B (b) A
 (c) C (d) Data inadequate
 (e) None of these
12. 'K' walked 5 meters towards North, took a left turn and walked for 20 meters, and again took right turn and walked 10 meters. How far he is from the starting point?
 (a) 20 meters (b) 15 meters
 (c) 25 meters (d) 30 meters
 (e) None of these
13. The positions of the first and eighth digits of the number 56487931 are interchanged. Similarly, the positions of the second and the seventh digits are interchanged and so on. Which of the following will be the fifth digit from the right end from after the rearrangement?
 (a) 7 (b) 8 (c) 9 (d) 1
 (e) 3
14. What should come next in the following letter series?
 A C F H K M P R U W
 (a) Z (b) Y (c) U (d) V
 (e) T

- 15.** Each vowel in the word DROWNED is changed to the next letter in the ENGLISH alphabet and each consonant is changed to the previous letter in the ENGLISH alphabet and then, the letters so arrived are arranged in alphabetical order. Which of the following will be the second from the left end in the new arrangement?
- (a) C (b) V (c) F (d) P
(e) Q
- 16.** Pointing to a girl, Mr. Suraj said "She is the only daughter of my father's son-in-law. How is the girl related to Mr. Suraj ?
- (a) Niece (b) Cousin
(c) Sister (d) Daughter
(e) Cannot be determined
- 17.** Sneha correctly remembers that her father's birthday is before 16th June but after 11th June whereas her younger brother correctly remembers that their father's birthday is after 13th June but before 18th June and her elder brother correctly remembers that their father's birthday is on an even date. On what date in June is definitely their father's birthday?
- (a) Sixteenth (b) Twelfth
(c) Fourteenth or Sixteenth
(d) Data inadequate (e) None of these
- 18.** How many such digits are there in the number '37152869' each of which is as far away from the beginning of the number as when the digits are arranged in ascending order within the number?
- (a) None (b) One (c) Two (d) Three
(e) More than three
- 19.** How many such pairs of letters are there in the word 'CONFIRM' each of which has as many letters between them in the word as in English alphabet?
- (a) None (b) One (c) Two (d) Three
(e) More than three
- 20.** Complete the series : 1 , 4, 9, 16, 25, ?
- (a) 36 (b) 49 (c) 35 (d) 64
(e) 81

SPEED TEST - 4

Time	: 20 Minutes
Total Qs.	: 20
Max. Marks	: 20

Directions (Qs. 1 – 5) : In the following questions, the symbols @, ©, \$, % and H are used with the following meanings as illustrated below :

P @ Q means P is not smaller than Q.

P * Q means P is not greater than Q.

P © Q means P is neither greater than nor smaller than Q

P \$ Q means P is neither smaller than nor equal to Q

P % Q means P is neither greater than nor equal to Q

Now in each of the following questions assuming the given statements to be true, find which of the following conclusions I,II,III and IV given below them is/are definitely true and give your answers accordingly.

1. Statements : K©L, L%O, O@M, M*N

Conclusions :

- | | |
|-----------------------|----------------------------|
| I. N©O | II. M\$L |
| III. K*N | IV. L@N |
| (a) Only I is true | (b) Only I and II are true |
| (c) Only I is true | (d) Either I or II is true |
| (e) None of the above | |

2. Statements : A*B, B\$C, C%D, D©E

Conclusions :

- | | |
|---------------------------------|----------|
| I. D\$A | II. B\$D |
| III. E%C | IV. A@E |
| (a) Only I is true | |
| (b) Only either I or II is true | |
| (c) Only I and IV are true | |
| (d) None is true | |
| (e) Only IV is true | |

3. Statements : F\$P, P@R, R©S, S%T

Conclusions :

- | | |
|--------------------------------|---------|
| I. R%F | II. S*P |
| III. P©T | IV. S%F |
| (a) Only I,II and III are true | |
| (b) Only I and II are true | |
| (c) Only III and IV are true | |
| (d) Only I, II and IV are true | |
| (e) All are true | |

4. Statements : G%H, H*I, I\$J, J@K

Conclusions :

- | | |
|--|---------|
| I. G%I | II. G%J |
| III. K\$I | IV. H*I |
| (a) Only I is true | |
| (b) Only II is true | |
| (c) Only I, II and III are true | |
| (d) Only either I or II and III are true | |
| (e) All is true | |

5. Statements : V@W, W%X, X*Y, Y\$Z

Conclusions :

- | | |
|------------------------------|---------|
| I. Z\$X | II. Y©V |
| III. W%Y | IV. Y@W |
| (a) Only I and III are true | |
| (b) Only II is true | |
| (c) Only III is true | |
| (d) None is true | |
| (e) Only III and IV are true | |

Direction (Qs. 6–15): In each question below is given a statement followed by two assumptions number I and II. An assumption is something supposed or taken for granted. You have to consider the statement and the following assumption and decide which of the assumptions is implicit in the statement.

Give answer (a) if only assumption I is implicit.

Give answer (b) if only assumption II is implicit.

Give answer (c) if either assumption I or II is implicit.

Give answer (d) if neither assumption I nor II is implicit.

Give answer (e) if both assumptions I and II are implicit.

6. Statement: The General Administration Department has issued a circular to all the employees information them that henceforth the employees can avail their lunch break at any of the half-hour slots between 1.00 pm and 2.30 pm.

Assumption I: The employees may welcome the decision and avail lunch break at different time slots.

II: There may be not be any break in the work of the organisation as the employees will have their lunch break at different time slots.

7. Statement: The Government has decided against reduction of prices of petroleum products though there is a significant drop in the crude oil prices in the international market.

Assumption I: The prices of crude oil in the international market may again increase in the near future.

II: The present price difference of petroleum products will help the government to withstand any possible price rise in future.

8. Statement: The Govt has made an appeal to all the citizens to honestly pay income tax and file return reflecting the true income level to help the Government to carry out developmental activities.

Assumption I: People may now start paying more taxes in response to the appeal.

II: The total income tax collection may considerably increase in the near future.

9. Statement: The state government has decided to appoint four thousand primary school teachers during the next financial year.

Assumption I: There are enough schools in the state to accommodate four thousand primary school teachers.

II: The eligible candidates may not be interested to apply as the Government may not finally appoint such a large number of primary school teachers.

10. Statement: The school authority has decided to increase the number of students in each classroom to seventy from the next academic session to bridge the gap between income and expenditure to a largest extent.

Assumption I: The income generated by way of fees of the additional students will be sufficient enough to bridge the gap.

II. The school will get all the additional students in each class from the next academic session.

Direction (Qs. 11-15): Study the following information carefully and answer the question given below :

Candidates A, G, L, N, P, Q, R, S had applied for IBPS exam for different banks like – BOB, BOI, DENA, OBC, IB, CB, UCO and UBI. (not necessarily in the same order). They are 5 male and 3 female members in the group. Each had applied from their own cities like Jaipur, Delhi, Noida, Kanpur, Ranchi, Patna, Kolkata and Ghaziabad (not necessarily in the same order). No male has applied from Ranchi or Kanpur.

P has applied for IB from Ghaziabad. The one who applied for CB is neither from Noida nor from Kanpur. G has applied for OBC., his sister L has applied for Dena Bank from Jaipur. The one who belongs to Delhi is applied for BOB. The one who applied from Noida is not a female.

N has applied for UBI and her friend applied for BOB. Q is from Kolkata and has not applied for CB or UCO. The one who has applied for UCO has applied neither from Patna nor Noida. S has applied from Kanpur. A does not apply from Patna.

11. Who is from Patna?

- (a) A (b) Q (c) R (d) N
(e) None of these.

12. Which pair are of three females?

- (a) SNR (b) SNQ
(c) LNS (d) Data incomplete
(e) None of these

13. Who is from UCO bank ?

- (a) P (b) G (c) R (d) A
(e) None of these

14. Who is from Ghaziabad?

- (a) G (b) P (c) R (d) A
(e) None of these

15. G belongs to which of the following cities?

- (a) Delhi (b) Ranchi (c) Noida (d) Kolkata
(e) None of these

Direction (Qs. 16-17): Select the odd words/ letters from the given options:

- 16.** (a) Cotton (b) Terene (c) Silk (d) Wool
17. (a) Light (b) Wave (c) Heat (d) Sound

Direction (Qs. 18-20): Study the following information carefully and answer the questions given below it.

- (i) Eleven students, P, Q, R, S, T, U, V, W, X, Y and Z, are sitting in a row facing the teacher.
(ii) S, who is on the immediate left of U, is second to the right of R and third to the right of V.
(iii) P is second to the right of T, who is sitting at one of the ends.
(iv) Y is the immediate neighbour of P and Q and fourth to the left of R.
(v) W is on the immediate left of S and third to the right of X.

18. Who is sitting in the middle of the row ?

- (a) R (b) X (c) Q (d) S

19. Which of the following groups of friends is sitting to the right of V ?

- (a) XQYP (b) XRWSU
(c) RWSU (d) RWST

20. Which of the following statements is true in context of the above sitting arrangements ?

- (a) There are three students sitting between S and V.
(b) V and R are neighbours sitting on the immediate right of W.
(c) Q is sitting between Y and X.
(d) Z is sitting between P and Y.

SPEED TEST - 5

Time	: 20 Minutes
Total Qs.	: 20
Max. Marks	: 20

Direction (Qs. 1–5): Study the following information carefully and answer the question given below:

A, B, C, D, E, F, G and H are sitting around a circle facing the centre. C is fourth to the left of F who is fifth to the right of E. D is third to the right of A who is not immediate neighbor of E or F. B is third to left of H who is not immediate neighbor of E.

1. Four of the following five are alike in a certain way based on their positions in the above sitting arrangement and so form a group. Which is the one that does not belong to that group?

- (a) HFE
- (b) DCG
- (c) BHF
- (d) AEF
- (e) CGB

2. Who is between D and E ?

- (a) C
- (b) B
- (c) A
- (d) Data inadequate
- (e) None of these

3. Which of the following pairs are sitting between A and D ?

- (a) FB
- (b) GB
- (c) FG
- (d) FE
- (e) GE

4. Who is third to the right of E ?

- (a) B
- (b) F
- (c) D
- (d) G
- (e) None of these

5. Who is to the immediate right of A ?

- (a) G
- (b) B
- (c) F
- (d) Data inadequate
- (e) None of these

Direction (Qs. 6–10): Study the following information carefully and answer the question given below :

M, T, D, F, H, R, and W are seven students studying in three different college . Each one of them has a favourite subject from English, Chemistry and Biology, not necessarily in a same order .

D's favourite subject is Physics and studies in college II with only M, H does not study in college III and he likes English. F studies in college III and does not mathematics. Those who like Geography and chemistry study in the same college. W likes Biology and does not study in college I. R does not study with H . T does not study in college III . R does not like Chemistry, M does not like History.

6. What is M's favourite subject?

- (a) Geography
- (b) Maths
- (c) Chemistry
- (d) Data inadequate
- (e) None of these

7. Which of the following combinations is correct ?

- (a) I –M - Mathamatics
- (b) III – F – Chemistry
- (c) III – F – Physic
- (d) III – F – History
- (e) None of these

8. Which of the following group of student s study in college I .?

- (a) HF
- (b) HR
- (c) TR
- (d) HT
- (e) None of these

9. Which of the following groups of students study in college III ?

- (a) FWR
- (b) FM
- (c) FTR
- (d) Data inadequate
- (e) None of these

10. What is T's favourite subject ?

- (a) Biology
- (b) Maths
- (c) Chemistry
- (d) Data inadequate
- (e) None of these

Direction (Qs. 11–15): In each question below is given a statement followed by two assumptions number I and II. An assumption is something supposed or taken for granted. You have to consider the statement and the following assumption and decide which of the assumptions is implicit in the statement.

Give answer (a) if only assumption I is implicit.

Give answer (b) if only assumption II is implicit.

Give answer (c) if either assumption I or II is implicit.

Give answer (d) if neither assumption I nor II is implicit.

Give answer (e) if both assumptions I and II are implicit.

11. Statement: Even though the number of sugar factories is increasing at a fast rate in India, we still continue to import it from other countries.

Assumption I: Even the increased number of factories may be not able to meet the demand for sugar in India.

II: The demand for sugar may increased substantially in future.

12. Statement: The Government announced a heavy compensation package for all the victims of the terrorist attacks.

Assumption I: Such incident of terror may not occur in near future.

II: Compensation may mitigate anger among the citizens against the current government.

13. Statement: Many organizations have switched over to online mode of examinations.

Assumption I: candidate from all parts of the country may be well- versed using computers.

II: Online mode of examinations helps in recruiting more capable personnel.

14. Statement: Government has decided to relocate all the factories from the city with immediate effect to reduce pollution.

Assumption I: Pollution in the city is being caused only because of the factories existing there.

II: People may be able to manage travelling daily to the relocated factories.

15. Statement: Gambling through lotteries is banned by the Central Government in all the states with immediate effect.

Assumption I: This may save innocent citizens from getting cheated of their hard- earned money.

II: The citizens may not gamble in any other way if the lotteries are banned.

Direction (Qs. 16–20): Study the following information to answer the given questions:

(1) Eight persons, M, N, O, P, Q, R, S and T, are sitting around a square table—two on each side.

(2) There are three female members and they are not seated next to each other.

- (3) R is sitting between T and N.
- (4) O is sitting between Q and N.
- (5) P, a female member, is second to the left of R.
- (6) N, a male member, is seated opposite M, a female member.
- (7) There is a female member sitting between N and Q.

16. Which of the following is true about R ?

- (a) R is a male member.
- (b) R is a female member.
- (c) The gender of R cannot be determined.
- (d) The position of R cannot be determined.
- (e) None of these

17. Who among the following are the three female members ?

- | | |
|----------------|-------------------|
| (a) M, P and R | (b) M, O and R |
| (c) O, P and R | (d) None of these |
| (e) R, P and O | |

18. Who among the following is on the immediate left of N ?

- (a) O (b) R (c) Q
- (d) Cannot be determined
- (e) None of these

19. How many persons are sitting between S and N ?

- (a) One (b) Two (c) Three
- (d) Cannot be determined

20. How many persons between T and Q?

- | | |
|-------------------|----------|
| (a) One | (b) Two |
| (c) Three | (d) Five |
| (e) None of these | |

SPEED TEST - 6

Time : 20 Minutes
Total Qs. : 20
Max. Marks : 20

Direction (Qs. 1-5): Study the following information to answer the given questions.

In a certain code language, 'summer is not pleasant always' is written as 'mo ra tic su na', 'pleasant season is spring' is written as 'die ra nic mo', 'always likes spring' is written as 'phi su nic', and 'hot summer season' is written as 'tic ga die'.

- 1.** Which of the following is the code for 'not' ?
(a) mo (b) Ra (c) Na (d) tic

2. What does 'die' stand for ?
(a) Pleasant (b) Spring
(c) Season (d) Is

3. Which of the following represents the code for 'spring is hot' ?
(a) Mo ga nic (b) Tic ga mo
(c) Nic die su (d) None of these

4. 'tic phi die' is the code for which of the following ?
(a) spring is season (b) likes summer season
(c) pleasant season is (d) hot season summer

5. Which of the following may represent 'nobody likes hot season' ?
(a) zo die ga tic (b) nic ye ga die
(c) phi nic da ra (d) phi zo ga die

6. How is P related to K ?
I. S is one of the brothers of P.
II. K is sister of M, who is mother of S.
III. L is the only sister of P.
(a) Only I and II (b) Only II and III
(c) Only I and III (d) None of these

7. Among A, B, C, D and E, each having a different weight, who is the lightest ?
I. C is heavier than D but lighter than A.
II. B is lighter than only E.
III. A is not the lightest.
(a) Only I and II (b) Only II and III
(c) Only I and III (d) All of them

Direction (Qs. 8–9): Study the following information carefully and answer the questions given below it.

Following are the conditions for admission to a technical institute. The candidate

- (A) should have secured 60% marks at the 10+2/intermediate examination.
 - (B) should have secured at least 70% marks in science subjects in the 10+2/intermediate examination.
 - (C) should be a bona fide resident of State 'X', where the institution is situated.

(D) should not be more than 20 years of age as on 1 Feb, 2010.

However, in the case of a candidate who fulfils all the conditions except

1. (C) above, but has secured 75% or above marks in science subjects and 60% in grand total, his/her case may be referred to the Chairman for recommendation.
 2. (A) above, but has participated in Sports and games at the national level, he/she may get a relaxation of 5% in total marks obtained, and his/her case may be referred to the Director of the institute.
 3. (B) above, but belongs to SC or ST, he/she may get 10% relaxation in marks for science subjects, and his/her case may be referred to the Registrar of the institute.

Based on the above conditions and information provided below, decide the course of action in each case. No further information is available. You are not to assume anything. These cases are given to you as on 1.02.2010.

- 8.** Surajbhan, a bona fide resident of State 'X', belongs neither to SC nor to ST. He is 17 years old. He has secured 63 % and 73 % marks in aggregate and science subjects respectively in his 10+2 examination. He is a national player of football.

(a) The candidate would be admitted.
(b) The case would be referred to the Director.
(c) The case would be referred to the Chairman.
(d) The case would be referred to the Registrar.

9. Kundan is an ST candidate but does not want to take the benefit of reservations. He is 18 years old and a good player of table tennis. He has participated several times for State 'X' at the national level in TT. He secured 56% and 71 % marks in grand total and in science subjects respectively in his intermediate examination.

(a) The candidate would be admitted.
(b) The case would be referred to the Director.
(c) The case would be referred to the Chairman.
(d) The case would be referred to the Registrar.

Direction (Qs. 10-14): Study the following information Carefully and answer the questions given below.

A, B, C, D, E and F are six boys each belonging to a different city, viz Delhi, Agra, Kanpur, Lucknow, Pilibhit and Jaipur, not necessarily in the same order. Each of them got selected in a different bank, viz Canara Bank,

Syndicate Bank, JCO Bank, Vijay a Bank, Dena Bank and Central Bank, not necessarily in the same order. B belongs to Jaipur but did not get selected in either Dena Bank or Canara Bank.

D doesn't belong either to Delhi or to Lucknow, but got elected in Syndicate Bank.

The one who got selected in Dena Bank doesn't belong to laipur The one who got selected in Central Bank belongs to Lucknow. F did not get selected in Dena Bank. Either C or F got selected in UCO Bank but neither of them belongs to Pi I ibhit or Lucknow. A belongs to Kanpur and he got selected in either Canara Bank or UCO Bank. F doesn't belong to Delhi.

- 10.** Who among the following belongs to Pilibhit ?
(a) A (b) B (c) C (d) D

11. Who among the following got selected in Dena Bank?
(a) A (b) B (c) C (d) D

SPEED TEST - 7

Time : 15 Minutes
 Total Qs. : 15
 Max. Marks : 15

Direction (Qs. 1–5): In making decisions about important questions, it is desirable to be able to distinguish between “Strong” arguments and “Weak” arguments insofar as they relate to the question. “Strong” arguments are those which are both important and directly related to the question. “Weak” arguments are those which are of minor importance and also may not be directly related to the question or may be related to a trivial aspect of the question.

- (a) Only I is strong
- (b) Only II is Strong.
- (c) Either I and II is Strong.
- (d) Neither I and II is Strong.

1. Statement: Should corporal punishment be banned in schools ?

Arguments:

- I. Yes, if a student fails to perform well it should be realised that it is due to the teacher's fault. Inculcation of value of ethics should be preferred to corporal punishment
- II. No an adamant child can't be forced to study unless he/she is treated with corporal punishment.

2. Statements: Should restrictions on rickshaw-pullers and prisoners be removed for donation of blood ?

Arguments:

- I. Yes, because of these restrictions, a large number of people are not able to donate their blood even to their own relatives in emergencies.
- II. No, blood donation is meant to save people's life; if fingers are pointed towards someone's eligibility as a donor owing to possibility of non suitable or erroneous blood, then such persons must be restricted from doing so.

3. Statement: Is privatization the best cure for the city's crumbling civic services?

Arguments:

- I. Yes, nobody cares or takes responsibility in government departments. In order to improve its image in public life, the private sector does its best to improve existing civic services and remove the bottlenecks in the implementation of its policies.

- II. No, the city's crumbling civic services are the result of a lack of will power of policy-makers to implement the policies with dedication as well as a lack of, rational co-operation and collaboration of people.

4. Statement: Should TV channels be allowed to telecast soft porn films ?

Arguments:

- I. Yes, this will help in satisfying young sters' aphrodisiomania, as a result of which cases related with woman's molestation will reduce to some extent.
- II. No, this is against our tradition. Any such act will degrade our social values, especially for children, who use television as a medium of entertainment as well as education.

5. Statement: Should pension schemes in government ser vices be abolished ?

Arguments:

- I. Yes, this will reduce the number of aspiring candidates to a great extent and it will be easy for the common man to get into govt services.
- II. No, this will destroy the very purpose of providing financial help to the employee so that they can sustain themselves in old age.

6. In each of the following questions, a question is asked followed by three statements. You have to study the question and all the three statements given and decide whether any information provided in the statements) is/are redundant and can be dispensed with while answering the questions.

How many sons and daughters does Amod have ?

- (A) Amod's wife says she has number of sons twice the number of daughters.
- (B) Tom, who is one of the sons of Amod, says that he has one-and-a-half times as many brothers as sisters.
- (C) Tinu, who is one of the daughters of Amod, says that she has 4 times as many brothers as sisters.
- (a) Any one of them (b) Any two of them
- (c) Either B or C (d) Either A or C

Speed Test

Direction (Qs. 8-11): Study the following information carefully and answer the given questions.

A, B, C, D, E and F are six persons. Among them three are females. All of them are preparing to become officers in banks. They are preparing for the competitive examinations for vacancies announced by the recruitment cell of three different departments, ie RBI, IBPS and Andhra Bank. Two persons each are preparing for the examination for vacancies of officers announced by each department. Each female is preparing for three different departments. Two persons are good at Reasoning, two at Quantitative Aptitude (QA) and the remaining two at English. No one is good at more than one subject. No two females are good at the same subject. B and D are good at Reasoning. E is good at the same subject as C but not at English. D and F are preparing for the same department, ie IBPS. C is a female who is preparing for RBI with B.

Direction (Qs. 12-15): In each question below, there are three statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follow(s) from the given statements.

12 Statements:

- (a) All books are combs.
 - (b) All combs are boxes.
 - (c) No boxes are bags.

Conclusions:

- I. Some boxes are not combs.
 - II. Some books are not bags.
 - III. All combs are books.
 - IV. Some combs are not books.
 - (a) Only II follows
 - (b) Only II, III and IV follow
 - (c) Either III or IV and II follow
 - (d) Only either III or IV follows

13. Statements:

- (a) All tractors are scooters.
 - (b) All tractors are cars.
 - (c) No jeeps are cars.

Conclusions:

- I. Some jeeps are not scooters.
 - II. No tractors are jeeps.
 - III. Some scooters are cars.
 - IV. Some scooters are not cars.
 - (a) Only I, III and IV follow
 - (b) Only III follows
 - (c) Only III and IV follow
 - (d) None of these

14. Statements:

- (a) All Jets are Migs.
 - (b) Some Sukhois are not Migs.
 - (c) All Sukhois are Mirages.

Conclusions:

- I. Some Sukhois are not Jets.
 - II. Some Sukhois are Jets.
 - III. Some Mirages are Migs.
 - IV. Some Mirages are not Migs.

(a) Either I or II and either III or IV follow

(b) Only either I or II follows

(c) Only either III or IV follows

(d) None of these

15 Statements:

- (a) All operators except Omprakashji are honest.
 - (b) All honest people smoke.
 - (c) Some honest people are laborious.

Conclusions:

- I. All operators except Omprakashji smoke.
 - II. Omprakashji smokes
 - III. All laborious persons smoke.
 - IV. Some laborious persons do not smoke.

(a) Only either III or IV follows

(b) Only either I or II follows

(c) All follow except III

(d) none of these

SPEED TEST - 8

Time : 10 Minutes
Total Qs. : 10
Max. Marks : 10

Direction (Qs. 1-4): Study the following information carefully and answer the questions following it.

Vinay, Shailesh, Rita and Alka are four students of different classroom coaching centres of BSC, a leading classroom coaching centre for PO aspirants. Each belongs to a different state, ie AP, MP, Bihar and Orissa, but not necessarily in the same order. When BSC arranged an all-India Mock Test series for all the classroom coaching centre students of BSC in four cities Delhi, Kolkata, Mumbai and Chennai, the students Vinay, Shailesh, Rita and Alka appeared for Test series in different cities. When the results were declared they got 1st to 4th positions in all-India ranking. They are students of different centres of BSC, ie Lucknow, Rourkela, Patna and Delhi but not necessarily in same order.

- I. Vinay and Shailesh neither studied at the Lucknow centre nor at Rourkela. They appeared for test neither at Kolkata nor at Mumbai. They belong neither to Orissa nor to MP.
 - II. The one who studied at the Patna centre does not belong to Bihar. The one who belongs to MP is not Alka. The one who studied at Rourkela did not appear for the test at the Kolkata centre.
 - III. The one who studied at the Delhi classroom coaching centre got the 4th position in all-India ranking. But he is not Shailesh. The one who appeared at Chennai for the test got the 1 st position. The one who belongs to MP got third position; while the one who studied at the Lucknow centre got the 2nd position in the all-India ranking.

Now answer the following questions.

Direction (Qs. 5-9): Read the following Information and answer the questions given below it.

Hints & Solutions

Speed Test-1

1. (a) Aeroplane – Hangar, Bus – Depot/ Terminus, Train – Car shade, Ship – dock yard
2. (c) Governor is the head of the state.
3. (b) Ophthalmologist – eye, Neurologist – Nerve / Brain, Gynecologist – health of Reproductive system, Nephrologists – Kidney
4. (d) All letters are arranged alphabetically from left to right (3rd letter onwards) and the forth one is very next alphabet of the first one
GFE H : RQP S : : LKJ M : ONM P

5. (d) Pattern is C – D = 0 , E-G = 1, I – L = 2, M – Q = 3
6. (c) Alphabets are arranged from left and right and right and left.
7. (a) 235 : (2 + 3) = 5 (3 + 5) = 8 (2 + 5) = 7 similarly 435 : (4 + 3) = 7 (3 + 5) = 8 (4 + 5) = 9
8. (b) $17 \times 6 = 102$, $23 \times 6 = 138$
9. (c) $4 + 2 = 6^2 = 36$, $5 + 2 = 7^2 = 49$
10. (a) Chart is the paper on which one can draw with the help of crayon.
11. (a) RIN is the only soap which is use for wash cloths.
12. (d) Sum of all the alphabets is odd. Except option (d).
13. (b) Leaving the forth letter (A), all the letter moves from right to left except option (b) which moves from left to right.
14. (a) Gap between the letters are 2, except option (a) which is 3 gaps.
15. (b) Sum of the numbers is 27. Except option (b).
16. (c) All numbers are multiples with 3, except option (c).
17. (d)
18. (a)
19. (b)
20. (c)
21. (a)
22. (d)
23. (c)
24. (a) Pattern is 1^2 , $(2^2)^2$, $(3^2)^2$,
25. (a) Formula $T_n = a + (n-1)d$, where n is number of terms, a is first term and d is common difference.

Speed Test-2

1. (d) It should be HW
2. (c) 2×5 we get next number 10, $3 \times 6 = 18$, $4 \times 7 = 28$ but it is written in the question 30.

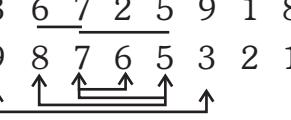
3. (c) North direction
4. (c) Hint : we can use the simple interest formula to find the rate i.e $S.I = (P \times R \times T)/100$, we will get $R = 16\%$. Using this we will get the required answer.
5. (b) 1 (gap of 4), 5 (gap of $4 + 4 = 8$), 13 (gap of $4 + 4 + 4 = 12$) 25, and so on....
6. (b) 3 6 3 1
7. (b)
8. (d) A, M, G, Meena ,S
9. (d)
10. (d)
11. (a)
12. (c) $2 \times 8 = 16 + 1 = 17$, $17 \times 8 = 136 + 1 = 137$, $137 \times 8 = 1096 + 1 = 1097$
13. (c) In the first diagram, sum of all the numbers give the centre number i.e 36, similarly we can solve the second figure.
14. (a) $1 \times 12 = 12$, $2 \times 6 = 12$, $3 \times 4 = 12$
15. (d) Product of the numbers of extreme columns
16. (a) $1^2 + 7^2 = 50$
17. (b) 4 km
18. (c)
19. (a) M _ _ P, in the same way W _ _ Z. and rest remains same
20. (c)

Speed Test-3

1. (b) C H A R I O T

2. (d)
3. (b) C F - H K , gap between C and H is 4 as same as F and K is same . similarly MP relates with RT
4. (c) F R A U D – 7@#65
5. (e)

3	6	7	2	5	9	1	8
9	8	7	6	5	3	2	1


6. (a) 8 6 2 1 7 9 4 5
1 2 4 5 6 7 8 9
7. (d)
8. (b)

- 9.** (b) M O U S E S H I F T
 $+2 +2 -1 -1 +2 +2 -1 -1$
 P R U Q C V K I D R
- 10.** (b) HOME **11.** (d)
12. (c) **13.** (b) **14.** (a)
15. (e) **16.** (a) **17.** (e)
18. (c) **19.** (c) **20.** (a)

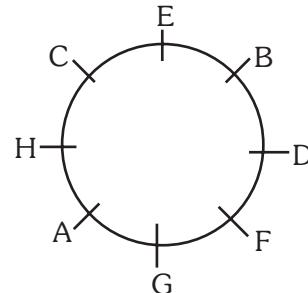
Speed Test-4

- 1.** (e) **2.** (d)
3. (d) **4.** (a)
5. (c)
6. (e) A decision is taken when it is felt that it would be accepted by most of the people concerned. Hence I is implicit. II is also implicit as the reason behind the need.
7. (d) It is not necessary that price rise be these on the mind of the govt while taking the decision. Hence I nor II is implicit. In fact, the truth is that our petroleum companies are running losses even after the drop international prices.
8. (e) Both are imminent positive outcomes assumed.
9. (a) I is implicit because teachers can't be appointed in a vacuum II is more of a presumption.
10. (e) When a move is made, it is assumed to be effective. Hence I is implicit. It is also assumed that the stipulated target will be met. Hence II is implicit.

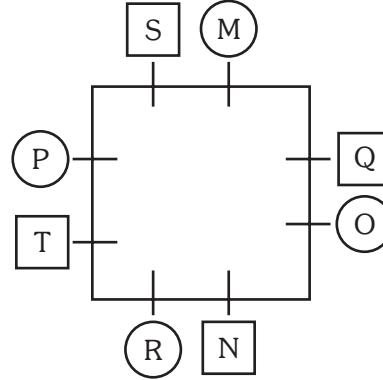
Sol.: (11-15)

Candidate	Bank	Place	M/F
A	BOB	Delhi	M
G	OBC	Noida	M
L	Dena Bank	Jaipur	F
N	UBI	Ranchi	F
P	Indian Bank	Ghaziabad	M
Q	BOI	Kolkata	M
R	Corporation	Patna	M
S	UCO	Kanpur	F

- 11.** (c) **12.** (c)
13. (e) **14.** (b)
15. (c)
16. (b) Except that, all are natural fibers.
17. (b) All are source of energy except wave.
18. (b) **19.** (c)
20. (c)

Speed Test-5**Solutions for 1 - 5:**

- 1.** (d) **2.** (b) **3.** (c) **4.** (e)
5. (a) **6.** (a) **7.** (b) **8.** (d)
9. (a) **10.** (e)
11. (a) Assumption I is implicit because it is this that us import sugar in spite of increase in the number of sugar factories.
 But II is not implicit because "future" is beyond the scope of the statement
12. (b) Compensation is a way of sympathising with the victims, not a different to terrorism. Hence II is implicit but I is not.
13. (a) Assumption I is implicit because only then the switching over makes sense. But II need not be an assumption. The switching over may have been prompted by economic factors or those of convenience.
14. (b) Assumption I is ruled out because of the word only. But II is implicit because without considering this factor relocation won't make sense.
15. (a) Assumption I is implicit as the govt's moves are generally aimed at protecting the interests of the masses. But II is not implicit because of "any other way". There might be other means of gambling which the govt does not consider significantly detrimental for the people.

Solutions for 16 - 20:

- 16.** (a) **17.** (d) **18.** (b)
19. (c) **20.** (c)

Speed Test-6

1. (c) 2. (c) 3. (d) 4. (b)
 5. (d)
 6. (d) From I : S is one of the brothers of P.

But P's gender is unknown.

From II : K is the sister of M and the aunt of S.

From III : L is the only sister of P.

P's gender is unknown.

From I and II : P is either the niece or nephew of K.

Since p's gender is not known, therefore, we can't find the exact relationship.

Thus, both I and II together are not sufficient.

From II and III : we can not find the relationship between K and P.

Thus II and III together are not sufficient.

From I and III : Nothing is known about K Thus, we can't find any relationship between P and K.

Thus I and III together are not sufficient.

From I, II and III : Since P's gender is not known, it is not possible to find the exact relationship between P and K.

Thus, all I, II and III even together are not sufficient.

7. (a) From I : A > C > D

From II : E > B >

From I and II : E > B > A > C > D

Thus, D is the lightest.

Thus, only I and II together are sufficient.

From II and III : Nothing is said about C and D thus, we can't say exactly who is the lightest.

From I and III : A > C > D

Nothing is said about B and E.

Thus, we can't say exactly who is the lightest

Thus, both I and III together are not sufficient

8. (a) 9. (b)

Solution for 10-14 :

Person	Bank	City
A	Canara	Kanpur
B	Vijaya	Jaipur
C	Dena	Delhi
D	Syndicate	Pilibhit
E	Central	Lucknow
F	UCO	Agra

10. (d) 11. (c) 12. (a) 13. (b)

14. (d)

15. (d) Rest are containers.

Speed Test-7

1. (d) Argument : I does not tell about the bad aspect of corporal punishment and why banning is necessary. Hence I is not strong.
 Argument: II is also not strong because the argument is obsessed with an inappropriate assumption that scare of corporal punishment leads a child to studies.
2. (d) Both I and II are strong. I is strong because it is not necessary that all the rickshawpullers and prisoners have unsuitable bloods. Hence, I stresses on the importance of blood donation. Whereas II is strong because banning those persons from donation of blood is a good precautionary step.
3. (d) I is strong because today privatisation is known as a panacea. II is also strong because if there is a lack of dedication on the part of policy-makers as well as people's participation, how can the city's crumbling civic services be cured merely by transferring it to private hands ?
4. (b) The advantage shown in argument I is unlikely to be true and is far-fetched. But II is strong because we should not ignore our tradition.
5. (b) I is an absurd argument. Hence it is weak. II is a strong argument because it goes into the reason behind the pension schemes. And how the move will badly affect the employee's life.
6. (a) From A : B = 2S;
 From B : B - 1 = 3/2 S;
 From C : (S - I)4 = B
 Where B = no. of brothers; S = no. of sisters we have three different equations. Hence any two of them will be sufficient. Obviously, any one of them is redundant.
7. (d) we cannot say, as we don't know the time of the day.
8. (d) 9. (d) 10. (a) 11. (d)
12. (c)
13. (b) Conversion of (a) + (b) = Conclusions III [Because, I + A = I]. Statements (b) + conversion of (c) = Conclusions II [Because, A + E = E]. Some scooters are cars (Conclusions III) + conversion of (c) = Some scooters are not jeeps [Because, I + E = O]. Hence I does not follow.

14. (d) From statements (a) and (b) conclusions I follows
Also, III and IV make a complementary I-O pair.
Hence I and either III or IV follow.

15. (d)

5. (c)

6. (d)

7. (c)

8. (d)

9. (d)

10. (d) 14th to the right of 6th to the left of lyth from
the left = 14th to the right of $(19 - 6 = 13)$ th
from the left = $(13 + 14 = 27)$ th from the left =
 $(28 - 27 + 1 =)$ 2nd from the right = 5

Speed Test-8

1. (a)

2. (a)

3. (c)

4. (c)

5-9:

Person	Profession	Marital Status	Place
A	Cri/Dri	Bachelor	Delhi
B	Puot	Bachelor	Calcutta
C	Salesman	Married	Chennai
D	Diploma	Married/ Bachelor	Mumbai
E	Accoimtant	Married	Calcutta
F	Dn/Cri	Bachelor/ Married	Mumbai