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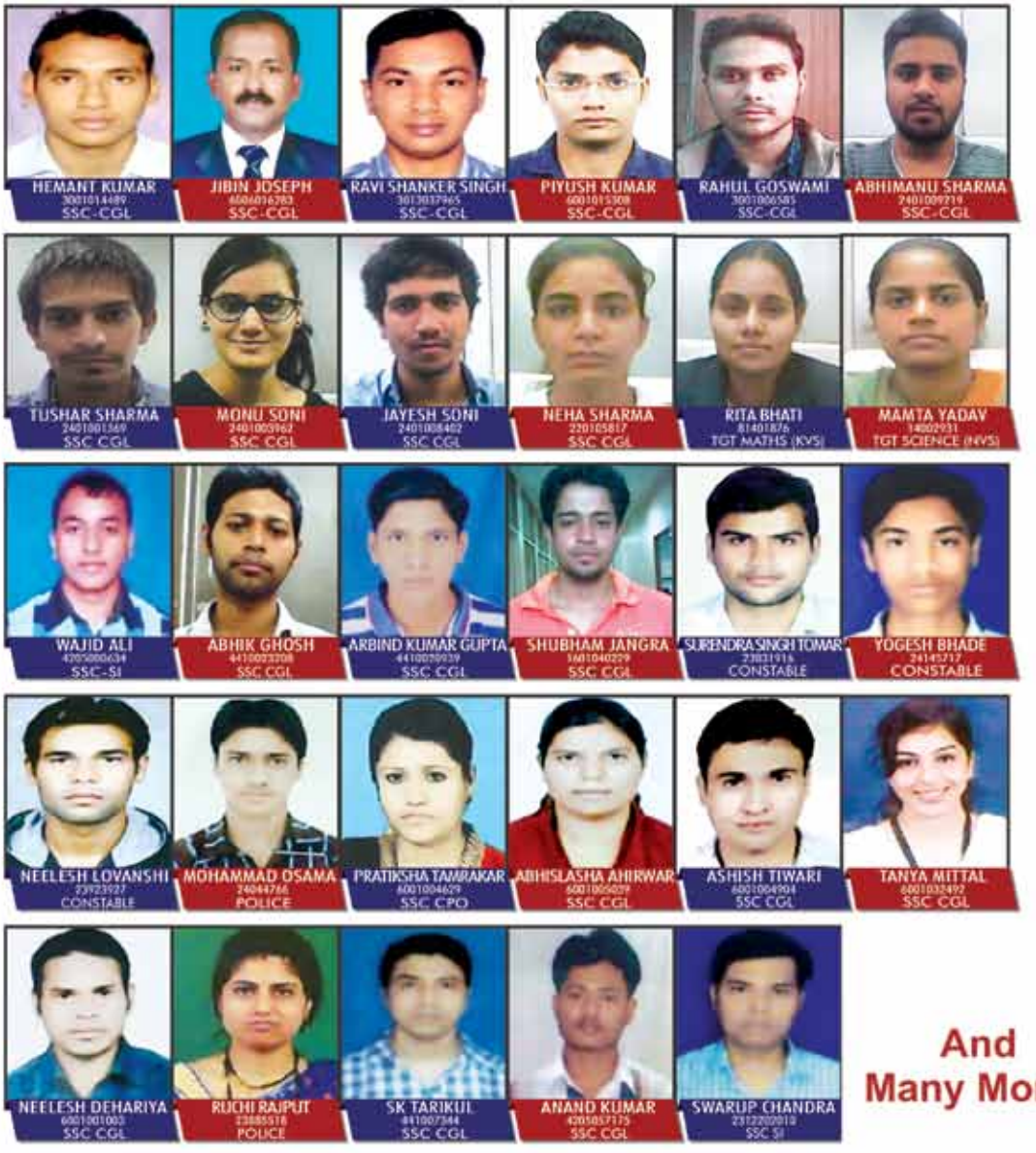

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PREFACE

It is high time we started recognizing the demands and supplies of the education sector. The pattern of the competitive examinations is unpredictable. With the changing scenarios, there is a dire need to be always up-to-date. A number of qualified professionals are adding to the list of elite virtuoso every second. Why should you lag behind?

The subject of Reasoning is, almost, the ingredient of all the recipes of examinations. It is the most essential part that cannot be ignored. The objective or multiple-choice questions test not only your written capabilities but also your logical and analytical skills.

In order to equip you with all the powers, our Reasoning team of virtuoso has burnt midnight oil in preparing this worth-reading or rather worth-grasping issue. This book is a compiled version of all the levels of ***SSC-CGL, CHS, CHSL, MTS, CPOSI, STENOGRAPHER (C&D)*** *etc. exams taking place in the present scenario. The basic Reasoning concepts including the short tricks along with the tests at the end add an icing to a cake. The most attractive elements of the book that will, surely, lure you include illustrations with examples, practical usages of the concepts, etc. Moreover, the content has been reinvigorated keeping in mind the queries of the common student.*

The zeal exhibited by the students PAN India has helped us a lot in preparing the content from the student's point of view. Real tests will, definitely, give you goosebumps as they will give you a literal feel of your dream test.

Here, we express sincere gratitude to the compilers of this book who have been vigilant enough to proofread and inspect the content. The valuable suggestions from our experts and students have transformed the book into a unique publication.

Any suggestions that can help enhance the quality will be appreciated as well as implemented.

Research Team

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CONTENTS

CHAPTER-1
ALPHABETICAL SERIES

Scan the QR code to get video of this chapter.

This chapter is based on letters, combination of letters, numbers, series of numbers and symbols.

Types of Series

LETTER SERIES

In this series only letters are available which follow a certain pattern throughout. Candidate has to recognise this pattern and to give the required answer.

POSITION OF LETTERS :

First of all, we should know the position of all letters from A to Z.

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

Memorable Points:

You can easily solve the problems based on this chapter with the help of these Quick Tricks -

- Starting point of the series is called left end and end point of the series is called right end.
- To solve the question easily you should break the series in combination of five - five elements.

  ABCDE/FGHIJ/KLMNO/PQRST/UVWXY/Z

  It will help you in counting of letters.
- There are some key words which helps the candidates how to remember the place values of the letters. Once the candidate knows the position of alphabets, he requires to learn time management. We don't have much time and hence all the alphabets can't be read thouroghly.

  E J O T Y

  5 10 15 20 25 (Table of 5)

Words given above are just the arrangement of the alphabets having position multiples of 5 from this word we can learn position of 26 letters because above mentioned first four letters have, 4 their followers, and 4 their precedessors.

- Here a new word is given below in which the arrangement of letters have occupied positions in the multiples of 3, with the help of this word we can get the position of total 26 letters.

  C F I L O R U X

  3 6 9 12 15 18 21 24 (Table of 3)
- **OPPOSITE LETTERS:**

A ↔ Z	(**A Z**ad)
B ↔ Y	(**B** o **Y**)
C ↔ X	(**C**ra**X**)
D ↔ W	(**D**e**W**)
E ↔ V	(**E**.**V**en)
F ↔ U	(**FU**ll)
G ↔ T	(**G T** road)
H ↔ S	(**H**igh **S**chool)
I ↔ R	(**I**ndian **R**ailway)
J ↔ Q	(**J**ungle **Q**ueen)
K ↔ P	(**K**an**P**ur)
L ↔ O	(**LO**ve)
M ↔ N	(**M**a**N**)

With the help of above trick, we can get the opposite letter of any letter.

- We can easily understand the series problems by some tricks.

Left (Given)	-	Left (Asked)	=	Left (Counting)
13	-	8	= 5	(Fifth Element from left-E)
Right (Given)	-	Right (Asked)	=	Right (Counting)
13	-	8	= 5	(Fifth element from right-V)
Left (Given)	+	Right (Asked)	=	Left (Counting)
13	+	8	= 21	(Twenty first element from left-U)
Right (Given)	+	Left (Asked)	=	Right (Counting)
13	+	8	= 21	(Twenty first Element from right-F)

All these situations are based on condition of left end or right end.

EXAMPLES

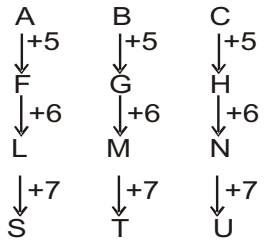
Ex.1-8. In each of the following questions, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

Ex.1. ABC, FGH, LMN, ----

(A) IJK **(B)** OPQ

(C) STU **(D)** RST

Sol.(C)

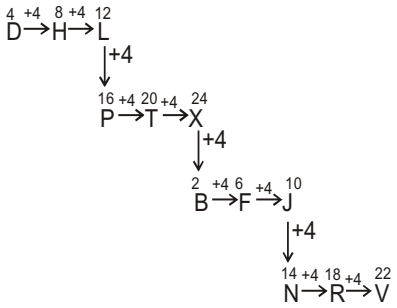


Ex.2. DHL, PTX, BFJ, ?

(A) NRV **(B)** RVZ

(C) CGK **(D)** KOS

Sol.(A)

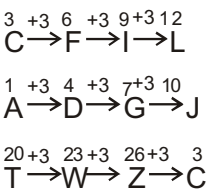


Ex.3. CAT, FDW, IGZ, ?

(A) KTC **(B)** KJA

(C) LHD **(D)** LJC

Sol.(D)

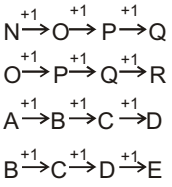


Ex.4. NOAB, OPBC, PQCD, ?

(A) QRDE **(B)** RTEF

(C) QSDE **(D)** QRGI

Sol.(A)

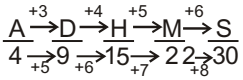


Ex.5. $\frac{A}{4}, \frac{D}{9}, \frac{H}{15}, \frac{M}{22}, ?$

(A) $\frac{R}{30}$ **(B)** $\frac{S}{30}$

(C) $\frac{Q}{31}$ **(D)** $\frac{Q}{30}$

Sol.(B)

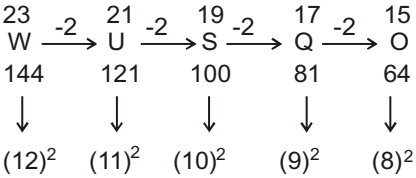


Ex.6. W-144, ?, S-100, Q-81, O-64

(A) V-121 **(B)** U-122

(C) V-128 **(D)** U-121

Sol.(D)

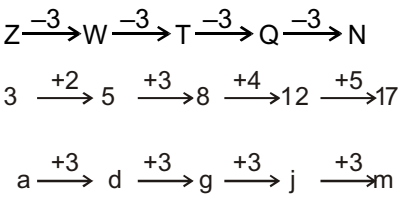


Ex.7. Z3a, W5d, T8g, Q12j, ?

(A) M16n **(B)** N17m

(C) N16k **(D)** K17n

Sol.(B)

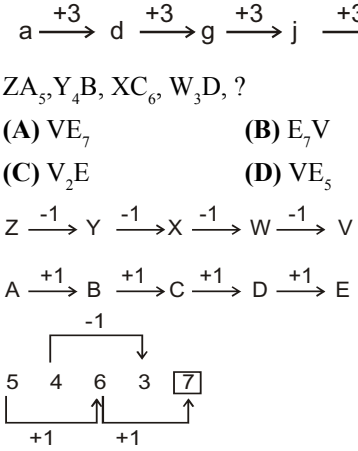


Ex.8. ZA_5, Y_4B, XC_6, W_3D, ?

(A) VE_7 **(B)** E_7V

(C) V_2E **(D)** VE_5

Sol.(A)



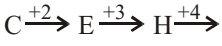
Therefore, ? ⇒ VE_7

Ex.9. Number of letters skipped in between adjacent letters in the series increases by one. Which of the following series observe the ruling given above?

(A) CEHLQW **(B)** CLOUBK

(C) CHMRWB **(D)** HLPTXN

Sol.(A)

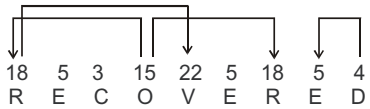


Ex.10. How many such pair of letters are there in the word **RECOVERED**, which have as many letters between them in the word as in the English alphabet?

(A) Three **(B)** Four

(C) Six **(D)** Five

Sol.(B)



Ex.11. If each of the vowels in the word I**MPOSE** is changed to the next letter in the English alphabet then which of the following will be the fifth letter from the left end?

(A) P **(B)** J

(C) F **(D)** S

Sol.(D) IMPOSE

JMPPSF

Ex.12. In the word **EMASCULATE**, the place value of the letters according to English alphabet are written in descending order then which number is fourth from the left end?

(A) 13 **(B)** 14

(C) 12 **(D)** 1

Sol.(A) E M A S C U L A T E

5 13 1 19 3 21 12 1 20 5

Descending Order

21 20 19 **13** 12 5 5 3 1 1

Ex.13. How many meaningful English words can be formed with the letters **N,E,R,S,T** and **I** using each letter only once in each word?

(A) None **(B)** One

(C) Two **(D)** Three

Sol.(C) INSERT, SINTER

Ex.14. The series of Alphabets in the following words should not contain more than three vowels, find out which word does not follow this rule.

(A) SCARCITY **(B)** PROGNOSIS

(C) COMPLEXITY **(D)** CONVULSION

Sol.(D) **CONVULSION** has four vowels **(OUIO)** which does not follow the rule given in the question.

Ex.15. From the given options choose the letters which would complete the first word and start the other word of the given.

DE (?) ROY

(A) ITY **(B)** SIRE

(C) VICE **(D)** MAND

Sol.(C) After adding option (C) two meaningful words are formed i.e. **DEVICE** and **VICEROY.**

Ex.16. From the given option which groups of three letters will make all these meaningful words.

K, BL, BEH, GR, REM

(A) AST **(B)** IND

(C) OCK **(D)** UEF

Sol.(B) K + IND → KIND

BL + IND → BLIND

BEH + IND → BEHIND

GR + IND → GRIND

REM + IND → REMIND

Ex.17. How many such letters are present in the given arrangement whose position is 18th according to English Alphabet.

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

(A) Six **(B)** Seven

(C) Five **(D)** Four

Sol.(A) According to English Alphabet, the position of **'R'** is **18th** and in the given series **'R'** presents six times.

Ex.18. How many **'T'** are present in the given series, which is immediately followed by **'K'** but not immediately preceded by **'K'**.

B C D T K N P Q R T U V W T K Z K T L K N N K T F G Z H K T K N G H J L N K T T

(A) One **(B)** Two **(C)** Three **(D)** Four

Sol.(B) In the above series there are two **'T',** which is followed by **'K'** but not preceded by **'K'**.

Ex.19. In the given arrangement how many letters are placed wrongly based on there position according to the English Alphabet.

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

(A) IH/OP **(B)** JK/RT

(C) IH/VU **(D)** GH/UW

Sol.(C) According to Alphabatical position on the place of **'H', 'I'** will come and on the place of **'I', 'H'** will come. Similarly on the place of **'V', 'U'** will come and the place of **'U', 'V'** will come.

Ex.20. A group of few Alphabet is given where in each Alphabet is assigned a particular number. Arrange this Alphabet such that they form a meaningful word and choose the right order of number from the given options.

T M H R E O

5 4 3 2 1 0

(A) 0 2 5 3 1 4 **(B)** 5 0 4 2 3 1

(C) 3 1 5 4 0 2 **(D)** 4 0 5 3 1 2

Sol.(D) The meaningful word **MOTHER** is formed by the given word **T M H R E O** and the code of this word would be **4 0 5 3 1 2**.

NUMBER SERIES

In this series questions are based on numbers.

Study the following arrangement carefully and answer the questions given below:

Ex.21. **1 2 6 5 3 2 1 8 9 6 5 3 2 1 2 3 1**

How many **1** are given in the above series which is immediately followed by **2**?

(A) One **(B)** Two

(C) Three **(D)** Four

Sol.(B) 1 2 6 5 3 2 1 8 9 6 5 3 2 1 2 3 1

Ex.22-23. Study the following arrangement carefully and answer the questions given below:

5 2 3 4 5 6 7 8 9 5 1 4 1 5 6 8 7 4

Ex.22. Which of the following is ninth to the left of thirteen from the left end of the above arrangement?

(A) 7 **(B)** 5

(C) 4 **(D)** 8

Sol.(C) $L_{13} - L_9 = L_4 = 4$

Ex.23. How many such 5's are there in the above arrangement, each of which is immediately preceded by an odd digit and immediately followed by an even digit?

(A) None **(B)** One

(C) Two **(D)** Three

Sol.(B) Odd digit 5 Even digit

1 5 6

Ex.24. The questions are based on the following set of numbers.

428 769 853 682 378

If all the numbers are arranged in descending order, what will be the difference between the second digit of third number and first digit of second number?

(A) 2 **(B)** 1

(C) 3 **(D)** 4

Sol.(B) 853 769 682 428 378

8 – 7 = 1

Ex.25. The positions of the first and the sixth digits in the number **1764924530** are interchanged. Similarly the positions of the second and the seventh digits are interchanged and so on. Which of the following will be the sixth digit from the right end after the rearrangement?

(A) 7 **(B)** 3

(C) 1 **(D)** 0

Sol.(D) New formed number : 2453**0**17649

MISCELLANEOUS SERIES

In this series questions are based on the position of letters, numbers and symbols.

Study the following arragement carefully and answer the questions given below.

F @ 5 3 R $ J P E 1 H % I 8 4 B A W 2 U G 6 * 9 δ Z N M © V

Ex.26. Which of the following element is 13th from the left end ?

(A) % **(B)** I

(C) Q **(D)** 1

Sol.(B)

→ ←

(left) F @ 5 3 R $ J P E 1 H % I 8 4 B 8 A W 2 U G 6 * 9 Δ Z N M © v (right)

1 2 3 4 5 6 7 8 9 10 11 12 13

Ex.27. Which of the following is the 10th to the left of the 18th from the left end of the above arrangement?

(A) J **(B)** E

(C) A **(D)** P

Sol.(D)

→

(left) F @ 5 3 R $ J P E 1 H % I 8 4 B 8 A W 2 U G 6 * 9 Δ Z

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Ex.28. If all the symbols are dropped from the above arrangement, which of the following will be the eleventh from the right end ?

(A) A **(B)** Q

(C) W **(D)** I

Sol.(A) In case of dropping we count the element from the given side except the element which are said to be dropped.

→ ←

(left) F 5 3 R J P E 1 H I 8 4 B A W 2 U G 6 9 Z N M V (right)

11 10 9 8 7 6 5 4 3 2 1

EXERCISE

Q.1. If all the letters in the word **SCRIMMAGE** are arranged as they appear in English alphabetic order, the position of how many letters will remain unchanged after rearrangement?
(A) None **(B)** One **(C)** Two **(D)** Three

Q.2. How many such pairs of letters are there in the word **'FORMETATION'** each of which has as many letters between them in the word as they have between them in the English alphabet?
(A) Four **(B)** Three **(C)** Two **(D)** One

Q.3. How many meaningful English words can be made with the letters **A, T, G** using each letter only once in each word?
(A) None **(B)** One **(C)** Two **(D)** Three

Q.4. The position of how many digits in the number **'528469713'** will remain unchanged after the digits are rearranged in descending order within the number?
(A) None **(B)** Three **(C)** Two **(D)** One

Q.5. The position of the first and the sixth digits in the number **'7863215497'** 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 left end after the rearrangement?
(A) 6 **(B)** 5 **(C)** 4 **(D)** 7

Q.6. How many such pairs of letters are there in the word TORMENTIL each of **which** has as many letters between them in the word as in the English alphabet?
(A) Eight **(B)** Nine **(C)** Seven **(D)** Five

Q.7. If it is possible to make one meaningful word with the second, the fourth, the sixth, the eight and the ninth letter of the word **SUBSTANCE** using each letter only once in each word, which of the following will be the third letter of that word? If no such word can be made, give answer **'M'** and if more than one such word can be made give answer 'N'.
(A) U **(B)** S **(C)** C **(D)** N

Q.8-12. Answer these questions referring to the symbol/ letter/number sequence given below:
9 4 U ? 3 K Q @ 8 m u * 2 D F $ 7 Z b V D 6 P I U x 5 A L O + R

Q.8. In the above series, which of the following will be the eleventh from the right end?
(A) D **(B)** 6 **(C)** P **(D)** I

Q.9. What should come in place of the question mark (?) in the following series based on the above arrangement?
K @ Q, u 2 *, $ Z 7, ?
(A) b 6 P **(B)** x 5 A **(C)** D P 6 **(D)** b V D

Q.10. How many such numbers are there in the above arrangement each of which is either preceded by a letter or followed by a symbol but not both?
(A) Two **(B)** Four **(C)** Three **(D)** Five

Q.11. How many such letters are there in the above arrangement each of which is preceded by a letter but not followed by a letter?
(A) Three **(B)** Four **(C)** Five **(D)** Six

Q.12. If first half of series is reversed then in which element would become 10th from right?
(A) I **(B)** P **(C)** U **(D)** 6

Q.13-17. Study the following arrangement carefully and answer the question given below.
M ? 2 D B B 7 A 4 9 6 $ T ÷ N 5 @ V E W # U 8 F © 3

Q.13. How many such prime numbers are there in the above arrangement each of which is followed by a symbol and preceded by a consonant ?
(A) None **(B)** One **(C)** Two **(D)** Three

Q.14. In the above arrangement if symbols are interchanged by the successive number/letter which element will be eleventh from right ?
(A) V **(B)** @ **(C)** 5 **(D)** N

Q.15. Which element will be seventh to the left of #?
(A) A **(B)** N **(C)** T **(D)** ÷

Q.16. What will come at the place of question mark (?) in the given series based on above arrangement?
D7B, 4$6, ÷@5, ?
(A) @WE **(B)** 5EV **(C)** VU# **(D)** EU#

Q.17. If all the symbols and numbers are dropped and then letters are arranged according to alphabetical order, which will be sixth from left end ?
(A) M **(B)** F **(C)** N **(D)** E

Q.18. If in following alphabetical-series, how many times have L, M, N come in such a way that M is mid of N and L?
N Z L X M N L M Y N M L Y M L N L M B Z A M X L N Y
(A) 4 **(B)** 3 **(C)** 2 **(D)** 1

Q.19. In following number series which number will be exactly mid?
8 4 6 7 3 4 3 7 8 3 4 4 5 6 3 4 6 4 3 4 8
(A) 3 **(B)** 4 **(C)** 5 **(D)** 8

Q.20. In the following number series, which one of the digit will come minimum times?
8 4 6 7 3 4 3 7 8 3 4 4 5 6 3 4 6 4 3 4 8
(A) 8 **(B)** 7 **(C)** 5 **(D)** 4

EXPLANATION

Q.1.(C)

S C R I M M A G E

A C E G I M M R S

Q.2.(A)

F O R M E T A T I O N

Q.3.(C) Tag

Gat

Q.4.(A) 5 2 8 4 6 9 7 1 3

9 8 7 6 5 4 3 2 1

Q.5.(D)

7 8 6 3 2 1 5 4 9 7

1 5 4 9 7 7 8 6 3 2

Q.6.(C)

Q.7.(D) (I) SAUCE: Flavourful relish, Flavour boldness

(II) CAUSE: Reason, Principle

Q.8.(B) 6

Q.9.(C) D P 6

Q.10.(C) Three

Q.11.(D) Six

Q.12.(B) P

Q.13.(B) According to question pair = N5@

Q.14.(C) According to question R11 = 5

Q.15.(D) According to question ÷ is the 7 th to right of #.

Q.16.(D) EU#

Q.17.(A) New Series = MDBBATNVEWUF After arrangement according to alphabetical

Q.18.(D) N Z L X M N L M Y N M L Y M L N L M B Z A M X L N Y

Q.19.(B) In the given series the digit exactly in the middle is 4.

Q.20.(C) 5

NOTES

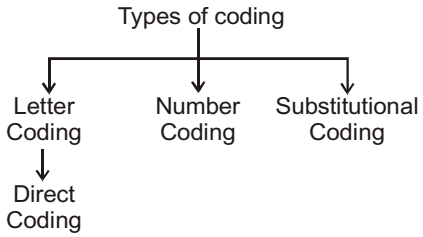
CHAPTER-2
CODING-DECODING

Scan the QR code to get video of this chapter.

WHAT IS CODING-DECODING

Coding is a system of signals. This is a method of transmitting information in the form of codes or signals without it being known by a third person. The person who transmits the signal, is called the sender and the person who receives it, is called the receiver. Transmitted signals are decoded on the other side by the receiver this is known as **decoding.**

In questions on codes, a word (basic word) is coded in a particular way and the candidates are asked to code other words in the same way. The coding and decoding tests are set up to judge the candidate's ability to decipher the rule that has been followed to code a particular word/message and break the code to decipher the message.

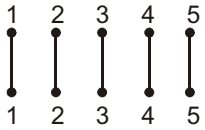


LETTER CODING

In this section, we are going to deal with types of questions in which the letters of a word are replaced by certain other letters according to a specific pattern/rule to form a code. You are required to detect the coding pattern/rule, and answer the question(s) that follow, based on that coding pattern/rule.

EXAMPLES

✍ **BASED ON VERTICAL RELATION** :

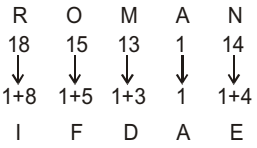


Ex.1. In a certain code language, **'ROMAN'** is written as **'IFDAE'**. How would **'WATER'** be written in that same code?

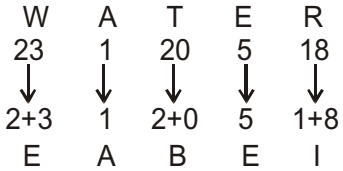
(A) EIABE **(B)** EABEI

(C) IFAEB **(D)** AEBEI

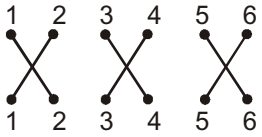
Sol.(B)



Same as,



✍ **BASED ON RELATION IN PAIR :**

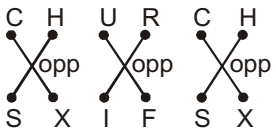


Ex.2. In a certain code language, **'CHURCH'** is code for **'SXIFSX'**, how would **'MANDIR'** be written in that code?

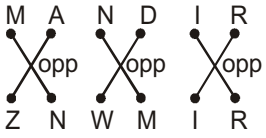
(A) ZWNMRI **(B)** ZWNIMR

(C) ZNWMIR **(D)** ANWMIR

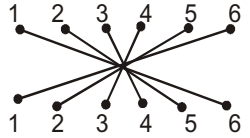
Sol.(C)



Same as,



✍ **BASED ON REVERSE CODING :**

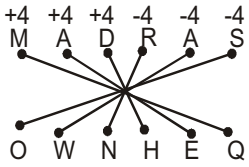


Ex.3. In a certain code language **'MADRAS'** is written as **'OWNHEQ'**. How will **'AFRICA'** be written in that same code ?

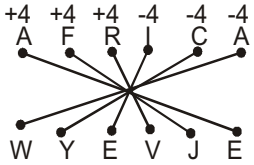
(A) WYEVJE **(B)** EYWJVE

(C) MPJKLM **(D)** WYVEJE

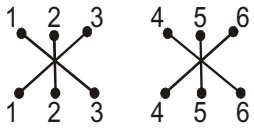
Sol.(A)



Same as,



✍ **BASED ON COMBINED CODING :**

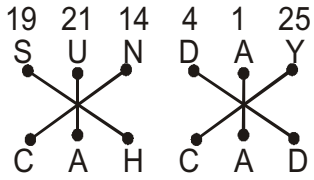


Ex.4. In a certain code language **'SUNDAY'** is written as **'CAHCAD'**. How will **'WAZEER'** be written in that same code ?

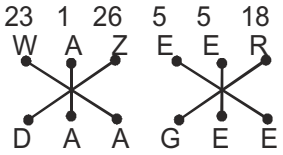
(A) DAAGEE **(B)** ADDEEF

(C) DAGEEA **(D)** AAAGEE

Sol.(A) Each time larger digit - smaller digit



Same as,

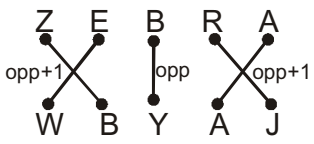


Ex.5. In a certain code language, **'ZEBRA'** is written **'WBYAJ'**. How will **'HORSE'** be written in that same code?

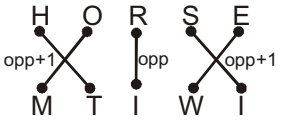
(A) MITIW **(B)** MWITI

(C) MJTKP **(D)** MTIWI

Sol.(D)



Same as,



DIRECT CODING

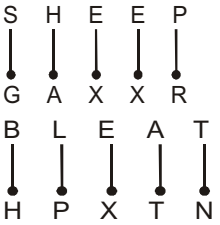
In direct coding system, the code letters or numbers occur in the same sequence as the corresponding letters or numbers occur in the words. This is basically a substitution method.

Ex.6. In a certain code language, **'SHEEP'** is written as **'GAXXR'** and **'BLEAT'** is written as **'HPXTN'**. How will **'SLATE'** be written in that same code?

(A) GPTNX **(B)** GPXNT

(C) GPTXN **(D)** POGXN

Sol.(A) Using direct letter coding method



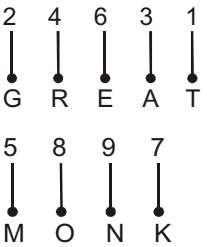
Same as,

Ex.7. In a coding system, **'24631'** is written as **'GREAT'** and **'5897'** as **'MONK'**. How can **'84712'** be written in that same coding system?

(A) ORKTP **(B)** KRTPG

(C) ORKTG **(D)** ORTKG

Sol.(C)



Same as,

NUMBER CODING

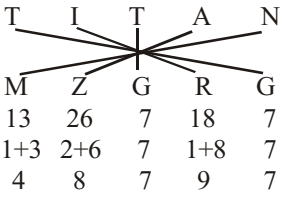
In these types of questions, either numerical code values are assigned to a word or alphabetical code letters are assigned to the numbers.

Ex.8. If **'TITAN'** is coded as **'48797'**, then how will you code **'WATCH'**?

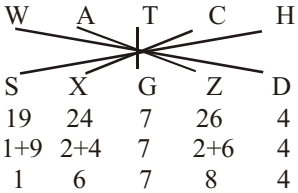
(A) 67841 **(B)** 16784

(C) 34896 **(D)** 16759

Sol.(B) Opposite letter value addition till single digit.



Same as,

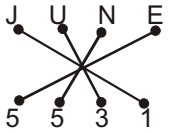


Ex.9. If **'JUNE'** is coded as **'5531'**, then how will you code **'JULY'**?

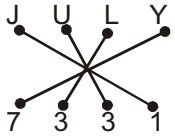
(A) 7613 **(B)** 7321

(C) 7331 **(D)** 1335

Sol.(C) Addition of letter value till single digit.



Same as,



Ex.10. In a certain code, **ROAD** is coded as **34.** How will **STARS** be coded?

(A) 77 **(B)** 72

(C) 73 **(D)** 59

Sol.(B) (18+15+1+4)

R O A D = 38-4 (Because of 4 letter)
= 34

Therefore,
(19+20+1+18+19)

S T A R S = 77-5 (Because of 5 letter)
= 72

Ex.11. In a certain code, **CHINA** is coded as **38951.** How will **HONGKONG** be coded?

(A) 86573657 **(B)** 86573857

(C) 86573659 **(D)** 86572657

Sol.(D) C - 3 Same as, H - 8

H - 8 O - 15 $\Rightarrow$ 1+5 $\Rightarrow$ 6

I - 9 N - 14 $\Rightarrow$ 1+4 $\Rightarrow$ 5

N - 14 $\Rightarrow$ 1+4 $\Rightarrow$ 5 G - 7

A - 1 K - 11 $\Rightarrow$ 1+1 $\Rightarrow$ 2

O - 15 $\Rightarrow$ 1+5 $\Rightarrow$ 6

N - 14 $\Rightarrow$ 1+4 $\Rightarrow$ 5

G - 7

Ex.12. In a certain code, **POND** is coded as **18192012.** How will **STARS** be coded?

(A) 212472429 **(B)** 212472629

(C) 112472428 **(D)** 212462629

Sol.(B) 16 15 14 4

P O N D

+2 +4 +6 +8

18 19 20 12

Same as,

19 20 1 18 19

S T A R S

+2 +4 +6 +8 +10

21 24 7 26 29

SUBSTITUTIONAL CODING

In this type of questions, some particular names are given to certain objects.

Ex.13. If **'eye'** is called **'hand', 'hand'** is called **'mouth', 'mouth'** is called **'ear', 'ear'** is called **'nose',** and **'nose'** is called **'tongue'.** With which of the following would a person hear ?

(A) eye **(B)** mouth

(C) nose **(D)** ear

Sol.(C) Here answer should have been ear which is coded with nose.

Ex.14. In a certain code language, **'786'** means **'study very hard', '958'** means **'hard work pays'** and **'645'** means **'study and work'**. Which of the following is the code for **'very'**?

(A) 8 **(B)** 6

(C) 7 **(D)** 9

Sol.(C) In the first and second statements, the common code digit is '8' and the common word is 'hard'. So, '8' means 'hard'. In the first and third statements, the common code digit is '6' and the common word is 'study'. So, '6' means 'study' and 7 means 'very'.

EXAMPLE (15-18) :

In a certain code **"Global Recession is Critical phase"** is written as **"su zu ti ra mo", "Recession Affects Economy"**

is written as **"chi mo nic", Global Economy Going Down"**, is written as **"fa nic ti ye", "Hiked Rates Down Growth",** is written as **"phi ye koo da"**, and **" Critical Rates"** is written as **" su phi".**

Ex.15. What is code for **'phase".**

(A) su **(B)** zu

(C) ra **(D)** Either zu or ra

Sol.(D) Either zu or ra

Ex.16. What does **"fa"** stand for?

(A) Global **(B)** Down

(C) Economy **(D)** Going

Sol.(D) Going

Ex.17. Which of the following is represented by the code **"mo ye su phi"?**

(A) Economy is Critical Down.

(B) Recession Affects Down.

(C) Critical Recession Down Rates

(D) Down Economy Growth Rates

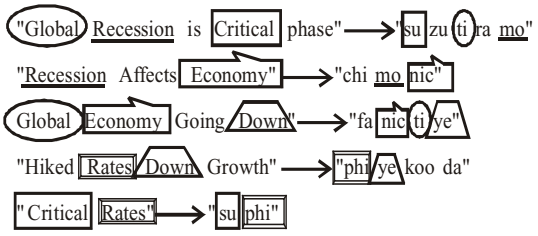
Sol.(C) Critical Recession Down Rates

Ex.18. Which of the following is code for **"Critical Rates Affects Growth"?**

(A) koo da phi chi **(B)** ti da zo chi

(C) phi su da chi **(D)** su phi chi da

Sol.(D) su phi chi da (Hiked/Growth-da/koo)



SOME OTHER DIFFERENT QUESTIONS :

Ex.19. If **SUN = 26** and **GPL = 11**, then what will be code of **SKT** in that coding language?

(A) 10 **(B)** 11

(C) 12 **(D)** 13

Sol.(A) 19 + 21 - 14

S U N = 26

7 + 16 - 12

G P L = 11

Same as,

19 + 11 - 20

S K T = 10

Ex.20. If **UNION** is coded **WLKQL,** then what will be code of **PERSON** in that coding language?

(A) NCPQQL **(B)** NGPQOL

(C) NGPQQL **(D)** PGNQQL

Sol.(C)

U	N	I	O	N
+2	-2	+2	+2	-2
W	L	K	Q	L

Same as,

P	E	R	S	O	N
-2	+2	-2	-2	+2	-2
N	G	P	Q	Q	L

Vowel +2

Consonent -2

EXAMPLE (21-25) :

If **SAT** will be added in the **ARS** then answer will be **RTS** in a coded language. If none of them will be coded as 1,3,4,6,7,9 then answer the following?

SAT
+ARS
RTS

Ex.21. What is code for **"T"?**

(A) 0 **(B)** 2

(C) 5 **(D)** 8

Sol.(A) 0

Ex.22. What is code for **"AA"?**

(A) 88 **(B)** 55

(C) 33 **(D)** 22

Sol.(D) 22

Ex.23. What is code for **"SAT"?**

(A) 205 **(B)** 520

(C) 105 **(D)** 810

Sol.(B) 520

Ex.24. What is code for **"RAT"?**

(A) 420 **(B)** 028

(C) 820 **(D)** 520

Sol.(C) 820

Ex.25. What is code for **"ARS"?**

(A) 205 **(B)** 280

(C) 582 **(D)** 285

Sol.(D) 285

Sol.21-25.

S(5)	A(2)	T(0)
+A(2)	R(8)	S(5)
R(8)	T(0)	S(5)

EXAMPLE (26-29) :

In a certain code, letters of English alphabet are coded as given for some words. The numeric code for each letter is given in bracket under coded form and corresponds to the letter in the word in the same serial order.

Study the coded forms of the given words and find out the rules for their codification.

Applying those rules to find out the code for the words in the following questions-

Codes of words

Words	**Codes**
ATE	(0) (5) (0)
NONE	(5) (25) (5) (25)
UNIT	(30) (5) (30) (5)
PIN	(5) (10) (5)
PAGE	(5) (25) (5) (25)
OPEN	(30) (5) (30) (5)
ONE	(0) (5) (0)
CUT	(5) (10) (5)
SEAT	(5) (15) (15) (5)
DEEP	(5) (20) (20) (5)

Ex.26. VINA

(A) (5) (0) (5) (15) **(B)** (5) (25) (5) (25)

(C) (5) (30) (5) (30) **(D)** (5) (10) (5) (30)

Sol.(B)

Ex.27. AGE

(A) (0) (15) (0) **(B)** (15) (15) (15)

(C) (0) (10) (10) **(D)** (0) (5) (0)

Sol.(D)

Ex.28. NEAR

(A) (5) (20) (20) (5) **(B)** (5) (25) (5) (25)

(C) (5) (15) (15) (5) **(D)** (5) (10) (5) (10)

Sol.(C)

Ex.29. ROOF

(A) (30) (5) (30) (5) **(B)** (5) (25) (5) (25)

(C) (5) (20) (20) (5) **(D)** (5) (15) (15) (5)

Sol.(C)

Sol.26-29. If words $\begin{Bmatrix} \text{ATE} \\ \text{ONE} \end{Bmatrix}$ have two vowels at the same positions then they are coded by (0), (5), (0).

If words $\begin{Bmatrix} \text{PIN} \\ \text{CUT} \end{Bmatrix}$ have one vowel at the same positions then they are coded by (5), (10), (5)

If words $\begin{Bmatrix} \text{NONE} \\ \text{PAGE} \end{Bmatrix}$ have two vowels at the same positions then they are coded by (5) (25) (5) (25)

If word $\begin{Bmatrix} \text{UNIT} \\ \text{OPEN} \end{Bmatrix}$ have two vowels at the same positions then they are coded by (30) (5) (30) (5)

Ex.30. If **MONOTONOUS** is coded as 7784 then what is coded of **SUPPORTERS**?

(A) 7780 **(B)** 8780 **(C)** 8587 **(D)** 8785

Sol.(B) MONOTONOUS

13+15+14+15+20 = 77

15+14+15+21+19 = 84

SUPPORTERS

19+21+16+16+15 = 87

18+20+05+18+19 = 80

NOTES

EXERCISE

Q.1. In a certain code **'SAPLING'** is written as **'UKZNMRI'**. How will **'GLACIER'** be written as.
(A) IZOEVRT **(B)** ZOIEVRT
(C) INCEKGT **(D)** ZOEIRVT

Q.2. If in a certain code language, **'FRIEND'** is written as **'ETKDPF'**, then how will **'REVEAL'** be coded in that language ?
(A) LAEVER **(B)** VERQLM
(C) QXGCDN **(D)** QGXDCN

Q.3. If in a certain code language **ADVENTURE** is written as **BFYISZBZN** then what will be code for **COUNTRY** in the same language?
(A) DPVOUSZ **(B)** DQXRYXF
(C) EQWPVTA **(D)** BNTMSQX

Q.4. If **CARING** is code as **EDVGKC** and **SHARES** is coded as **UKEPBO** how will **CASKET** be coded as in the same code?
(A) EDWIAP **(B)** EDWPAI
(C) EDWIBP **(D)** EDWIBQ

Q.5. In a code language **READER** is written as **REDAER** then in the same code language how will **PRIMER** be written?
(A) REMIRP **(B)** PRMIER
(C) REPRIM **(D)** PRMIRP

Q.6. In a certain code language **STAMPEDE** is written as **PESTAMDE** then how will **TAMPERED** be written in same code?
(A) RETAMPDE **(B)** ERTAMPDE
(C) ERTAMPED **(D)** RETAMPED

Q.7. In a certain code language **MENTION** is written as **LNEITNO** then how will **PATTERN** be written in the same language?
(A) OTAETNR **(B)** PTAENTR
(C) APTTREN **(D)** APTAETN

Q.8. If in a certain code language **PARENT** is written as **BDFGJK** and **CHILDREN** is written as **MOXQUFGJ** then how will **REPRINT** be written in same language?
(A) FGBFXGD **(B)** BGBFXJK
(C) FGBUXJK **(D)** FGBFXJK

Q.9. If **TORTOISE** is written as **VQTVQKUG** then how will **ELEPHANT** be in same language?
(A) GRJPVNOR **(B)** RNRQGCOV
(C) GNGRJCPV **(D)** GRJCPVGN

Q.10. In a certain code language following numbers are coded by some symbols -
1 2 3 4 5 6 7 8 9
⊓ ¬ || ☰ ∧ ∨ ÷ × ◊
Which number will be for following symbols?
× ☰ ◊ ∧ ÷
(A) 84975 **(B)** 84957
(C) 84597 **(D)** 84795

Q.11. If **'MACHINE'** is coded as **19-7-9-14-15-20-11,** then how will you code **'DANGER'** in the same code?
(A) 11-7-20-16-11-24 **(B)** 13-7-20-9-11-25
(C) 10-7-20-13-11-24 **(D)** 13-7-20-10-11-25

Q.12. In a certain code language **'POWER'** is written as **'61452'** and **'COULD'** is written as **'81379'**. How will the word **'COUPLE'** be written in that code language?
(A) 913765 **(B)** 831657
(C) 813675 **(D)** 813567

Q.13. If **A = 26**, **SUN = 27**, then **CAT** = ?
(A) 29 **(B)** 27 **(C)** 57 **(D)** 58

Q.14. In a certain code language **'IRACUND'** is written as **'#4?v×=+'** and **'RUSTLER'** is written as **'4=&68*4'**. How is **'DISCERN'** written in that code language?
(A) +#&6*4= **(B)** ?#&v*48
(C) +#&v*4= **(D)** ?8@v*48

Q.15. In a certain code language **SOLEMN** is written as **HDAEBC**. How is **POTHER** written in that code language?
(A) EDBHEG **(B)** GFBHEI
(C) GFBHEN **(D)** KLGSVI

Q.16. In a certain code language **BUTTER** is written as **UTTREB** and **HONESTY** is written as **YTSONHE**. How is **INTRODUCE** written in that code language?
(A) NIEDEDBHE **(B)** UTRDGFBHE
(C) UTRDCONIE **(D)** UTRONIEDC

Q.17. In a certain code language **'ADUMBRATE'** is written as **'143429125'** and **'ADVOCACY'** is written as **'14463137'**. How is **'ADJURATION'** written in that code language?
(A) 1412965391 **(B)** 1296413915
(C) 1413912965 **(D)** 1413951296

Q.18-20. In a certain code 'dew coco ring' is written as '6 5 1', 'coco ring wings' is written as '9 5 6', 'wings and coco' is written as '2 6 9' and 'and dew power' is written as '2 4 1'.

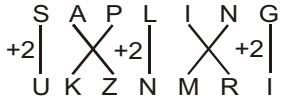
Q.18. What is the code for **'coco'**?
(A) 9 **(B)** 6 **(C)** 2 **(D)** 5

Q.19. What is the code for **'wings'**?
(A) 2 **(B)** 6 **(C)** 1 **(D)** 9

Q.20. What does stand for **'5'**?
(A) wings **(B)** ring
(C) dew **(D)** and

EXPLANATION

Q.1.(A)

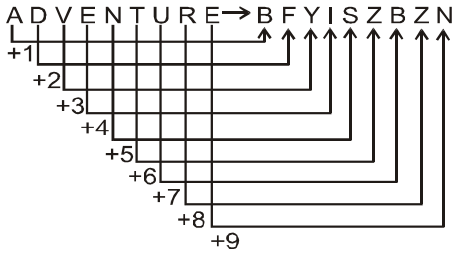


Similarly,

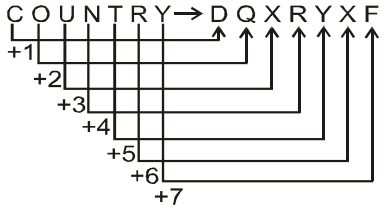
Q.2.(D) As, F $\xrightarrow{-1}$ E, R $\xrightarrow{+2}$ T, I $\xrightarrow{+2}$ K, E $\xrightarrow{-1}$ D, N $\xrightarrow{+2}$ P, D $\xrightarrow{+2}$ F

Similarly, R $\xrightarrow{-1}$ Q, E $\xrightarrow{+2}$ G, V $\xrightarrow{+2}$ X, E $\xrightarrow{-1}$ D, A $\xrightarrow{+2}$ C, L $\xrightarrow{+2}$ N

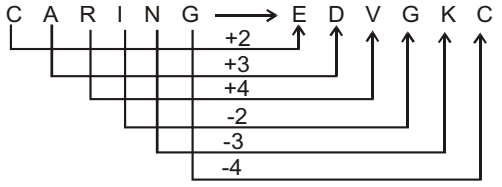
Q.3.(B)

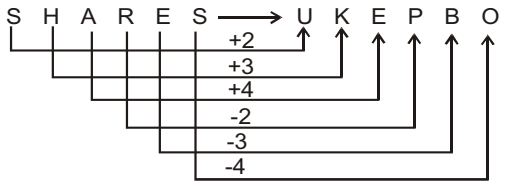


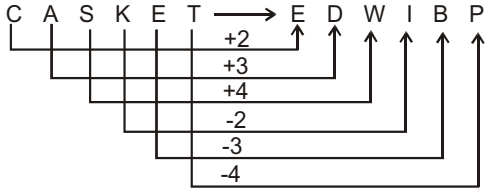
Similarly,



Q.4.(C)







Q.5.(B) **READER → REDAER**

In the above language the 3 and 4 letter interchange their places.

Similarly, PRIMER → PRMIER

Q.6.(C) **As**

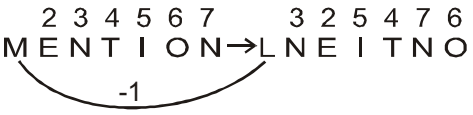
1 2 3 4 5 6 7 8 5 6 1 2 3 4 7 8
STAMPEDE→PESTAMDE

Similarly,

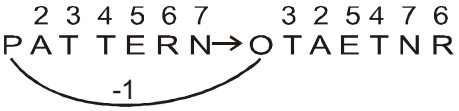
1 2 3 4 5 6 7 8 5 6 1 2 3 4 7 8
TAMPERED→ESTAMPED

As 5 and 6 letter of **STAMPEDE** have been placed at 1 and 2 place respectively. In the same way the 5 and 6 letter of **TAMPERED** will be placed at 1 and 2 place in the code language.

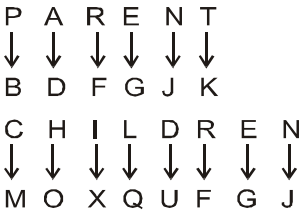
Q.7.(A) **As,**



Similarly,

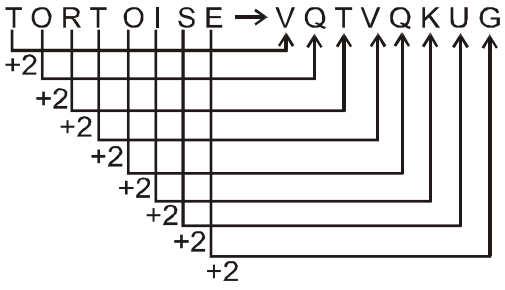


Q.8.(D)



so the code of **REPRINT** will be **FGBFXJK**

Q.9.(C)



similarly +2 wil be added to all the letters of **ELEPHANT** and we will get **GNGRJCPV**

Q.10.(B) **× = 8; ☰ = 4; ◊ = 9; ∧ = 5; and ÷ = 7**

× ☰ ◊ ∧ ÷ = 84957

Q.11.(C) $M \xrightarrow{+6} 19$, $A \xrightarrow{+6} 7$, $C \xrightarrow{+6} 9$, $H \xrightarrow{+6} 14$, $I \xrightarrow{+6} 15$, $N \xrightarrow{+6} 20$, $E \xrightarrow{+6} 11$

Similarly, $D \xrightarrow{+6} 10$, $A \xrightarrow{+6} 7$, $N \xrightarrow{+6} 20$, $G \xrightarrow{+6} 13$, $E \xrightarrow{+6} 11$, $R \xrightarrow{+6} 24$

Q.12.(C)

P O W E R

↓ ↓ ↓ ↓ ↓

6 1 4 5 2

And

C O U L D

↓ ↓ ↓ ↓ ↓

8 1 3 7 9

C O U P L E

↓ ↓ ↓ ↓ ↓ ↓

8 1 3 6 7 5

Q.13.(C) A → 26 and S → 8 Smilarly,

C → 14

U → 6

A → 26

N → 13

T → 7

8+6+13 = 27, 24 + 26 + 7 = 57

Note : Each letter is coded in opposite sequece.

Q.14.(C) 'I R A C U N D'

'# 4 ? v × = +'

'R U S T L E R'

'4 = & 6 8 * 4'

'D I S C E R N'

+ # & v * 4 =

Q.15.(A)

S O L E M N

↓ ↓ ↓ ↓ ↓ ↓

19 15 12 5 13 14

↓ ↓ ↓ ↓ ↓ ↓

1-9 1-5 1-2 5-0 1-3 1-4

↓ ↓ ↓ ↓ ↓ ↓

H D A E B C

Similarly,

P O T H E R

↓ ↓ ↓ ↓ ↓ ↓

16 15 20 8 5 18

↓ ↓ ↓ ↓ ↓ ↓

1-6 1-5 2-0 8-0 5-0 1-8

↓ ↓ ↓ ↓ ↓ ↓

E D B H E G

Q.16.(D)

All letters are arranged in Z – A.

Q.17.(C)

A D U M B R A T E

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

1 4 3 4 2 9 1 2 5

and

A D V O C A C Y

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

1 4 4 6 3 1 3 7

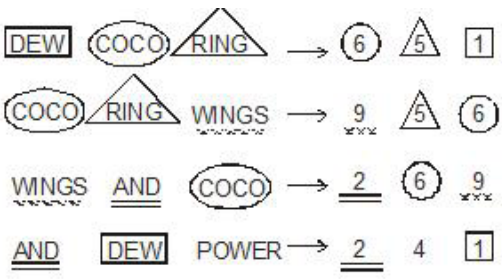
Similarly,

A D J U R A T I O N

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

1 4 1 3 9 1 2 9 6 5

Q.18-20.



Q.18.(B)

Q.19.(D)

Q.20.(B)

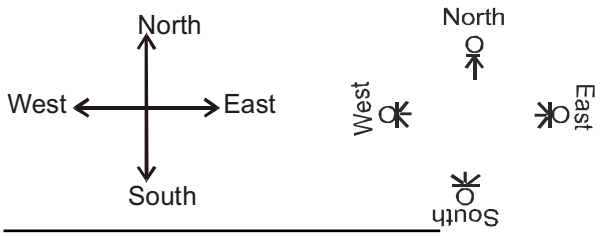
CHAPTER-3
DIRECTION AND DISTANCE

Scan the QR code to get video of this chapter.

In this test, the questions consist of a sort of direction puzzle. A successive follow-up of directions is formulated and the candidate is required to ascertain the final direction on the distance between two points. **The test is meant to judge the candidate's ability to trace and follow correctly and sense the direction correctly.**

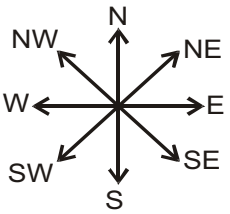
There are four main directions :

North, East, South, West

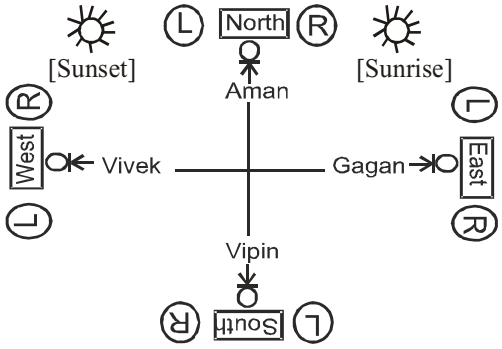


There are four subordinate directions:

North-East (N-E), South-East (S-E), South-West (S-W) and North-West (N-W) these are also called subdirection and these subdirections are between prime directions like NE is between North and East, SE is between South and East and so on,.....



DIRECTION BASED ON SHADOW



Key Factors:

- At the time of sunrise shadow of an object will always be towards west.
- At the time of sunset the shadow of an object is always in the east.
- If a man is standing and facing North at the time of sunrise his shadow will be towards his left and at the time of sunset it will be towards his right.
- At 12 : 00 noon, the rays of the sun are vertically downward hence there will be no shadow.

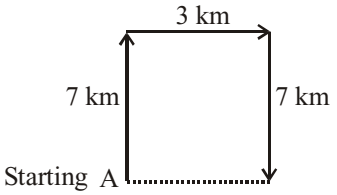
EXAMPLES:

Ex.1. Shyam travels 7 km. North, then he turn to his right and walks 3 km. He again turns to his right and moves 7 km forward. Now in which direction is he from his starting point?

(A) North **(B)** South

(C) East **(D)** West

Sol.(C)



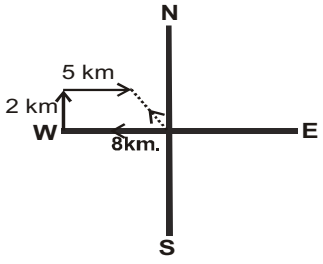
A = starting poiting

Ex.2. Khan moves 8 Km. from East to West direction, then he turn to his right and moves 2 km. Again he turn to his right and moves 5 km. In which direction he is from his starting point.

(A) South-East **(B)** North-West

(C) West **(D)** North

Sol.(B)



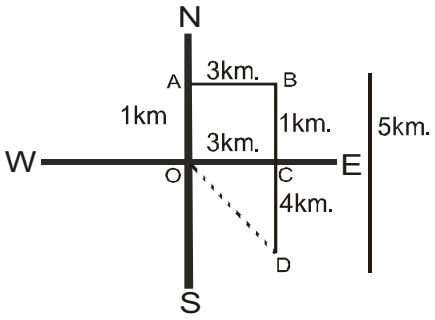
From the diagram clearly we see that khan is in North-West direction from his starting point.

Ex.3. A person starting from a point and moves 1 km towards North direction, then he turns to his right and moves 3 km. Again he turns to his right and moves 5 km. In which direction and how far is he from his starting point ?

(A) 4 km North **(B)** 5 km North-East

(C) 4 km East **(D)** 5 km South-East

Sol.(D)



A person starting from O and ends to D point.

OC = AB = 3 Km.

CD = BD - BC = 5 - 1 = 4 Km.

$OD^2 = OC^2 + CD^2$

$= 3^2 + 4^2 = 9 + 16 = 25$

$OD^2 = 25$, $OD = \sqrt{25} = 5$ km.

Finally he is 5 Km in South-East direction from point O.

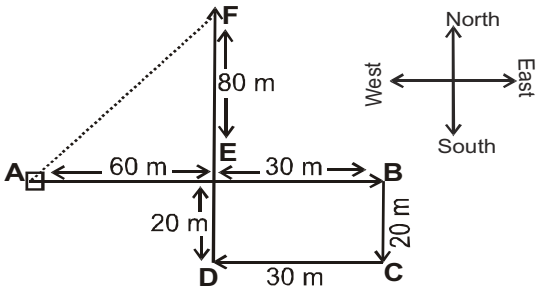
5 km South-East

Ex.4. A child is looking for his father. He went 90 metres in the east before turning to his right. He went 20 metres before turning to his right again to look for his father at his uncle's place 30 metres from this point. His father was not there. From there he went 100 metres to his north before meeting his father in a street. Now how far he is from his starting point?

(A) 80 m **(B)** 100 m

(C) 260 m **(D)** 140 m

Sol.(B)



Required distance = AF = $\sqrt{(80)^2 + (60)^2}$

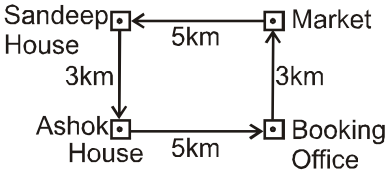
$\sqrt{6400 + 3600} = \sqrt{10000} = 100$m

Ex.5. Ashok wants to book a ticket to Madhurai. He starts and covers 5 km to reach the Booking Office which is in the East of his house. From there he turns to the North towards the market by travelling 3 km. From there he turns left to his friend Sandeep's house which is 5 km away. Now he has to reach his house. How many km he has to cover to reach his house?

(A) 8 km **(B)** 3 km

(C) 5 km **(D)** 6 km

Sol.(B)



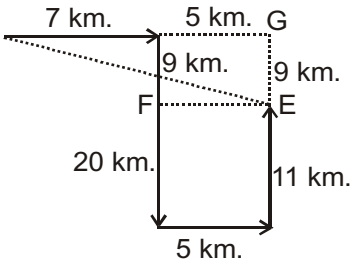
Required distance = 3 km

Ex.6. Lucky walks 7 km in the east then he turns to his right and moves 20 km then he turns to his left and moves 5 km then again he turns to his left and moves 11 km. Now in which direction is he from his starting point and how far?

(A) 9 km South **(B)** 64 km East

(C) 15 km South-East **(D)** 7 km South

Sol.(C)



$AE^2 = AG^2 + GE^2 = 12^2 + 9^2$

$= 144 + 81 = 225$

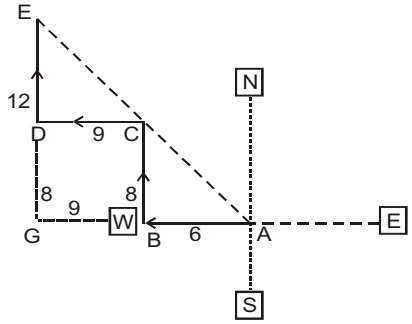
AE = 15 km.,South-East

Ex.7. Dinesh walks 6 km in the West then he turns to his right and moves 8 km then he turns to his left and moves 9 km then turns to right and moves 12 km. Now in which direction is he from his starting point and how far?

(A) 15 North-East **(B)** 35 South-West

(C) 25 North-West **(D)** 45 South-Eest

Sol.(C)



$\therefore$ BC = 8 km. $\therefore$ DG = 8 km.

GB = 9 km. DC = 9 km.

GE = 20 km. AG = 15 km.

$EA = \sqrt{(20)^2 + (15)^2} = \sqrt{400 + 225}$

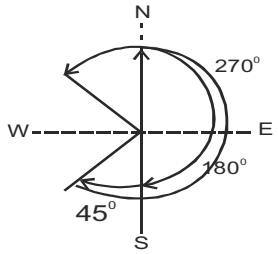
$= \sqrt{625}$ = 25 km. (North West)

Ex.8. A man is facing North. He turns to 180^0 in clockwise direction and another 45^0 in the same direction and then 270^0 in the anticlockwise direction. In which direction is he facing now ?

(A) South-West **(B)** South-East

(C) North-East **(D)** North-West

Sol.(D)



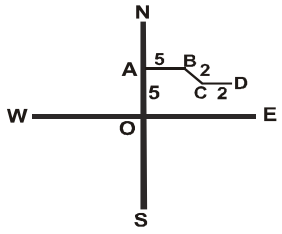
Final Direction is North-West. Degrees can only be judged towards the direction in which a person is facing instead of the path covered by him.

Ex.9. A man moves 5 km towards North from any point, then he turn to his right 90^0 and moves 5 km, then he turn to his right 45^0 and moves to 2 km. Finally he turn to his left 45^0 and moves 2 km in which direction he is facing now.

(A) South **(B)** South-East

(C) East **(D)** South-West

Sol.(C)



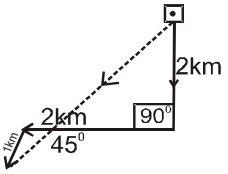
A person starting from O and his end point is D from the diagram he is facing in East direction.

Ex.10. Karan facing towards south moved straight 2 km and from there turned to his right 90^0 and travelled 2 km. Then he took a 45^0 turn to his left and travelled 1 kms. Where is he now from his starting point?

(A) South **(B)** South-East

(C) North-West **(D)** South-West

Sol.(D)



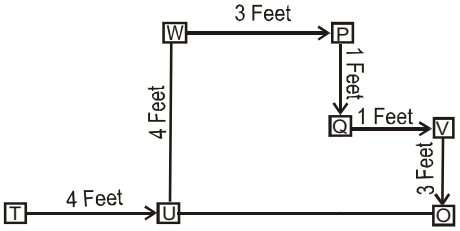
Karan is in South-West with respect to his starting point.

Ex.11. Mira started her journey from point T, and walks straight to point U which is 4 feet away. She turns left, at 90^0 and walks to W which is 4 feet away, than she turns 90^0 right and goes 3 feet to point P. Then she turns 90^0 right and walks 1 feet to point Q. Then she turns left at 90^0 and goes to point V, which is 1 feet away and once again she turns 90^0 right and goes to point O, which is 3 feet away. What is the distance between T and O?

(A) 4 feet **(B)** 5 feet

(C) 7 feet **(D)** 8 feet

Sol.(D)



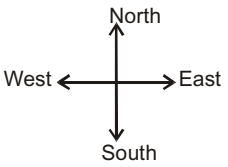
Required distance = (4 + 3 + 1) Feet = 8 feet.

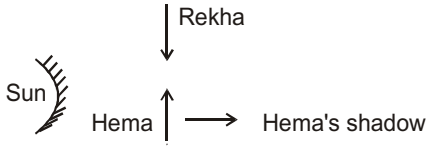
Ex.12. One evening before sunset Rekha and Hema were talking to each other face to face. If Hema's shadow was exactly to the right of Hema, which direction was Rekha facing ?

(A) North **(B)** South

(C) East **(D)** Data is inadequate

Sol.(B)





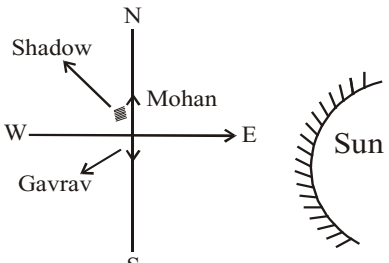
Shadow in the evening.

Ex.13. One morning after Sunrise Mohan and Gaurav were standing opposite to each other. Mohan's shadow fell exactly on his left. Toward which direction does Gaurav facing .

(A) South **(B)** North

(C) West **(D)** Can't be determined

Sol.(A)



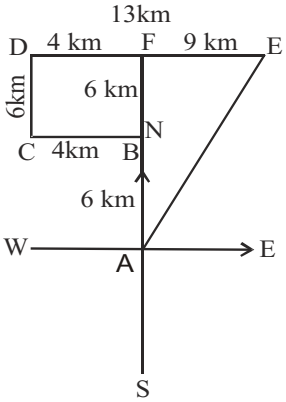
After Sunrise

Ex.14. In an evening when Suraj started walking from his house, his shadow was exactly towards his right. He walked 6 km. Then he turnes to his left and moved 4 km. Again he turns to his right and walked 6 km. Then he turned to his right and moved 13 km. How far is he and in which direction from the starting point ?

(A) 15 km North-East **(B)** 15 km North

(C) 15 km South-East **(D)** 16 km South

Sol.(A)



AF = AB + CD = 6 + 6 = 12 km

FE = DE - BC= 13 - 4= 9 km

EA= $\sqrt{AF^2 + EF^2} = \sqrt{12^2 + 9^2}$

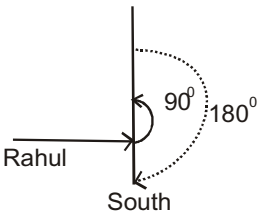
= $\sqrt{144 + 81} = \sqrt{225}$ =15 km

Ex.15. Rahul is facing East direction. He turn to 90^0 anti clockwise.Then he turn 180^0 clockwise. In which direction is he facing now?

(A) South **(B)** West

(C) East **(D)** North

Sol.(A)

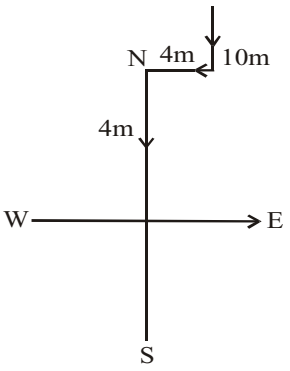


Ex.16. In morning Sobhit cover 10 metres and turn to his right and covers 4 metres then he turn in his left and covers 4 metres. At this time his shadow in his left. Then in which direction he started his journey ?

(A) North-East **(B)** North

(C) South **(D)** East

Sol.(B)

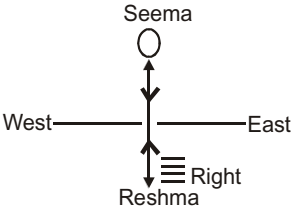


Ex.17. One Evening before sunset two friends Reshma and Seema were talking to each other face to face. If Reshma's shadow was exactly to her right side, which direction was Seema facing?

(A) North **(B)** West

(C) South **(D)** East

Sol.(C)



EXERCISE

Q.1-2. Ramu walks 2 km towards north then turns towards his right and walks 4 km then again he turns towards his right and walks 4 km finally he turns towards his right and walks another 4 km.

Q.1. Now in which direction Ramu is facing?

(A) East **(B)** North
(C) South **(D)** West

Q.2. How far Ramu is from his starting point?

(A) 2 km **(B)** 4 km
(C) 6 km **(D)** 8 km

Q.3. Roy walks 2 km towards east then he turns towards north-west and walks 3 km then he turns towards south and walks 5 km again then he again turns towards west and walks 2 km. Finally he turns towards north and walks 6 km. In which direction he is from starting point?

(A) South-west **(B)** South-east
(C) North-west **(D)** North-east

Q.4. X and Y start walking from a point O. X walks in north direction and Y in south direction 5 km each then both turned towards east and walked 2 km. How far X is from Y?

(A) 5 km **(B)** 10 km
(C) 15 km **(D)** 20 km

Q.5. Babu is neighbour of Rahim and his house is 200 m north-west. Joseph is neighbour of Rahim and his house is 200 m south-west. Gopal is neighbour of Joseph and he lives 200 m south-east. Roy is neighbour of Gopal and his house is 200 m north-east. House of Roy is in which direction with respect to house of Babu?

(A) South-East **(B)** South-West
(C) North **(D)** North-east

Q.6. A driver started waking from his village after walking 20 km north for refreshment then he turns towards his left and walks 30 km and stops for lunch after taking rest for some time he turns towards his left and before taking tea break he walks 20 km then he again turns towards his left and walks 30 km and then he reached to a village where he have to take dinner. After taking tea in which direction he walks?

(A) West **(B)** East
(C) North **(D)** South

Q.7. Atul walked 10 km towards south direction and turned his left and walked 10 km. After he turn 90^o clockwise and walked 20 km. after he turned 130^o clockwise and walked 20 km after than he turned 180^o anticlockwise and walked 10 km. Now in which direction he is facing.

(A) North-East **(B)** South-West
(C) North-West **(D)** South-East

Q.8. Harish walks 8 kms towards the east and turn right and walk 5 kms. He again turns left and walks 4 kms and at the end he again turn left and walk 5 kms. Find how far is he standing from the starting point?

(A) 6 km **(B)** 9 km
(C) 12 km **(D)** 15 km

Q.9. A girl leaves her home. She first walks 30 meters in north - west direction and then 30 meters in south - west direction. Next, she walks 30 meters in south - east direction. Finally, she turns towards her house. In which direction is she moving?

(A) South - East **(B)** South - West
(C) North - East **(D)** North - West

Q.10. Abhishek walks 10 km towards north. From there he walk 6 km towards south. Then, he walks 3 km. towards east. How far and in which direction is he with reference to his starting point?

(A) 5 km, West **(B)** 7 km, West
(C) 9 km, East **(D)** 5 km, North – East

Q.11. Y is to the east of X, which is to the north of Z. If P is to the south of Z, then Y is in which direction with respect to Z?

(A) North-East **(B)** East
(C) North **(D)** South-East

Q.12-13. Study the following information carefully and answer the given question:

(I) There are 6 check - posts A, B, C, D, E and F.
(II) Check - post F is 25 km to the north of D which is 35 km to the north-east of B.
(III) Check - post A is 15 km west of E and 35 km to the south - west of 'C'.
(IV) B, A and E are in straight line.
(V) The check posts B and E are 70 km apart from each other.
(VI) E is the east of B.

Q.12. Which check post is the farthest to the south-west of D?

(A) A **(B)** B
(C) C **(D)** D

Q.13. Which post is the nearest to the north - east of E?

(A) A **(B)** B
(C) C **(D)** D

Q.14. Sunil was facing east. He turns 100^o in the clockwise direction and then 145^o in the anti clockwise direction. Which direction is he facing now?

(A) East **(B)** North
(C) South west **(D)** North east

Q.15. If south east becomes north, north east becomes west and direction change similarly. What east becomes.
(A) South **(B)** South -East
(C) North - East **(D)** North-West

Q.16. In evening Sobhit cover 8 metres and turn to left and covers 10 metres and turn to his right and covers 4 metres then he turn in his left and covers 4 metres. At this time his shadow in his left. Then in which direction he started his journey ?
(A) North-East **(B)** North
(C) South **(D)** West

Q.17. One morning two friends Reshma and Seema were talking to each other face to face. If Reshma's shadow as exactly to her back side, which direction was Seema facing?
(A) North **(B)** West
(C) South **(D)** East

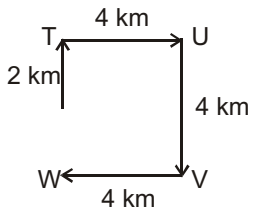
Q.18. Rahul and Ravi are coming from opposite direction face to face. They walk 5 km and have reached the same point. Rahul turns left from that point and walks 9 km and Ravi turns right from that point and walks 12 km. How far are they from each other?
(A) 6 km **(B)** 4 km **(C)** 3 km **(D)** 2 km

Q.19. Someone starts from a point G and walks 10m towards east then takes a left turns and walks 15m. Again he turns right and walks 10m. How far and in which direction is he from his starting point?
(A) 39 m **(B)** 25 m
(C) 21 m **(D)** 30 m

Q.20. Mohan walks towards the south. After walking 5 meters he turns towards the east and walks 2 meters. He then turns towards the west and walks 10 m. How far is he from his starting point and in which direction? (Approx.)
(A) 9 m, South-west **(B)** 12 m, South-west
(C) 15 m, South **(D)** 19 m, West

EXPLANATION

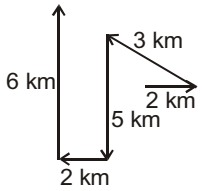
Q.1-2.



Q.1.(D) As per diagram Ramu will be facing towards West.

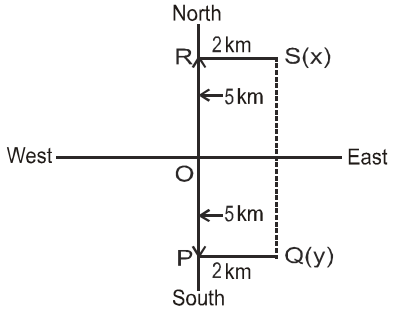
Q.2.(A) As per diagram Ramu will be at 2 km distance from initial point.

Q.3.(C)

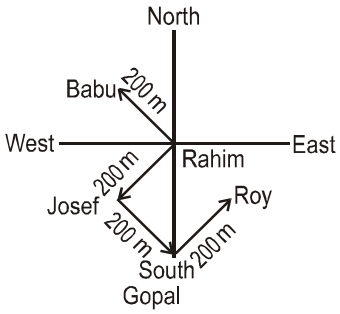


Q.4.(B) According to question X and Y walk to reach at S and Q respectively which is at

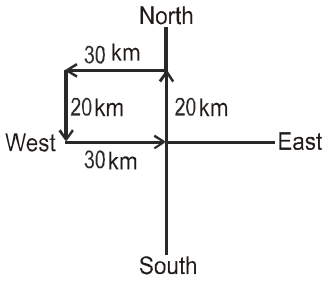
5+5 = 10 km. distance.



Q.5.(A) It is clear from the diagram that Roy's house is situated in the south-east of the house of Babu.

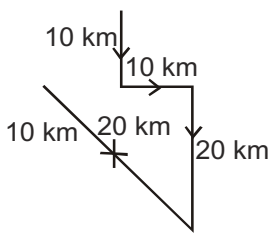


Q.6.(B)

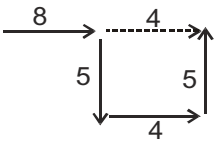


It is clear from the diagram that driver moved towards east after Tea.

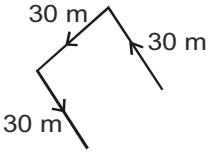
Q.7.(D)



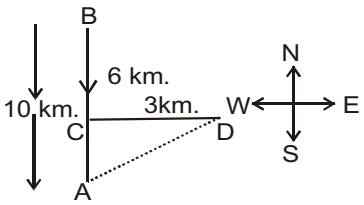
Q.8.(C)



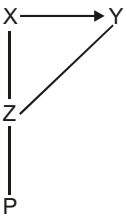
Q.9.(C)



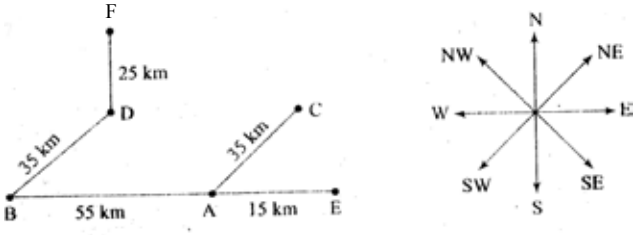
Q.10.(D)



Q.11.(A)



Q.12-13.



The total distance covered will be 15 + 55 + 35 + = 130 km.

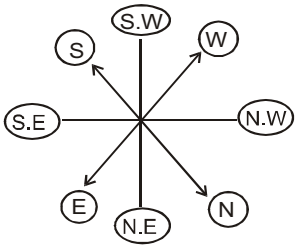
Q.12.(B)

Q.13.(D)

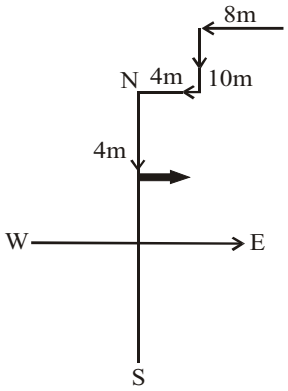
Q.14.(D) The constant movement will be (145 - 100)

= 45° in anti clockwise direction. This leads to the middle of east and north i.e North- East.

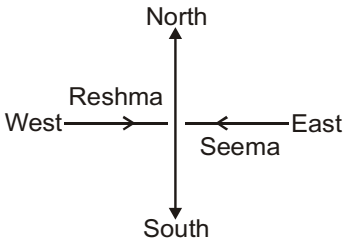
Q.15.(D)



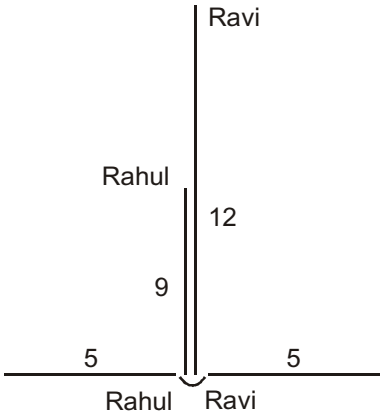
Q.16.(B)



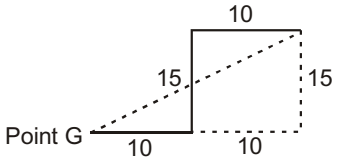
Q.17.(A)



Q.18.(C)

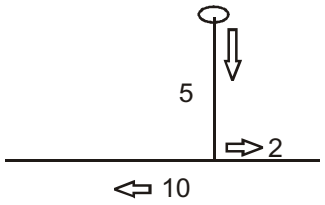


Q.19.(B)



$= \sqrt{20^2 + 15^2} = \sqrt{625} = 25$

Q.20.(A)



CHAPTER-4
ORDER AND RANKING

Scan the QR code to get video of this chapter.

In this chapter generally the rank of a person from both end's, left and right or from top and from bottom are mentioned and questions are asked on these information. Sometimes the questions are based on interchange of position.

EXAMPLES

Ex.1. Shrini is taller than Anlu and Raghu is taller than Chandru but shorter than Vrinda. Shrini is shorter than Chandru so who is the tallest among them?

(A) Shrini **(B)** Chandru

(C) Raghu **(D)** Vrinda

Sol.(D) Vrinda > Raghu > Chandru > Shrini > Anlu

Ex.2. Kathir is older than Ganesha, Ganesha is older than Apparu, Apparu is younger than Raju, Raju is younger than Ganesha, than who among them is the oldest.

(A) Ganesha **(B)** Kathir

(C) Raju **(D)** Apparu

Sol.(B) Kathir > Ganesha > Apparu < Raju

Raju < Ganesha

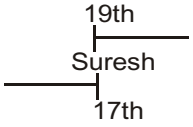
Kathir > Ganesha > Raju > Apparu

Ex.3. In a row Suresh is 17th from left and 19th from right then what is the total number of candidate in that row?

(A) 35 **(B)** 36

(C) 38 **(D)** 29

Sol.(A)



(19+17)–1 = 36–1 = 35

QUICK TRICK

If rank of a person is given from both side then

Total number = $(R_L + R_R) - 1$

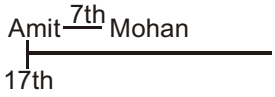
So, (17 + 19) -1 = 35

Ex.4. In a row Mohan is 7th to the right of Amit who is 17th from right end. What is rank of Mohan from right side of the row?

(A) 24 **(B)** 10

(C) 23 **(D)** 9

Sol.(B)



QUICK TRICK

If ends of both rank is same then

(Base rank - Reference rank)

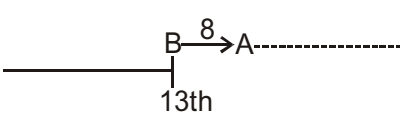
17 - (7) = 10 right (end of base rank)

Ex.5. In a row of 50 students A is 8th to the right of B who is 13th from left end what is rank of A from right side of the row?

(A) 21 **(B)** 20

(C) 30 **(D)** 29

Sol.(C)



QUICK TRICK

If ends of both rank is opposite then addition of both rank

Left rank + Right rank

8th right + 13th left = 21 left (side of base rank)

Rank conversion (Total + 1) - (Given rank)

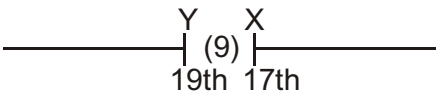
So, (50+1) - (21 left) = 30 from right side

Ex.6. In a row of 45 candidates X is 17th from right and Y is 19th from left then how many candidates are there between X and Y?

(A) 10 **(B)** 8

(C) 11 **(D)** 9

Sol.(D)



QUICK TRICK (Simple Case)

Mid Number = (Total) - (R_L+R_R)

= (45) - (19+17) = 9

QUICK TRICK (Overlap Case)

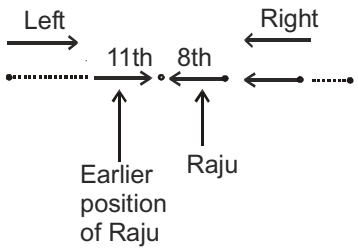
Mid Number = (R_L+R_R) - (Total+2)

Ex.7. In a row of 15 children, when Raju was shifted three places towards right, he becomes 8th from the right end. What was his earlier position from the left end in the row?

(A) 14 **(B)** 5

(C) 6 **(D)** 12

Sol.(B)



Earlier position of Raju = (15 - 11) + 1 = 5

Ex.8. In an examination, Rahul got the 11th rank and he was 47th from the bottom among those who passed. 3 students could not appear for the examination and 1 student was failed. What was the total number of students?

(A) 60 **(B)** 62

(C) 59 **(D)** 61

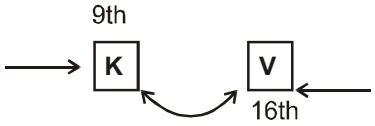
Sol.(D) Number of successful candidates = 11+47-1 = 57, hence total number of students = 57+3+1 = 61

Ex.9. In a row of girls, Kamla is 9th from the left and Veena is 16th from the right. If they interchange their positions, Kamla becomes 25th from the left. How many girls are there in the row?

(A) 34 **(B)** 36

(C) 40 **(D)** 41

Sol.(C)



Total number of girls = (25 + 16) - 1 = 40

Ex.10. Rohan's rank seventh from the top and twenty-sixth from the bottom in a class. How many students are there in the class?

(A) 31 **(B)** 32

(C) 33 **(D)** 34

Sol.(B) Clearly, the whole class consists of:

6 students who have ranks higher than Rohan;

25 students who have ranks lower than

Rohan, (6 + 1 + 25) = 32 student

or, 26 + 7 = 33 - 1 = 32

Ex.11. Manik is fourteenth from the right end in a row of 40 boys. What is his position from the left end?

(A) 24th **(B)** 25th

(C) 26th **(D)** 27th

Sol.(D) Clearly, number of boys towards the left of Manik = (40 - 14) + 1 = 26 + 1 = 27.

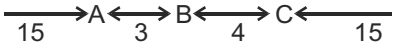
So, Manik is 27th from the left end.

Ex.12. In a row of boys facing North, A is sixteenth from the left end and C is sixteenth from the right end. B, who is fourth to the right of A and fifth to the left of C. Then how many boys are there in a row?

(A) 39 **(B)** 40

(C) 41 **(D)** 42

Sol.(B) Clearly, according to the given conditions, there are *15* boys to the left of A, as well as 15 boys are to the right of C. Also, B lies between A and C such that there are 3 boys between A and B; and 4 boys between B and C.



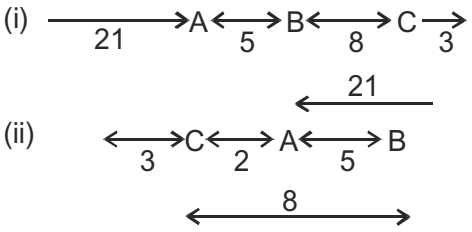
So, number of boys in the row = (15 + 1 + 3 + 1 + 4 + 1 + 15) = 40

Ex.13. Three persons A, B and C are standing in a line. There are five persons between A and B and eight persons between B and C. If there are three persons ahead of C and 21 persons are behind A, then what could be the minimum number of persons in the line ?

(A) 27 **(B)** 28

(C) 40 **(D)** 41

Sol.(B) As per the given conditions, there are two possible arrangements as shown below :



Clearly, for the minimum number of persons, we shall consider arrangement (ii).

In (ii), number of persons in the line

= (3 + 1 + 2 + 1 + 21) = 28.

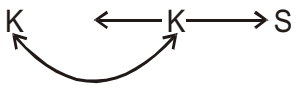
Ex.14. In a row of 40 girls, when Komal was shifted to her left by 4 places, her rank from the left end of the row became 10th. What was the rank of Swati from the right end of the row, if Swati was three places to the right of Komal's original position?

(A) 22 **(B)** 23

(C) 25 **(D)** 24

Sol.(D) On shifting 4 places to the left, Komal is 10th from the left end of the row. Thus, Komal's original position was 14th from the left end.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17



Swati is 3 places to the right of Komal's original position.

Clearly, Swati is 17th from the left end.

Number of girls to the right of Swati

= (40 – 17) +1 = 23 + 1 = 24.

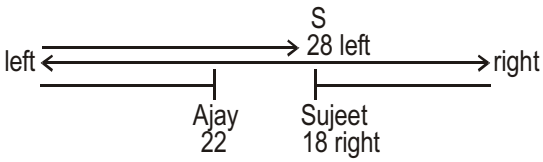
Thus, Swati is 24th from the right end of the row.

Ex.15. Ajay is 22nd from the left and Sujeet is 18th from right and 6th to the right of Ajay in a row, than how many person are sitting in a row?

(A) 44 **(B)** 45

(C) 50 **(D)** 46

Sol.(B)



Clearly, the position of Ajay is 22 from left and Sujeet is 6th place right of Ajay. Now Sujeet place from left is 28th and from right is 18th (T = L + R - 1)

T = (28 + 18) - 1 = 45

Ex.16. Five people A, B, C, D and E read newspaper the person who read first give it to C. The person who read it at last took it from A. E was neither first nor last to read the newspaper. There are two readers between A and B. Find the person who read the newspaper in last?

(A) E **(B)** B

(C) D **(D)** A

Sol.(C) Order → 1 2 3 4 5

Reader → B C E A D

Clearly we see that D read the newspaper at last.

Ex.17-21. In a class of boys and girls position of Swati is 6th from the top and position of Anuj is 12th from the top. If position of Swati is 4th from the top and 9th from the bottom among girls and position of Anuj is 7th from the top and 15th from the bottom among boys. Then answer the following questions.

Ex.17. How many students are there in the class?

(A) 33 **(B)** 22

(C) 24 **(D)** 32

Sol.(A)

Ex.18. How many girls are there in the class?

(A) 10 **(B)** 12

(C) 13 **(D)** 14

Sol.(B)

Ex.19. How many students are sitting between Swati and Anuj?

(A) 3 **(B)** 4

(C) 2 **(D)** 5

Sol.(D)

Ex.20. Maximum how many boys can be exist till position number 11th?

(A) 5 **(B)** 6

(C) 7 **(D)** 8

Sol.(B)

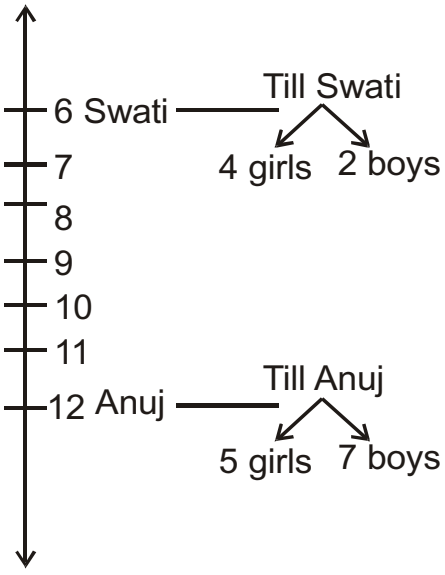
Ex.21. Minimum how many girls can be exist till position number 9th?

(A) 4 **(B)** 3

(C) 8 **(D)** 5

Sol.(A)

Sol.17-21.



Total girls (4 + 9 - 1) = 12

Total boys (7 + 15 - 1) = 21

Total students (12 + 21) = 33

EXERCISE

Q.1. In a row of students, Seema ranks 19th from the right and is 8th to the right of Suman who is 15th from the left. How many students are there in the class?

(A) 41 **(B)** 40 **(C)** 39 **(D)** 42

Q.2. In a row of students, Amit is twenty-fifth from left. Sumit is nineteenth from the right and is sixth to the left of Amit. How many students in a row?

(A) 40 **(B)** 36 **(C)** 37 **(D)** 38

Q.3. In a row of students, Shamita is eighth to the right of Nikita who is twentyone from right. Ravi is tenth to the left of shamita and is 23rd from left. Then how many students are there in the row?

(A) 42 **(B)** 45 **(C)** 48 **(D)** 50

Q.4. In a row of 35 students Rakesh when shifted sixth places towards his right, then he becomes eighteenth from right. Then what was Rakesh's previous position from left before shifting?

(A) 10 **(B)** 13 **(C)** 12 **(D)** 11

Q.5. In the row of 40 students Mahesh is twenty eighth from left and Suresh is twentyfifth from right. If Dinesh is sitting just exactly in between them what will be Dinesh's position from left.

(A) 24 **(B)** 22 **(C)** 28 **(D)** 23

Q.6. Anuj is fourteenth from left and Raj is eighteenth from right. When they interchange their position respectively then Anuj becomes twenty-third from left. What will be Raj from right after interchanging?

(A) 25 **(B)** 26 **(C)** 27 **(D)** 28

Q.7. Jai is twenty-first from left and Vijay is twenty-fourth from right. When they interchange their position respectively. Then Vijay becomes thirty-first from right end. Then what will be Jai's positions from left after interchanging?

(A) 25 **(B)** 26 **(C)** 27 **(D)** 28

Q.8. Raju is twenty-eight from left and Ram is thirty-sixth from right. When they interchange their position respectively, then Ram becomes twenty-eight from right. Then what will be Raju's position from left after interchanging their position?

(A) 20 **(B)** 19 **(C)** 21 **(D)** 22

Q.9-10. In a row of boys and girls, Radha is sixth from the top and Atul is twelfth from top. Radha is fourth from the top and sixth form bottom among girls. Atul is seventh from the top and twenty-fourth from bottom among boys.

Q.9. How many children are there in the row?

(A) 41 **(B)** 39 **(C)** 48 **(D)** 49

Q.10. How many boys and girls are sitting there between Radha and Atul?

(A) 1 girl - 4 boy **(B)** 4 girl - 1 boy

(C) 5 boy - 2 girl **(D)** 6 girl - 4 boy

Q.11. In a queue, Shikhar is ninth from the back. Arun's place is eighth from the front. Nikhil standing between the two. What could be the minimum number of boys standing in the queue?

(A) 8 **(B)** 9 **(C)** 12 **(D)** 14

Q.12. In a row of girls facing North, Reena is 10th to the left of Pallavi, who is 21st from the right end. If Malini, who is 17th from the left end, is fourth to the right of Reena, how many girls are there in the row?

(A) 37 **(B)** 43

(C) 44 **(D)** Data inadequate

Q.13. Students line up in a queue in which Ashish stands fifteenth from the left and Sachin is seventh from the right. If they interchange their places, Sachin would be fifteenth from the right. How many students are there in the queue?

(A) 21 **(B)** 22 **(C)** 29 **(D)** 30

Q.14. In a row of 40 boys, Satish was shifted 10 places to the right of Rohan and Komal is shifted tenth places to the left of Vilas. If Vilas was twenty-sixth from the left and there were three boys between Komal and Satish after shifting, what was the position of Rohan in the row?

(A) 10th from the right end

(B) 10th from the left end

(C) 39th from the right end

(D) Data inadequate

Q.15. Among five friends Jayesh, Jatin, Jaya, Jadav and Jitendra each have different height. Jaya is taller than Jayesh, Jayesh is shorter than Jitendra. Jatin is shorter than Jadav but taller than Jitendra who is tallest among five friends?

(A) Jaya **(B)** Jadav

(C) Jitendra **(D)** Can't be determined

Q.16. In a class of 63 students Nilofar's rank is 20th from the top. If moin is 9th place before her then what is the position of Moin from the bottom?

(A) 63 **(B)** 65 **(C)** 64 **(D)** None of these

Q.17. E, F, G and H are four labours. E works faster than G. F works twice as fast as H, but less than G. Who works slowest?

(A) E **(B)** F **(C)** G **(D)** H

Q.18. A racing event was organized in a jungle. The dog ran faster than the elephant but slower than the tiger. The deer was the fastest. The lion ran faster than the tiger. Who was the second last of those who finished the race?

(A) Dog **(B)** Deer

(C) Elephant **(D)** Lion

Q.19-20. Read the following information carefully and answer the question given below. Six members have given an exam A, B, C, D, E and F and they have got different marks. B scores more than C and D whereas E scores more than only F. A did not score highest. The person who scores second highest got 37 marks whereas the person who has got second lowest marks got 23 marks.

Q.19. How many possible marks have F received?

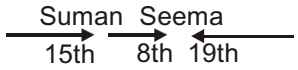
(A) 23 **(B)** 38 **(C)** 20 **(D)** 27

Q.20. How many possible marks have C received?

(A) 26 **(B)** 40 **(C)** 22 **(D)** 38

EXPLANATION

Q.1.(A)



= 15 + 8 + 19 = 42 - 1 = 41

Q.2.(C) 19 + 19 = 38 - 1 = 37

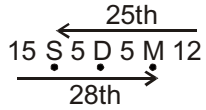
Q.3.(B) one person in between Ravi & Nitin

23 + 1 + 21 = 45

Q.4.(C) 35 - 18 = 17

17 - 6 = 11 + 1 = 12 from left.

Q.5.(B)



Q.6.(C) 18 + 23 - 1 = 40 Total

40 - 14 + 1 = 27 from right

If previous position < Interchanged position always simple case.

Q.7.(D) 21 + 31 - 1 = 51

After interchanging the position.

21+24=45, 51-45=6 (in between)

51-24+1=28 (from the left)

Q.8.(A) 28 + 28 - 1 = 55 total

20 + 36 - 2 = 62

62 - 55 = 7 - in between

55 - 36 + 1= 20th from left

When previous positon > interchange

Q.9.(B) 39 (9 Girls and 30 Boys)

Q.10.(A) 5 Boys/Girls = 1 Girl and 4 Boys.

Q.11.(B)

Q.12.(B) Pallavi is 21st from right and Reena is 10th to the left of Pallavi. So, Reena is 31st from right. **Malini is 4th to the right ofReena. So, Malini is 27th from the right. Also, Malini is 17th from the left.**

Number of girls in the row = (26 + 1 + 16) = 43

Q.13.(C) Sachin's new position is 15th from the right as well as the 7th from left end of the row. **Number of students in the queue = (15 + 15 - 1) = 29.**

Q.14.(D) Vilas is 26th from left and Kewal is 10 places to the left of Vilas. So, Kewal is 16th from left. Now, there are three boys between Kewal and Satish. So, Satish may be 12th or 20th from left. Because the position of Satish is not clear so data inadequate.

Q.15.(D) Jadav

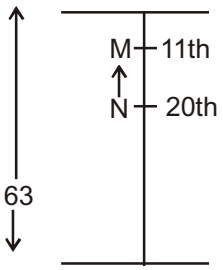
Jatin

Jaya Jitendra

Jayesh Jayesh

Can't be determined

Q.16.(D)



(63 + 1) – 11 = 53

= 53

Q.17. (D) E>G>F>H

Q.18. (A) Deer > / Lion > Tiger > Dog > Elephant

Q.19-20.

1	2	3	4	5	6
B	A/C/D(37)	A/C/D	A/C/D	E(23)	F

Q.19.(C)

Q.20.(A)

CHAPTER-5
BLOOD RELATION

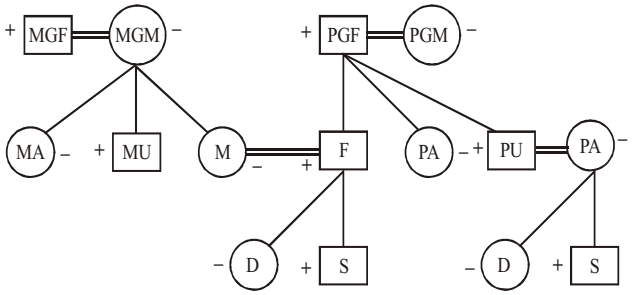
Scan the QR code to get video of this chapter.

In this segment, candidates have to deal with the question based on Blood Relation. Question based on Blood-Relation can be of many types. But in all the types of question candidates have to relate all the given relation one by one.

Relation from the **mother** side is called '**maternal**' and that from the **father** side is called '**paternal**' and if the relation is from the **partner** side (Husband or wife) is called '**in-law**'.

A method known as '**family tree**' is used to solve the questions regarding Blood Relation, which is just a graphical method to show all the possible relation.

We use symbols for male = □ or + and for female ◯ or - in the diagram of family tree.



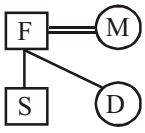
KEY FACTORS :

With the help of some points you can easily solve blood relation.

- One should classify Male and Female as

  Male = +/ □ Female = / ◯

- Husband Wife relation as = + H — W -
- Son and daugther as

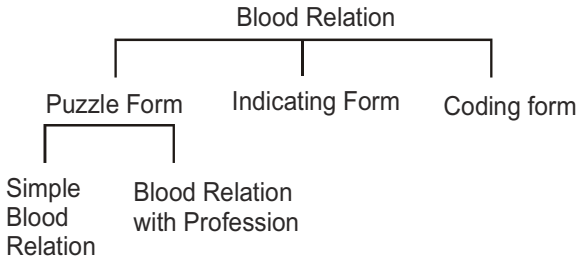


- Brother and Sister as = + B — S -

RELATION WHICH ARE REQUIRED

Mother or Father's Father	- Grandfather
Mother or Father's Mother	- Grandmother
Mother or Father's Brother	- Uncle
Mother or Father's Sister	- Aunty
Son's Wife	- Daughter-in-law
Daughter's Husband	- Son-in-law
Husband's or Wife's Borther	- Brother-in-law
Husband's or Wife's Sister	- Sister-in-law
Sister/Brother's Son	- Nephew
Sister/Brother's Daughter	- Niece
Brother's Wife	- Sister-in-law
Sister's Husband	- Brother-in-law

TYPE OF QUESTIONS

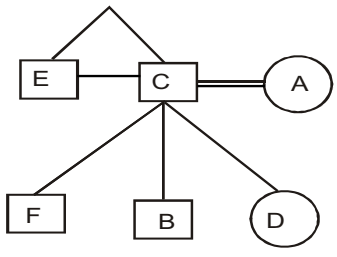


PUZZLE FORM

In this type of question relations are written in a puzzled way.

Ex.1-5. All the six member of a family A, B, C, D, E and F are travelling together. B is the son of C but C is not the mother of B. A and C are a married couple. E is the brother of C. D is the daugher of A. F is brother of B.

EXPLANATION



Ex.1. How many child does C have?

(A) 2 **(B)** 1

(C) 3 **(D)** Can't be determined

Sol.(C)

Ex.2. Which of the following represents a married couple?

(A) C and A **(B)** C and E

(C) F and C **(D)** A and B

Sol.(A)

Ex.3. How is E related to F?

(A) Niece **(B)** Nephew

(C) Uncle **(D)** Aunt

Sol.(C)

Ex.4. How many brothers does F have?

(A) None **(B)** One

(C) Two **(D)** Three

Sol.(B)

Ex.5. Among them who is the son of A?

(A) B **(B)** D

(C) A **(D)** E

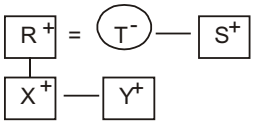
Sol.(A)

Ex.6. X and Y are brothers. R is the father of Y. T is only sister S and S is maternal uncle of X. How is T related to R?

(A) Mother **(B)** Wife

(C) Sister **(D)** Brother

Sol.(B)



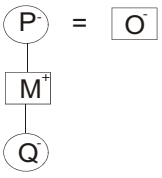
R is father of X and Y. S is maternal uncle of X and Y considering the given options, T is wife of R.

Ex.7. M is the son of P. Q is the grand daughter of O who is the husband of P. How is M related to O?

(A) Son **(B)** Daughter

(C) Mother **(D)** Father

Sol.(A)



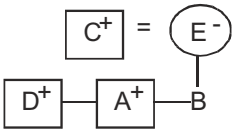
O is the husband of P. M is the son of P. Therefore, M is the son of O.

Ex.8. A is B's brother. C is D's father. E is B's mother. A and D are brothers. How is E related to C?

(A) Sister **(B)** Sister-in-Law

(C) Niece **(D)** Wife

Sol.(D)



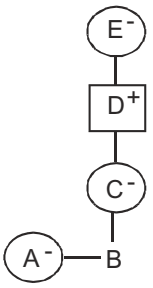
A is the brother of B. Therefore, A is a male. C is the father of D. Therefore, C is a male. E is the mother of B. Therefore, E is a female. A and D are brothers. Therefore, D is a male.

Ex.9. A is B's sister. C is B's Mother. D is C's Father. E is D's Mother. Then how is A related to D?

(A) Grandmother **(B)** Grandfather

(C) Daughter **(D)** Granddaughter

Sol.(D)



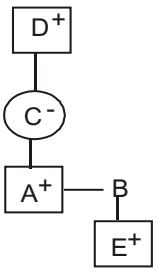
A is daughter of C. D is father of C.

Ex.10. A is B's brother. C is A's mother. D is C's father. E is B's son. How is E related to A?

(A) Cousin **(B)** Nephew

(C) Uncle **(D)** Grandson

Sol.(B)



E is the son of B. A is the brother of B.

Therefore, E is nephew of A.

Ex.11-15. P, Q, R, S, T and X are members of a family. There are two married couples. Q is an engineer and the father of T. X is the grandfather of R and is a lawyer. S is the grandmother of T and is housewife. There are one engineer, one laywer, one teacher one housewife and two student in the family. P is daughter-in-law of X.

Ex.11. How many male member are there in the family?

(A) 4 **(B)** 2

(C) 6 **(D)** Can't be determine

Sol.(D)

Ex.12. Among them who is the Spouse of Q?

(A) P **(B)** S

(C) X **(D)** T

Sol.(A)

Ex.13. What is profession of P?

(A) Housewife **(B)** Lawyer

(C) Engineer **(D)** Teacher or student

Sol.(D)

Ex.14. Among them who is the father of R?

(A) S **(B)** X

(C) Q **(D)** P

Sol.(C)

Ex.15. How T related to X?

(A) Grand Son

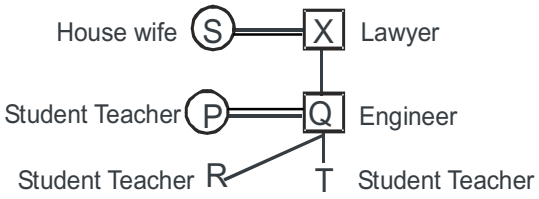
(B) Grand Daughter

(C) Either Grand Son or Grand Daughter

(D) Son

Sol.(C) Because Gender of T is not given.

EXPLANATION (11-15)



INDICATING FORM

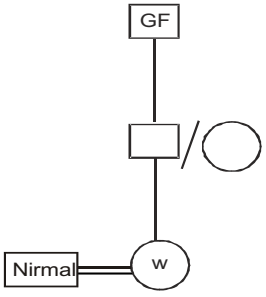
In this type of question, a man/woman define a relationship to any other person to whom that man/woman indicate with the help of chain of relations.

Ex.16. Pointing to a woman, Nirmal said, "She is the only dauther of my wife's grand father's only child." How is the woman related to Nirmal?

(A) Father **(B)** Daughter

(C) Wife **(D)** Husband

Sol.(C)

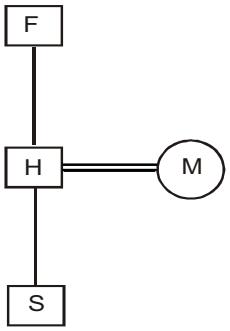


Ex.17. Pointing to a boy Madhu says, "he is the only son of my father-in-law's only son". How that lady is related to that boy?

(A) Husband **(B)** Mother

(C) Wife **(D)** Son

Sol.(B) Mother

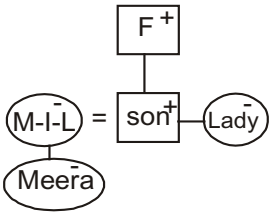


Ex.18. Pointing to a lady in a photograph, Meera said, "her father's only son's wife is my mother-in-law", How is Meera's husband related to that lady in the photo?

(A) Nephew **(B)** Uncle

(C) Son **(D)** Father

Sol.(A) The wife of brother of that woman in the photograph is mother-in-law of Meera. Meera is daughter-in-law of that woman's brother. Therefore, the husband of Meera is nephew of that woman.

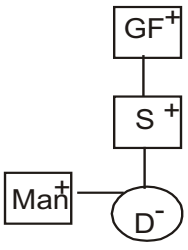


Ex.19. Pointing to a photograph a man said "She is the only daughter of my grandfather's only son". How is the girl related to that man?

(A) Father **(B)** Brother

(C) Sister **(D)** Mother

Sol.(C)



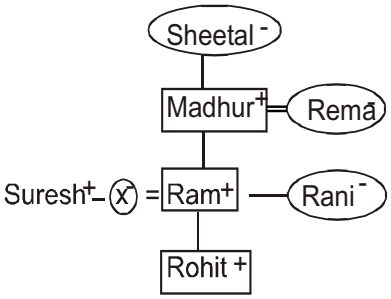
The only son of grandfather (paternal) of man means father of man. Therefore, the girl is sister of man.

Ex.20. Suresh's sister is the wife of Ram. Ram is Rani's brother. Ram's father is Madhur. Sheetal is Ram's grandmother. Rema is Sheetal's daughter-in-law. Rohit is Rani's brother's son. How is rohit related to Suresh?

(A) Brother-in-law **(B)** Son

(C) Brother **(D)** Nephew

Sol.(D)



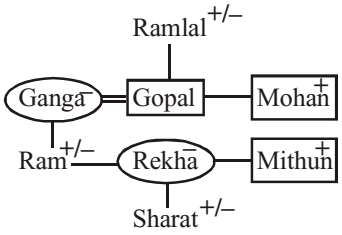
Ram is brother of Rani. Rohit is son of Ram. Suresh is maternal uncle of Rohit. Therefore, Rohit is Nephew of Suresh.

Ex.21. Among her children, Ganga's favourites are Ram and Rekha. Rekha is the mother of Sharat, who is loved most by his uncle mithun. The head of the family is Ram Lal, who is succeeded by his sons Gopal and Mohan. Gopal and Ganga have been married for 35 years and have 3 children. How is Mithun related to Mohan?

(A) Uncle **(B)** Son

(C) Brother **(D)** Nephew

Sol.(D)



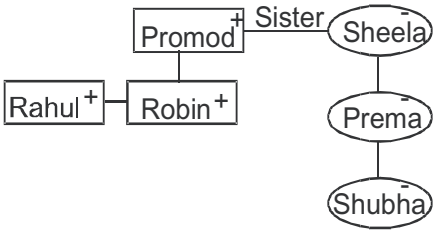
Mohan is son of Ram Lal and uncle of Ram and Rekha. Mithun is uncle of Sharat. Rekha is niece of Mohan. Therefore, Mithun is brother of Rekha. Hence, Mithun is the nephew of Mohan.

Ex.22. Rahul and Robin are brothers. Pramod is Robin's father. Sheela is Pramod's sister. Prema is Pramod's niece. Shubha is Sheela's grand-daughter. How is Rahul related to Shubha?

(A) Brother **(B)** Cousin

(C) Maternal Uncle **(D)** Can't be determined

Sol.(C)



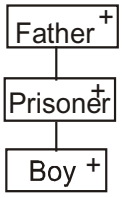
Shubha is grand daughter of Sheela, who is sister of Promod. Rahul is son of Pramod. Therefore, Rahul is uncle of Shubha.

Ex.23. A prisoner introduced a boy who came to visit him to the jailor as " I don't have Brothers and sisters, he is my father's son's son". How is boy related to the prisoner?

(A) Nephew **(B)** Son

(C) Cousin **(D)** Uncle

Sol.(B)



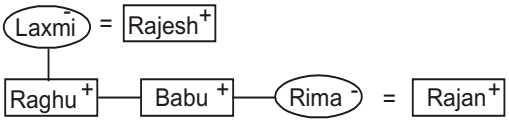
The son prisoner's father means the prisoner himself. Therefore, the boy is son of the prisoner.

Ex.24. Raghu and Babu are Brothers. Babu's sister is Rima. Rima's husband is Rajan. Raghu's mother is Lakshmi. Lakshmi's husband is Rajesh. How is Rajesh related to Rajan?

(A) Father-in-Law **(B)** Cousin

(C) Uncle **(D)** Son-in-law

Sol.(A)



Rima is the daughter of Rajesh and Lakshmi. Rajan is the husband of Rima. Therefore, Rajesh is the father-in-law of Rajan.

Ex.25. Sheela is Ravi's sister-in-law. Ram is Ravi's brother. Ram's wife is Sheela. Deepa is ravi's sister. Deepa's mother is Shanti. How is Sheela related to Shanti?

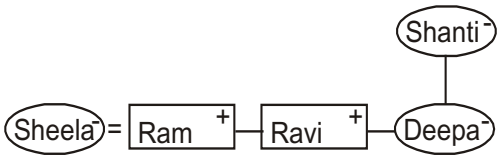
(A) Mother-in-law

(B) Daughter-in-law

(C) Grand-daughter

(D) Daughter

Sol.(B)



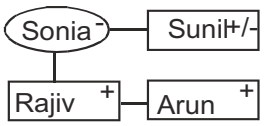
Shanti is mother of Ravi, Ram and Deepa. Sheela is the wife of Ram. Therefore, Sheela is the daughter-in-law of Shanti.

Ex.26. Rajiv is the brother of Arun. Sonia is the sister of Sunil. Arun is the son of Sonia. How is Rajiv related to Sunil?

(A) Son **(B)** Brother

(C) Father **(D)** Nephew

Sol.(D)



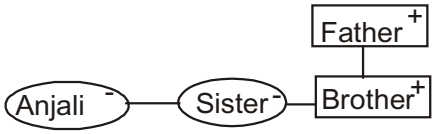
Rajiv and Arun are sons of Sonia. Therefore, Rajiv is nephew of Sunil.

Ex.27. Miss. Anjali says that "he is the only son of my sister's brother's father. "How is that person related to Anjali?

(A) Uncle **(B)** Cousin

(C) Brother **(D)** Father

Sol.(C)



The father of Anjali's sister's brother means father of Anjali. Only son of Anjali's father means brother of Anjali.

CODED FORM

In this type of question, relations are given in coded form. Here some signs are used to define the relation and questions are put in code form as well.

Ex.28-29.

"A × B" means 'A is mother of B'.

"A – B" means 'A is father of B'.

"A ÷ B" means 'A is brother of B'.

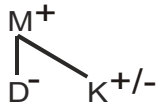
"A + B" means 'A is sister of B'.

Ex.28. In the expression **M–D+K.** How is **K** related to **M?**

(A) Mother **(B)** Sister

(C) Daughter **(D)** Grand-daughter

Sol.(C) Daughter



Ex.29. Which of the following means K is maternal grandfather of I?

(A) K–D×I **(B)** K÷D×I

(C) K–D–I **(D)** K×D×I

Sol.(A) K–D×I

Ex.30. "A+B" means 'B is the daughter of A.'

"A×B" means 'B is the son of A'

"A–B" means 'B is the wife of A'.

If **'Z×T–S×U+P'**, how is **U** related to **Z**?

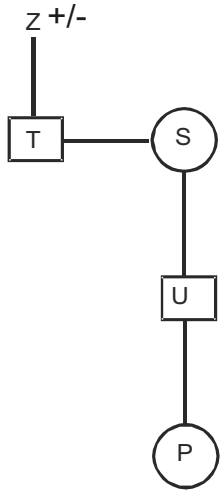
(A) Mother

(B) Grandmother

(C) Father

(D) None of these

Sol.(D)



Candidates have to consider only the sign. of arrangement, ×, –, ×, + starting from left direction (If backward direction) son-wife-son means grand-son. Now candidates have to interchange the order of Z and U. Hence U will be subject and Z will be object. Hence U is grand-son of Z.

EXERCISE

Q.1. Introducing a man Suresh said he is son of that lady who is mother of my mother's husband. How is that man related to Suresh?

(A) Uncle **(B)** Son

(C) Cousin **(D)** Grandson

Q.2. Pointing to Mala, Kala said, "She is my brother's only sister's daughter". How is Mala related to Kala?

(A) Mother **(B)** Daughter

(C) Aunt **(D)** Niece

Q.3. Sanjay indicates Ramendra's photograph and says, "He is my mother's mother's father's son-in-law's only son-in-law's father". How is Ramendra related to Sanjay?

(A) Grandfather **(B)** Father

(C) Brother **(D)** Son

Q.4-6. Study the following blood relation information carefully and answer the given questions.

P, Q, R, S, T and U are six members of a family. Family has parents and their childrens. P is the son of R and T is the daughter of P. S is the daughter of U who is the mother of T. Q is the spouse of R.

Q.4. In which of the following pairs represents the parents of the children?

(A) QS **(B)** RU

(C) QU **(D)** None of these

Q.5. How many male members are there in the family?

(A) One **(B)** Two

(C) Three **(D)** Can't be determined

Q.6. What relationship do R and S bear to each other?

(A) Sister and Brother

(B) Mother and Son

(C) Grandmother and Granddaughter

(D) Father and Son

Q.7. In a joint family father, mother three married son and one unmarried daughter are there. Among sons, two of them have two daughter and one son each. How many female members are there in the family?

(A) 2 **(B)** 3

(C) 6 **(D)** 9

Q.8. In the family of Girdharilal, there are his wife, three son and two daughters. One of the daughters are unmarried and other had one son. The two sons have two children each and third have three children. One old aunt and one son-in-law living with them. How many members are there in the family?

(A) 20 **(B)** 19

(C) 18 **(D)** 17

Q.9-10 Study the following blood relation information carefully and answer the given questions.

'A $ B' means 'A is mother of B'.

'A % B' means 'A is sister of B'.

'A * B' means 'A is father of B'.

'A ß B' means 'A is brother of B'.

Q.9. Which of the following means 'Q is grandfather of P'?

(A) P $ N * M * Q

(B) Q * N % M $ P

(C) Q ß M ß N * P

(D) Q * M % N ß P

Q.10. Which of the following means N is uncle of M?

(A) N ß P % L $ E % M

(B) N % Y $ A ß M

(C) M $ Y * P % N

(D) N ß C $ F * M

Q.11-13. Study the following blood relation information carefully and answer the given questions.

'A $ B' means 'A is mother of B'.

'A # B' means 'A is father of B'.

'A @ B' means 'A is husband of B'.

'A % B' means 'A is daughter of B'.

Q.11. P @ Q $ M # T indicates how is P related to T?

(A) Paternal grandmother

(B) Maternal grandmother

(C) Paternal grandfather

(D) Maternal grandfather

Q.12. If F @ D % K # H, then how is F related to H?

(A) Brother-in-law **(B)** Sister

(C) Sister-in-law **(D)** None of these

Q.13. If G $ M @ K, how is K related to G?

(A) Daughter-in-law

(B) Mother-in-law

(C) Daughter

(D) Aunty

Q.14. Z is the son of L and the husband of G who is the sister of R and W then how is Z related to W?

(A) Father **(B)** Brother-in-law

(C) Husband **(D)** Son

Q.15. Pointing towards a man a woman said that he is the son of my mother's husband's daughter then how is that woman related to that man?

(A) Mother **(B)** Sister

(C) Daughter **(D)** Cousin

Q.16. Pointing to Mohan Ravi said, "His father is only son of my father". How Mohan related to Ravi's wife?

(A) Brother **(B)** Son

(C) Father **(D)** Uncle

Q.17. Radha point out to a man, "His only sister is the mother of my daughter's brother." What does that person related with Radha?

(A) Father **(B)** Brother-in-law

(C) Brother **(D)** Sister

Q.18-19. Study the following information carefully and answer the question given below.

Kamal is the son of Teena. Julfy is son of Kamal. Mohit is the brother of Julfy. Simran is the wife of Kamal. Betu is the daughter of Dobby. Nigam is father of Dobby. Dobby is the sister of Kamal.

Q.18. How is Betu related to Teena?

(A) Nephew **(B)** Mother

(C) Granddaughter **(D)** Sister

Q.19. Who is wife of Nigam?

(A) Simran **(B)** Betu

(C) Dobby **(D)** Teena

Q.20. A is the son of B, while B and C are sisters to one another. E is the mother of C. If D is the son of E then which of the following statements is correct?

(A) D is the maternal uncle of A

(B) E is the brother of B

(C) D is the cousin of A

(D) B and D are brother

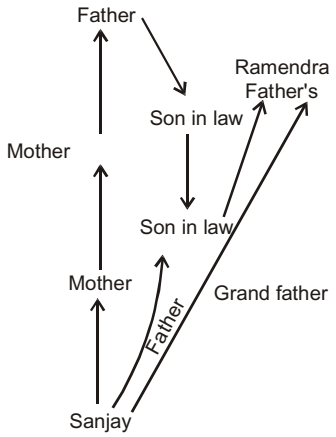
NOTES

EXPLANATION

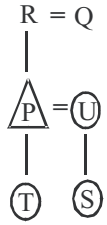
Q.1.(A) Since the person is the son of husband of Suresh's mother i.e. the mother of Suresh's father i.e. the grandmother of Suresh. It is clear that the person is brother of Suresh's father and therefore is uncle of Suresh.

Q.2.(B) Only sister of Kala's brother means Kala herself.

Q.3.(A)



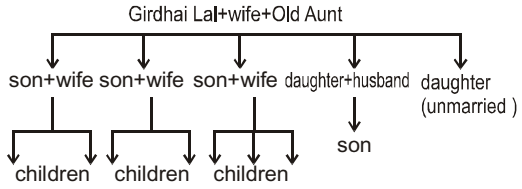
Q.4-6.



Q.4.(D) **Q.5.(B)** **Q.6.(C)**

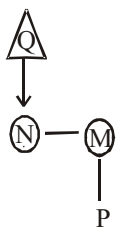
Q.7.(D) Total number of females members = mother+3 daughter-in-laws+1 unmarried daughter+4 grand daughters (two of each son) = 1 + 3 + 1 + 4 = 9

Q.8.(A)

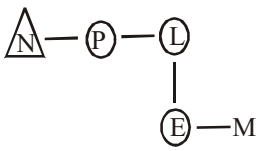


The total members in the family of Girdhari Lal. = 2+1+2+2+2+2+1+2+2+1+2+3+1 = 20

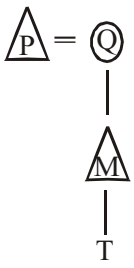
Q.9.(B)



Q.10.(A)

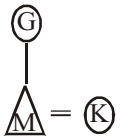


Q.11.(C)

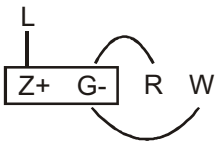


Q.12.(A)

Q.13.(A)



Q.14.(B)

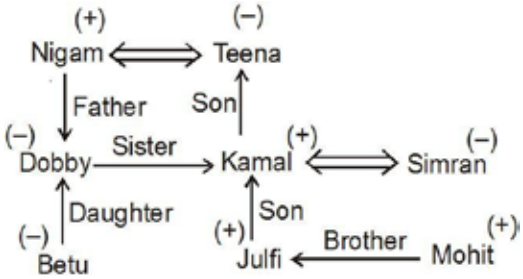


Q.15.(A) My mother's husband's daughter means she herself or her sister. That's why the man is either her son or nephew

Q.16.(B)

Q.17.(C)

Q.18-19.



Q.18.(C)

Q.19.(D)

Q.20.(A) B is the mother of A. C is the daughter of E. D is the brother of B and C. Therefore, D is the Maternal uncle of A.

CHAPTER-6
SYLLOGISM

Scan the QR code to get video of this chapter.

These questions are completely based upon the logic. If we solve these questions with the help of venn diagram then we can get the conclusion easily.

Remember that these venn diagrams are just a medium to solve such questions.

A question can have lots of diagrams which means we can draw several figures by a statement but we have to draw the easiest figure first because it will enable us to solve the question in minimum time. Like we have many routes to go home but we always take the shortest possible route.

We have four types of statement in which two are positive and two are negative.

TYPE OF STATEMENT

+ve [(i) All
      (ii) Some

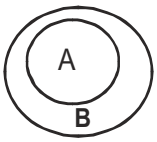
-ve [(iii) No
      (iv) Some not

HOW TO DRAW THE FIGURES

Statement :

All A are B

Statement Figure :



Some possible diagrams of statements

(I) 

(II) 

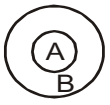
Statement :

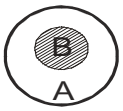
Some A are B

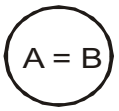
Statement Figure :

Some possible diagrams of statements

(I) 

(II) 

(III) 

(IV) 

Statement :

No A are B.

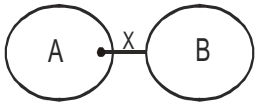
Statement Figure :

In case of "No" there will not any other possible diagrams.

Statement :

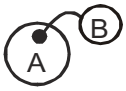
Some A are not B.

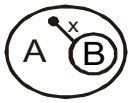
Statement Figure :



Some possible diagrams of statements

(I) 

(II) 

(III) 

NOTE: Conclusion will follow if it is present in all diagrams of the statement (statement figure as well as possible figure).

KEY FACTORS

- In any case you change its figure and such change should not influence statements.
- We have to draw the figure of the statement and on the basis of these statements we have to determine which conclusion follows and which does not follow.

FOR EITHER - OR CASE

- Same subject and predicate in two different conclusion are required
- Relation must not be clear (according to statement) between subject and predicate.
- One conclusion must be positive and another must be negative.
- Either condition will not be follow between **'All'** type statement and **'No'** type statement.
- Either conclusions can easily be identified if we focus specially upon those objects which are same.
- Keep this thing in mind that if the relation between 2 objects is not clear then we can not come to any conclusion and in case the relation between 2 objects is clear then we can directly come to the conclusion without any problem.
- Either case can be applied only in indirect relations where the relations between subject and predicate is not determined.

Statement	Some A are B	All A are B	Some A are Not B	No A are B
Conclusion				
Some A are B	√	√	©	**X**
Some B are A	√	√	©	**X**
All A are B	©	√	**X**	**X**
All B are A	©	©	©	**X**
Some A are not B	©	**X**	√	√
Some B are not A	©	©	©	√
No A are B	**X**	**X**	©	√
No B are A	**X**	**X**	©	√

√ means - definitely right
X means - definitely wrong
© means - can't say (Not Sure) - If any conclusion is right as well as wrong
Note :
(i) If any conclusion is definitely right then it will follow.
(ii) If any conclusion is definitely wrong then it will not follow.
(iii) If any conclusion is can't say © then is will not follow but if it is written as possibility then if will follow.

HOW TO CONCLUDE

The trend shows that basically there are two kinds of conclusions. One requires definite case as a conclusion and another requires case of possibility.

QUICK TRICK

1. Every statement +ve → Conclusion
-ve → Not follow.

2. Every statement -ve → Conclusion +ve
→ Not follow.

3. +ve relation → Conclusion "some" → Follow

4. Relation of "No" → Conclusion -ve → Follow.

5. Relation not defined (neither direct nor indirect) → Every conclusion → Not follow.

EXAMPLES

Ex.1-2. Two statements are given followed by two conclusions (I) and (II). You have to consider the statement to be true even if seen to be at variance from commonly known facts. You have to decide which of the given conclusions. if any, follow from the given statements.

Ex.1. **Statement :**

All gems are pens

All pens are balls

Conclusions :

I. All gems are balls.

II. Some gems are balls.

(A) Only I follows

(B) Only II follows

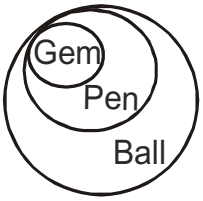
(C) Neither I nor II follows

(D) Both I and II follow

Sol.(D) Both conclusions will follow.

I. If all Gems are Pens and all Pens are Balls then all Gems will surely be a part of Ball.

II. II follow because if full parts of gems are pens then some part of gems will definitely be a part of it.



Ex.2. **Statement :**

All Asians are wise.

All Chinese are Asian

Conclusions :

I. Some Chinese are wise

II. All Chinese are wise

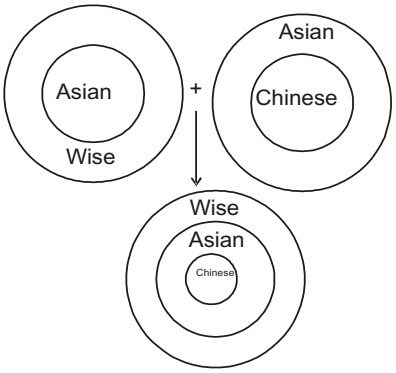
(A) Only I follows

(B) Only II follows

(C) Neither I nor II follows

(D) Both I and II follow

Sol.(D)



Ex.3-5. Three statements are given followed by four conclusions (I), (II), (III) and (IV). You have to consider the statement to be true even if seen to be at variance from commonly known facts. You have to decide which of the given conclusions. if any, follow from the given statements.

Ex.3. **Statement**

All dogs are rats.

All rats are crows.

All crows are parrots.

Conclusions:

I. All dogs are parrots.

II. Some parrots are dogs.

III. Some crows are dogs.

IV. All rats are dogs.

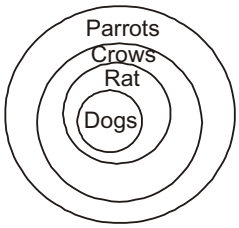
(A) Only I and II follow

(B) Only I, II and III follow

(C) Either II or IV follow

(D) Either I or II and III follow

Sol.(B)



Ex.4. **Statement :**

Some instruments are not books.

All books are flutes.

Some flutes are flats.

Conclusions :

I. Some flats are instruments.

II. Some instruments are not flats.

III. Some istruments are not flutes.

IV. All books are flats.

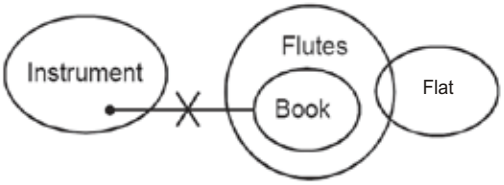
(A) Only II follows

(B) None follow

(C) Only IV follows

(D) Only III follows

Sol.(B)



Neither I nor II.

Ex.5. **Statements :**

Some leaders are voters.

All donkeys are monkeys.

Some voters are not donkeys.

Conclusions :

I. Some voters are not monkeys.

II. Some monkeys are not donkeys.

III. Some voters are leaders.

IV. No monkeys is voters.

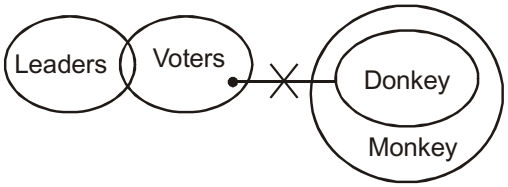
(A) Only III follows

(B) Only III and IV follow

(C) Only I and IV follow

(D) Only I and III follow

Sol.(A) Only III



Ex.6-12. Three statements are given followed by conclusions. You have to consider the statement to be true even if seen to be at variance from commonly known facts. You have to decide which of the given conclusions. if any, follow from the given statements.

Ex.6. **Statement:**

Some Bats are Goats.

All Goats are Hats.

No Hat is Tap.

Conclusions :

I. Some Bats are Hat.

II. No Goat is Tap

(A) Only I follows

(B) Only II follows

(C) Neither I nor II follows

(D) Both I and II follow

Sol.(D) Both will follow

Ist follows because the part of goat which is bat is also a part of hat because all Goat are hat.

2nd follows because any hat can never be Tap and Goat is a part of Hat so any goat can never be tap.

Note : Both above questions are related to direct - figures those can easily be concluded.

Ex.7. **Statement :**

Some Mats are Boats.

Some Boats are Grains.

All Grains are pebbles.

No pebble is tap.

Conclusions

I. Some Mats are Grains.

II. No pebbles is Mat.

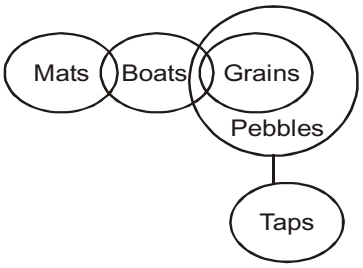
(A) Only I follows

(B) Only II follows

(C) Neither I nor II follows

(D) Both I and II follow

Sol.(C) Neither I nor II follow



According to the above statement there is no relation between subject and predicate in any of the given conclusion.

Ex.8. **Statement :**

All A are B

Some B are C

No C is D

Conclusions :

I. Some D are A

II. No D is A

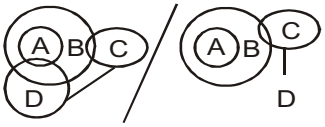
(A) Only I follows

(B) Either I or II follows

(C) Only II follows

(D) Both I and II follow

Sol.(B) Either I or II



Ex.9. **Statement :**

Some A are B.

No B is C.

All C are D.

Conclusions :

I. Some A being D is a possibility.

II. All A being D is a possibility.

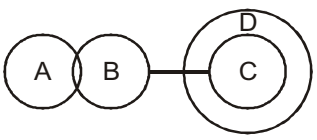
(A) Only I follows

(B) Only II follows

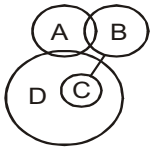
(C) Neither I nor II follows

(D) Both I and II follow

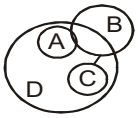
Sol.(D) Both conclusion will follow because in both conclusions question is asked about their possibilities instead of surity.



I. Possibility of Ist conclusion :



II. Possibility of IInd conclusion :



Ex.10. Statement:

Dogs have four legs.

Tables have four legs.

Conclusions:

I. Tables are dogs.

II. Dogs are tables.

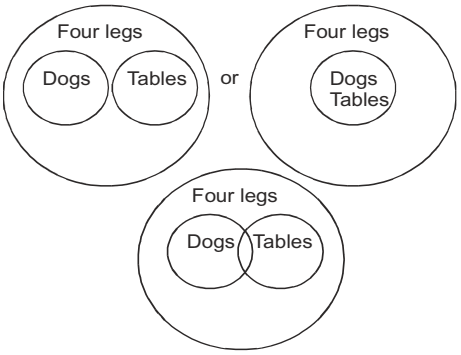
(A) Only I follows

(B) Only II follows

(C) Either I or II follows

(D) Neither I or II follows

Sol.(D)



Ex.11. Statement :

All blue are black and some black are red.

All red are green but not yellows

Conclusions:

I. Some blue are green.

II. No black is yellow.

III. Some Black are not yellow.

IV. No black is green.

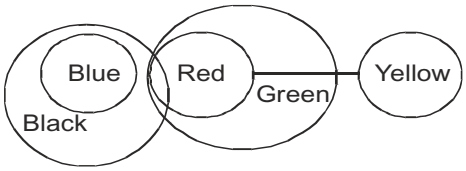
(A) Only III follows

(B) Only II and IV follow

(C) Only I and III follow

(D) Only I, II and IV follow

Sol.(A) Only III follow



Ex.12. Statement : All philosophers are man.

Socrates was a philosopher.

Conclusions:

I. Socrates was a man.

II. Women cannot become philosophers.

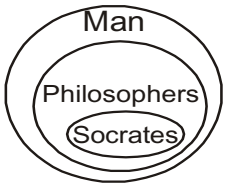
(A) Only I follows

(B) Only II follows

(C) Neither I nor II follows

(D) Both follows

Sol.(A)



Ex.13. Statement :

All man are mortal.

Ramu is a man.

If the above statements are true.

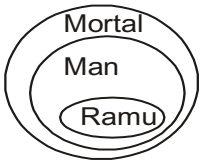
Which of the following conclusions can be drawn?

Conclusions:

(A) No man is mortal **(B)** Ramu is mortal

(C) Ramu is immortal **(D)** All men are immortal

Sol.(B)



Ex.14. Statement :

"All beggars are poor."

If the above statement is true.

Which of the following conclusions can be drawn?

Conclusions:

(A) All those who are poor are beggars.

(B) If A is rich, then A is not a beggar.

(C) If A is not rich, then A is not a beggar.

(D) If A is a beggar, then A is not rich.

Sol.(D) If A is a beggar, then A is not rich.

EXERCISE

Q.1-10. Two/three statements are given below followed by two conclusions I and **II.** You have to consider the two statements to be true, even if they seem to be at variance from commonly known facts. You are to decide which of the given conclusion can definitely be drawn from the given statement. Indicate your answer.

Q.1. **Statement:**

Some person are famous.

Some politician are famous.

Conclusions:

I. Some famous are person.

II. Some politician are person.

(A) Conclusion I follows

(B) Conclusion II follows

(C) Either conclusion I or II follows

(D) Neither conclusion I nor II follows

Q.2. **Statement:**

Some students are meritorious.

All meritorious are engineers.

No meritorious is a players.

Conclusions:

I. Some engineers are not players.

II. No engineer is a player.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Both conclusions I and II follow

(D) Either conclusion I or II follows

Q.3. **Statement:**

Germany have a strong football team.

A strong team have good players.

Conclusions:

I. Germany have some good football players.

II. Some football players are not good in Germany team.

(A) Both conclusions I and II follow

(B) Either conclusion I or II follows

(C) Only conclusion I follows

(D) Only conclusion II follows

Q.4. **Statement:**

All A are B.

No B is C.

Conclusions:

I. Some A are C.

II. All B are A.

(A) Only I follows

(B) Only II follows

(C) Both follow

(D) Neither I nor II follows

Q.5. **Statement:**

The Politician must live simply.

All bureaucrat are simple.

Conclusions:

I. Politician waste money.

II. Bureaucrat save money.

(A) Only I follows

(B) Only II follows

(C) Neither I nor II follows

(D) Both I and II follow

Q.6. **Statement:**

Some boys play cricket.

Rich people play cricket.

Conclusions:

I. Some boys are rich.

II. All cricket playing boys are rich.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Both conclusions I and II follow

(D) Neither conclusion I nor II follows

Q.7. **Statement:**

No minister is a rich.

Some rich people are bureaucrats.

Conclusions:

I. Some bureaucrats are ministers.

II. No ministers is a bureaucrats.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Either conclusion I or II follows

(D) Both conclusions I and II follow

Q.8. **Statement:**

All crazy are men.

All women are crazy.

Conclusions:

I. Some of the crazy are men.

II. All women are men.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Both conclusions I and II follow

(D) Neither conclusion I nor II follows

Q.9. **Statement:**

All women are beautiful.

Sarita is an intelligent women.

Conclusions:

I. Sarita is a beautiful women.

II. All women are intelligent.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Both conclusions I and II follow

(D) Either conclusion I or II follows

Q.10. **Statement:**

Some students in the class are intelligent.

All boys in the class are intelligent.

Some girls in the class are not intelligent

If 1st two statements are true, the third is

(A) True **(B)** False

(C) Uncertain **(D)** Vague

Q.11-20. In each question given below two/three statements are followed by four conclusions numbered I, II, III and IV. You have to take the two given statements to be true even if they seem to be at variance from the commonly known facts. Read the conclusions and decide which logically follows from the two given statements disregarding commonly known facts:

Q.11. **Statement:**

Some criminals are cheaters.

All cheaters are leaders.

Conclusions:

I. All criminals are leaders.

II. Some leaders are criminals.

III. Some leaders are cheaters.

IV. All cheaters are criminals.

(A) Only I follows.

(B) Only I, II and III follow.

(C) None follows.

(D) Only II and III follow.

Q.12. **Statement:**

All batteries are Invertors.

No invertor is a generator.

Conclusion:

I. All invertors are batteries.

II. No battery is a generator.

III. Some invertors are batteries.

IV. Some batteries are geneators.

(A) Only I and II follow

(B) All follow

(C) Only II and III follow

(D) None follows

Q.13. **Statement:**

All soaps are clean.

All clean are wet.

Conclusions:

I. Some clean are soaps.

II. No clean is soap.

III. Some wet are soaps.

IV. All wet are soaps.

(A) Only I and II follow

(B) Either III or IV follows

(C) Only I and III follow

(D) None follows

Q.14. **Statement:**

Some absent minded are illiterates.

Some illiterates are leaders.

Conclusions:

I. No absent minded is a leader.

II. All illiterates are leaders.

III. Some leaders are absent minded.

IV. No illiterate is a absent minded.

(A) Either I or III follows

(B) Either I or II follows

(C) Only I and III follows

(D) None follows

Q.15. Statement:

All scientists are fool.

All fool are illiterate.

Conclusions:

I. All scientists are illiterate.

II. All illiterate are scientists.

III. All illiterates are fool.

IV. Some illiterates are scientists.

(A) Only I and IV follow

(B) Only II follows

(C) Only II and III follow

(D) Only IV follows

Q.16. Statement:

Some books are pens.

All pens are erasers.

No eraser is a pencil.

Conclusions:

I. Some erasers are pens

II. No pen is a book.

III. All pencils are books.

IV. All pens are pencils.

(A) All follow

(B) Only II follows

(C) Either II or III follow

(D) Only I follows

Q.17. Statement:

All lions are elephants.

Some elephants are wolves.

No wolf is a rats.

Conclusions:

I. All rats are elephants.

II. No rats is a lions.

III. Some rats are elephants.

IV. No wolf is a elephants.

(A) Either I or III follows

(B) I and II follow

(C) None follows

(D) All follow

Q.18. Statement:

Some crows are birds.

All birds are pigeons.

Some pigeons are parrots.

Conclusions:

I. Some crows are pigeons.

II. Some pigeons are birds.

III. Some birds are parrots.

IV. Some parrots are crows.

(A) I and III follow

(B) II and III follow

(C) I and II follow

(D) I, III and IV follow

Q.19. Statement:

All cubes are cuboid.

No square is a cuboid.

Some square are rectangle

Conclusions:

I. No cube is a square.

II. Some cubes are square.

III. Some rectangle are cubes.

IV. Some rectangle are not cubes.

(A) III and either I or II follow

(B) I and either III or IV follow

(C) I and IV follow

(D) I and II follow

Q.20. Statement:

Some bats are mats.

All mats are rats.

No rat is a goat.

Conclusions:

I. Some bats are not goats.

II. Some rats are not bats.

III. No mat is a goat.

IV. Some mats are bats.

(A) I, II and III follow

(B) II, III and IV follow

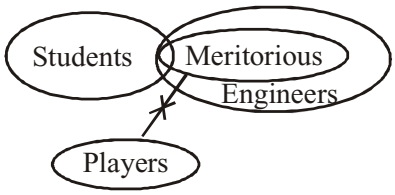
(C) I, II and IV follow

(D) I, III and IV follow

EXPLANATION

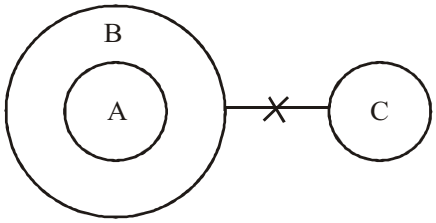
Q.1.(A)

Q.2.(A)



Q.3.(C) Only conclusion I follows.

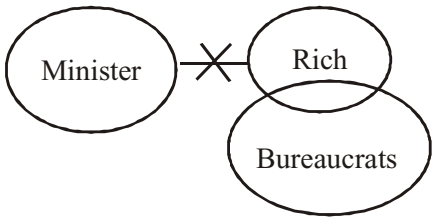
Q.4.(D)



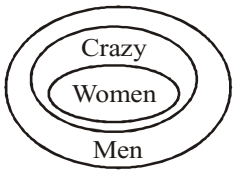
Q.5.(C)

Q.6.(D)

Q.7.(C)

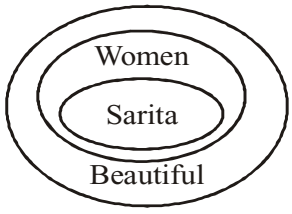


Q.8.(C)



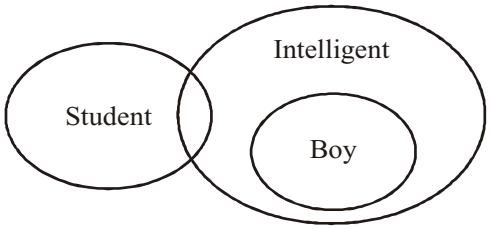
Both conclusion I and II follow.

Q.9.(A)

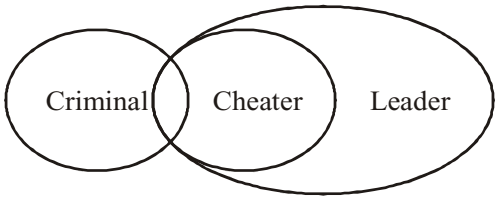


Only conclusion I follows.

Q.10.(C)

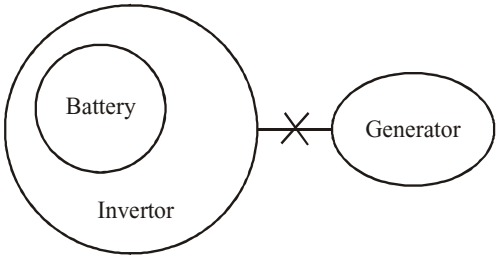


Q.11.(D)



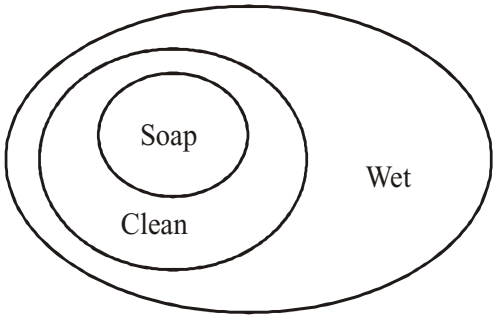
Only II and III follow.

Q.12.(C)



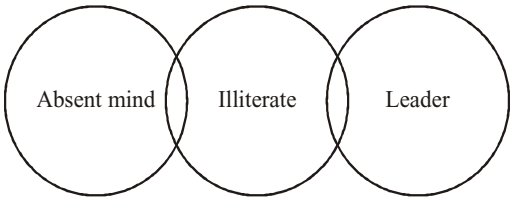
Only II and III follow.

Q.13.(C)



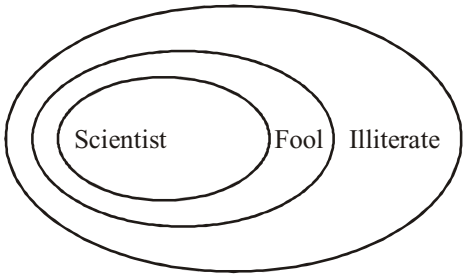
Only I and III.

Q.14.(A)



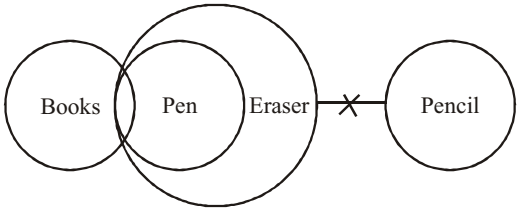
Either I or III.

Q.15.(A)



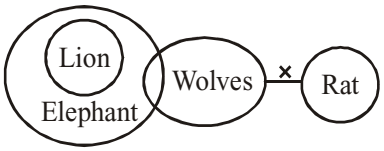
Only I and IV.

Q.16.(D)



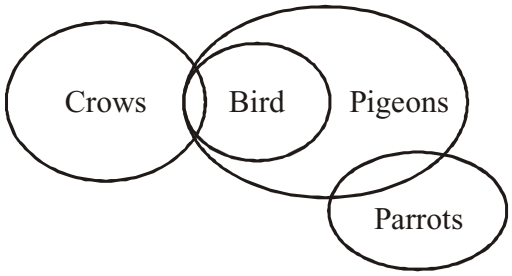
Only I is follows.

Q.17.(C)



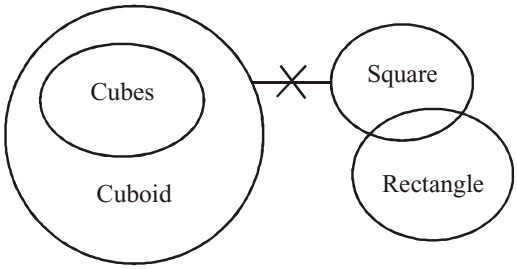
None follows

Q.18.(C)



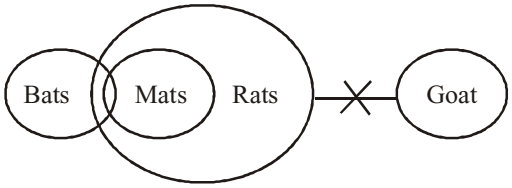
I and II follows.

Q.19.(C)



I and IV follow.

Q.20.(D)



NOTES

CHAPTER-7
LOGICAL VENN DIAGRAM

Scan the QR code to get video of this chapter.

In this chapter, we deal with questions which aim at analysing a candidate's ability to relate a certain given group of items and illustrate it diagrammatically. Figures representing groups of items in the form of enclosed regions are called Venn Diagrams named after the British logician John Venn. To represent these diagrams, we use different geometrical figures like circles, triangles, rectangles, etc. Given below a few different types of Venn Diagrams with their use.

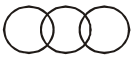
DIFFERENT TYPES OF QUESTIONS BASED ON VENN DIAGRAMS

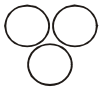
In this chapter, we will deal with basically three entities. There are following five types of questions which are generally asked in various competitions.

UNIVERSAL AFFIRMATIVE

When one group of items is completely included in the second group of items and the second, again completely belongs to the third group called Universal Affirmative, the Venn Diagram would be as follows.

Ex.1. Which of the following figures represent Lucknow, Uttar Pradesh, India.

(A)  **(B)** 

(C)  **(D)** 

Sol.(A) Venn Diagram would be as follows: Lucknow is the part of Uttar Pradesh, and Uttar Pradesh is the part of India.

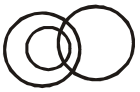
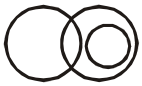
Ex.2. Which of the following figures represent Village, District, State.

(A)  **(B)** 

(C)  **(D)** 

Sol.(D) Venn Diagram would be as follows: Village comes in District and district comes in State.

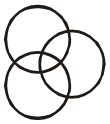
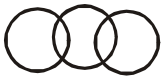
Ex.3. Which of the following figures represent Haryana, India, Asia.

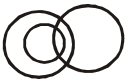
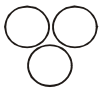
(A)  **(B)** 

(C)  **(D)** 

Sol.(C) Venn Diagram would be as follows: Haryana is the part of India, and India is the part of Asia.

Ex.4. Which of the following figures represent Female, Mothers and Doctors?

(A)  **(B)** 

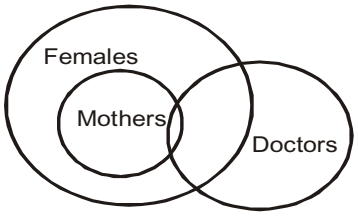
(C)  **(D)** 

Sol.(C) Some females may be mothers.

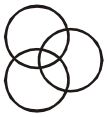
Some females may be doctors

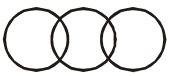
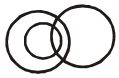
All mothers are females.

Some doctors may be mothers.



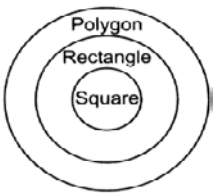
Ex.5-6. In the following questions, One out of the four figures that follow. You are to indicate which figure the relationship amongst the three classes.

(A)  **(B)** 

(C)  **(D)** 

Ex.5. Polygon, Rectangle, Square

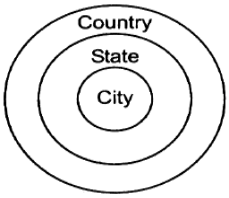
Sol.(B)



⇒ All Squares are Rectangles and all Rectangles are Polygons. Hence, this case comes under Universal Affirmative.

Ex.6. Country, City, State

Sol.(B) Venn Diagram would be as follows: Country

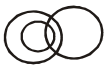


⇒ A City lies within a State which inturn lies within a Country.

UNIVERSAL NEGATIVE

If the items evidently belong to three different groups, ie, they are not correlated with each other in any way, called Universal Negative.

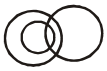
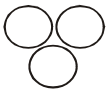
Ex.7. Which of the following figures represent Cow, Crow, Man.

(A)  **(B)** 

(C)  **(D)** 

Sol.(D) Venn Diagram would be as follows: All three belongs to different family.

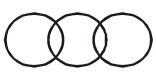
Ex.8. Which of the following figures represent Cricket, Chess, Badminton.

(A)  **(B)** 

(C)  **(D)** 

Sol.(B) Venn Diagram would be as follows: All three played in different field.

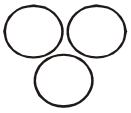
Ex.9. Which one of the following diagrams best depiets the relationship among Fishes, Snakes and Birds?

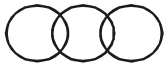
(A)  **(B)** 

(C)  **(D)** 

Sol.(D) Fishes, Snakes and Birds, all are different from one another.

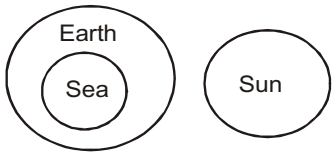
Ex.10-13. In the following questions, One out of the four figures that follow. You are to indicate which figure the relationship amongst the three classes.

(A)  **(B)** 

(C)  **(D)** 

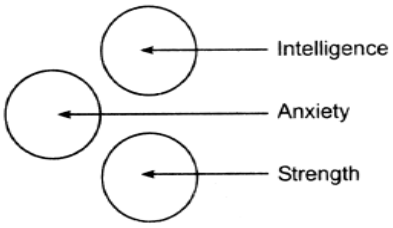
Ex.10. Earth, Sea, Sun

Sol.(A) Sea is part of Earth, sun is heavenly body.



Ex.11. Intelligence, Anxiety, Strength

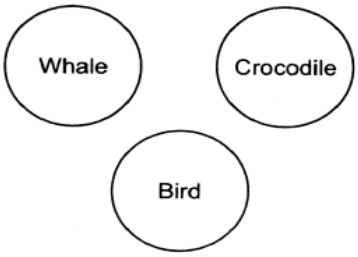
Sol.(B)



Anxiety, Intelligence and Strength are entirely different from each other.

Ex.12. Whale, Crocodile, Bird

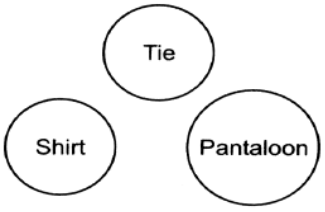
Sol.(B)



They all belong to different categories.

Ex.13. Tie, Shirt, Pantaloon

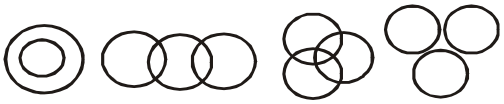
Sol.(B)



PARTICULAR

In this type, two entities are correlated and statements arise like some-first entity belongs to second entity.

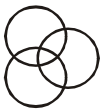
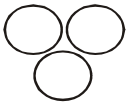
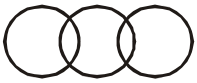
Ex.14. Find out which of the diagrams as given in the alternatives correctly represents the relationship among Employers, Doctors and Women.



(A) **(B)** **(C)** **(D)**

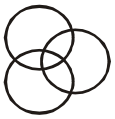
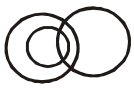
Sol.(C) Some Employers may be Doctors and vice-versa. Some Employers may be Women and vice-versa. Some Doctors may be women and vice-versa.Some women Employers may be Doctors.

Ex.15. Identify the diagram that correctly represents the relationship among illiterates, poor people and unemployed.

(A) 
(B) 
(C) 
(D) 

Sol.(B) Some illiterates may be poor people and vice-versa. Some illiterates may be unemployed and vice-versa. Some poor people may be unemployed and vice-versa. Some illiterates poor people may be unemployed. Some unemployed poor people may be illiterates. Some illiterate unemployed may be poor people.

Ex.16. Which one of the following diagrams best depicts the relationship among Boys, Students and Athletes?

(A) 
(B) 
(C) 
(D) 

Sol.(A) Some boys are students.

Some students are boys.

Some students are athletes.

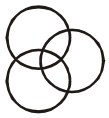
Some athletes are students.

Some boys are athletes.

Some athletes are boys.

Some boys who are students are athletes. Some students who are boys are athletes. Some athletes who are students are boys

Ex.17-19. In the following questions, One out of the four figures that follow. You are to indicate which figure the relationship amongst the three classes.

(A) 
(B) 
(C) 
(D) 

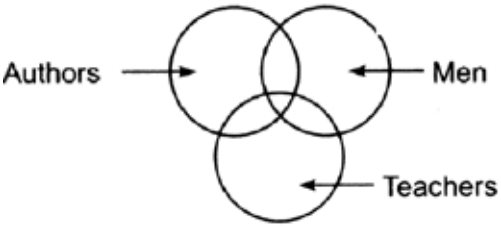
Ex.17. Black eyed people, Brown haired people, Indian.

Sol.(A) Some black eyed people may be brown haired and vice-versa. Some black eyed people may be Indians and vice-versa.

Some brown haired people may be Indians and vice-versa. Some black eyed and brown haired people may be Indians and vice-versa.

Ex.18. Teachers, Authors, men

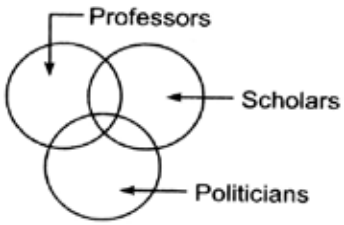
Sol.(A)



Here, some Teachers may be Authors and some Teachers may be Men. Also some Authors may be Men. So, the given items are partly related to each other.

Ex.19. Professor, Scholar, Politician

Sol.(A)



Here, some Professors may be Scholars and some Scholars may be Politicians. Also some Professors may be Politicians. So, the given items are partly related to each other.

MISCELLANEOUS

In this type, we deal with the questions which belong to at least two types as discussed earlier. Different types of cases that can be studied under this type are as follows:

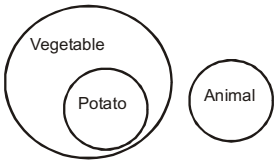
Case 1: If two separate groups of items are completely unrelated to each other, but they are completely included in the third group, then the relationships can be diagrammatically shown as :

Ex.20. Which figure represents the relation among animals, vegetables and potatoes?

(A)  **(B)** 

(C)  **(D)** 

Sol.(C) Potato comes under the class vegetable. But animal is different from them.

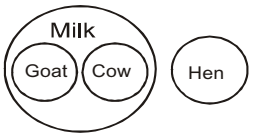


Ex.21. Which of the answer figure indicates the best relationship between milk, goat, cow, hen?

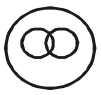
(A)  **(B)** 

(C)  **(D)** 

Sol.(C) Goat is different from cow. But both are milch animals. Hen is different from both goat and cow.

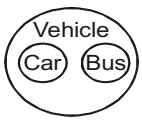


Ex.22. Which figure represents the relation among Vehicle, Car and Bus ?

(A)  **(B)** 

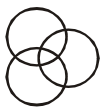
(C)  **(D)** 

Sol.(C)



Ex.23. Which figure represents the relation among Hospital, Nurse and Patient ?

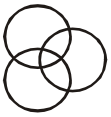
(A)  **(B)** 

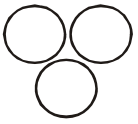
(C)  **(D)** 

Sol.(B)

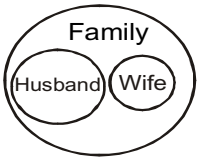
Nurse and Patient are entirely different. But both are parts of Hospital.

Ex.24. Which of the following alternative represents Husband, Wife and Family?

(A)  **(B)** 

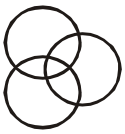
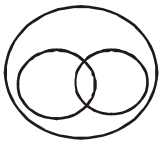
(C)  **(D)** 

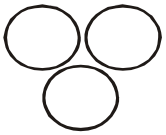
Sol.(D) Husband is different from wife both are included in the class "family".



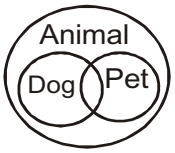
Case 2: When two groups of items have some common relationship and both of them are completely included in the third group, the relationships are shown by two smaller intersecting circles in a third large circle.

Ex.25. Which of the following alternative represents Animal, Dog and Pet ?

(A)  **(B)** 

(C)  **(D)** 

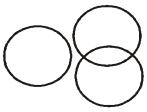
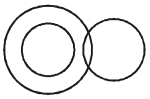
Sol.(B)

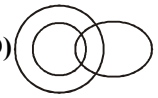


Some Dogs are Pets and some Pets are Dogs but all Dogs and Pets are Animals.

Case 3: If one item belongs to the class of second while, third item is entirely different from the two, then they may be represented by the following diagram.

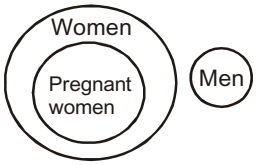
Ex.26-30. In the following questions, One out of the four figures that follow. You are to indicate which figure the relationship amongst the three classes.

(A)  **(B)** 

(C)  **(D)** 

Ex.26. Which of the following diagram represent men, women and pregnant women?

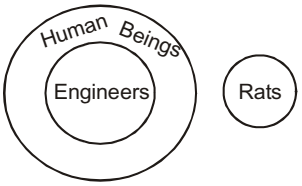
Sol.(C) Men are different from women.



All pregnant women come under the class women.

Ex.27. Engineers, Human Beings, Rats

Sol.(C)

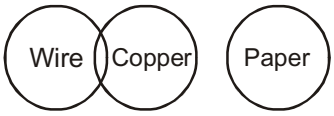


We know all Engineers are Human Beings but Rats are entirely different to both of these.

Case 4: If one group of items is partly included in the second group of items and the third group is completely unrelated to these two groups, their relationship is diagrammatically shown as:

Ex.28. Wire, Copper, Paper

Sol.(A)

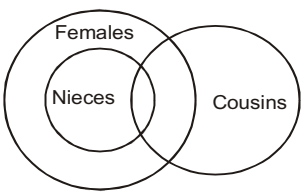


Some Wires are made of Copper but Paper is entirely different.

Case 5: If one item belongs to the class of second and the third item is partly related to these two, they are represented as shown:

Ex.29. Females, Nieces, Cousins

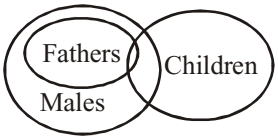
Sol.(D)



All Nieces are Females while only some Cousins can be Nieces and Females both or only Females.

Ex.30. Males, Fathers, Children

Sol.(D)

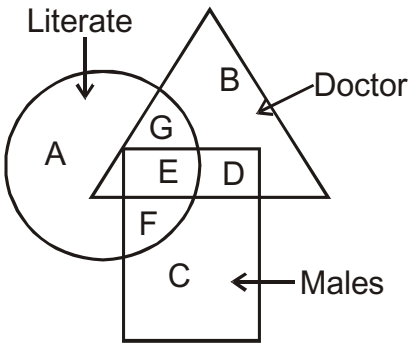


All Fathers are Males. This would be represented by two concentric circles but some Males are Children but Children can be Fathers.

OTHER TYPE VENN DIAGRAMS FORMED BY USING DIFFERENT GEOMETRICAL FIGURES

Till now, we have used only circles to represent different relationship. Here, we will use different figures to show different relationship.

Ex.31-32. Study the figure given below carefully and answer the questions that follow:



Ex.31. Which part shows Literate Males, who are Doctors?

(A) G **(B)** E

(C) D **(D)** F

Sol.(B) To depict the required part the figure should show all three diagrams, ie, E. E belongs to all Males, Doctor and Literate.

Ex.32. Which part shows Males, who are neither Doctor nor Literate?

(A) A **(B)** B

(C) C **(D)** D

Sol.(C) To depict the required part, the figure should show only males, ie,. C belongs to only Males.

EXERCISE

Q.1-10. In the following questions, one Out of the four figures that follow. You are to indicate which figure the relationship amongst the three classes.

(A) **(B)** **(C)** **(D)**

Q.1. Elephants, Wolves, Animals

Q.2. Metal, Iron, Chlorine

Q.3. Mammals, Cows, Crows

Q.4. Women, Mothers, father

Q.5. Authors, Teachers, Men

Q.6. Kerala, Bihar, India

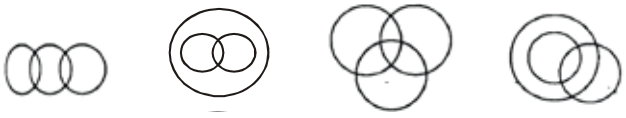
Q.7. Automobiles, Cars, Motor-cycles

Q.8. Brick, House, Bridge

Q.9. Tea, Coffee, Beverages

Q.10. Boys, Students, Athletes

Q.11-15. Each of these questions below contains three groups of things. You are to choose from the following four lettered diagrams, the one that depicts the correct relationship among the groups of things in each question.



(A) **(B)** **(C)** **(D)**

Q.11. Tennis fans, Cricket Players, Students

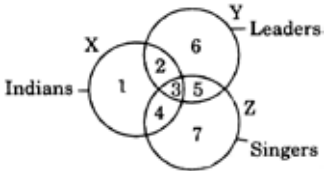
Q.12. Flowers, Clothes, White

Q.13. Smokers, Lawyers, Non-smokers

Q.14. Human beings, Teachers, Graduates

Q.15. Males, Fathers, Doctors

Q.16-17. Study the following figure carefully and answer the given questions:



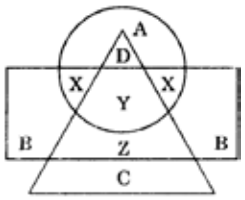
Q.16. Which region represents Indian leaders who are singers?

(A) 2 **(B)** 3 **(C)** 4 **(D)** 5

Q.17. Which region represents leaders who are neither singers nor Indians?

(A) 2 **(B)** 3 **(C)** 6 **(D)** 7

Q.18-20. In the following diagram, the circle represents Collage Professors, the triangle stands for Surgical Specialists, and Medical Specialist represented by the rectangle.



Q.18. College Professors who are also Surgical Specialists are represented by?

(A) A **(B)** B **(C)** C **(D)** D

Q.19. Surgical Specialists who are also Medical Specialists but not Professors are represented by?

(A) B **(B)** C **(C)** X **(D)** Z

Q.20. B represents?

(A) Professors who are neither Medical nor Surgical Specialists

(B) Professors who are not Surgical Specialists

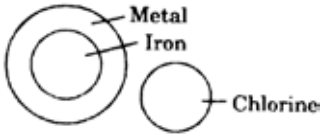
(C) Medical Specialists who are neither Professors nor Surgical Specialists

(D) Professors who are not Medical Specialists

EXPLANATION

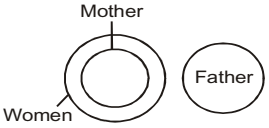
Q.1.(C) Elephants and Wolves are entirely different. But, both are animals.

Q.2.(B) Iron is a metal. Chlorine is a non-metal.



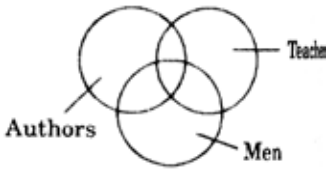
Q.3.(B) Cows belong to the class of mammals but crow are entirely different.

Q.4.(B) All mothers are women but all the fathers must be in male group.i.e. different group.



Q.5.(A) Some authors may be teachers, Some teachers may be men. Some authors may be men.

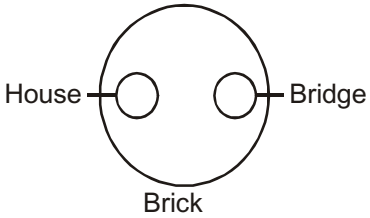
So, the given items are par related to each other.



Q.6.(C) Kerala and Bihar are entirely different. But, both are parts of India.

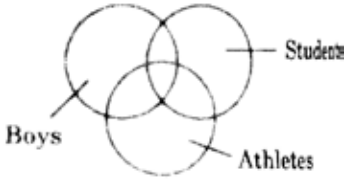
Q.7.(C) Cars and Motor-cycles are different. But, both belong to class of Automobiles.

Q.8.(C) Some houses and some bridges are made of bricks.

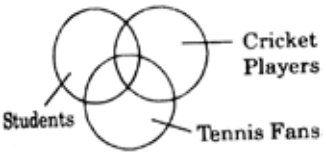


Q.9.(C) Tea and Coffee are entirely different But, both belong to-the classified Beverages.

Q.10.(A) Some boys are students. Some students are athletes. Some athletes are boys.



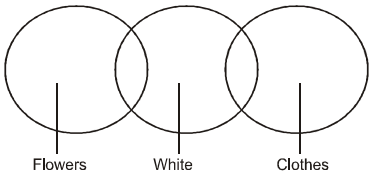
Q.11.(C) Some students are cricket players. Some cricket players may be tennis fans. Some students may be tennis fans. So, the given items are partly related to each other.



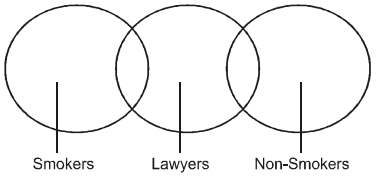
Q.12.(A) Some flowers are white.

Some Clothes are white.

Flowers and Clothes are entirely different.

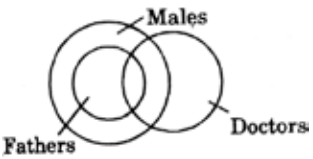


Q.13.(A) Some lawyers may be smokers. Some lawyers may be non-smokers.



Q.14.(B) All teachers and graduates are human beings. But, some teachers may be graduates and some graduates may be teachers.

Q.15.(D)



Q.16.(B) The required region is the common to all the three circles i.e. 3

Q.17.(C) The required region is the one which lie inside the circle Y but is not a part of either circle X or circle Z i.e. 6

Q.18.(D) The required region is the one which is common to the circle and the triangle only i.e. D.

Q.19.(D) The required region is the one which is common to the triangle and the rectangle but lies outside the circle i.e. Z.

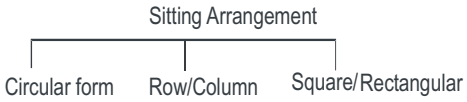
Q.20.(C) B lies inside the rectangle only. So, B represents Medical Specialists who are neither Professors nor Surgical Specialists.

CHAPTER-8
SITTING ARRANGEMENT

Scan the QR code to get video of this chapter.

Sitting Arrangement questions involve arrangement of persons in a circular table, rectangular table or line arrangement with some given conditions. In order to solve these type of questions, best strategy is to develop a rough pictorial diagram. Once diagram is complete, questions that follow can be answered easily.

Sitting Arrangment questions can be asked in three ways.



Here some Conjunction is also used instead of name of candidate.

In that case

- If AND/BUT is used then subject of the previous sentence (name of first candidate) will be used,
- If WHO/WHOM/WHOSE is used then object of the previous sentence (name of second candidate) will be used.

CIRCULAR TABLE

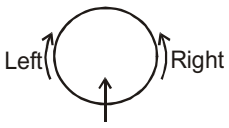
In this type of question some persons (6, 8, 10 etc.) are made to sit around the circle facing the centre or facing opposite the centre.

TYPES OF QUESTIONS

(A) FACING CENTRE:

RIGHT-ANTI-CLOCKWISE DIRECTION

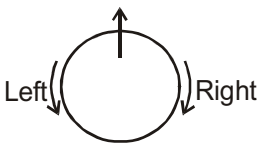
LEFT-CLOCKWISE DIRECTOIN



(B) FACING OUTSIDE OF CENTRE:

LEFT -ANTI-CLOCKWISE DIRECTION

RIGHT -CLOCKWISE DIRECTION



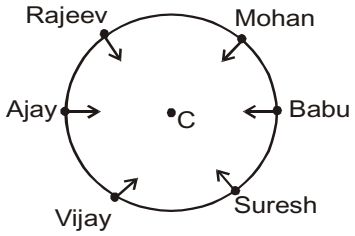
EXAMPLE

6 Boys are sitting in a circle and facing towards the centre of the circle. Rajeev is sitting to the immediate right of Mohan, but he is not just to the left of Vijay. Suresh is between Babu and Vijay. Ajay is sitting immediate left of Vijay. Who is second to the left of Ajay?

(A) Rajeev **(B)** Suresh

(C) Mohan **(D)** Babu

Sol.(C) Mohan is second to the left of Ajay.



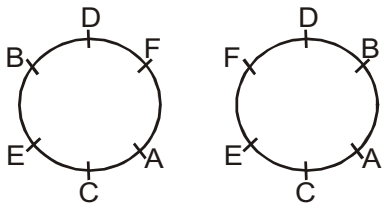
EXAMPLE

A, B, C, D, E and **F** are sitting in a circular table facing towards the centre of the table**. D** is sitting between **F** and **B**. **A** is second to the left of **D** and second to the right of **E**. Find out who is facing to **D?**

(A) B **(B)** E

(C) A **(D)** C

Sol.(D)



Hence from the diagram clearly **C** is facing to **D**.

ROW / COLUMN

In this type of the question people are made to sit in a sequential manner in a particular direction.

EXAMPLE

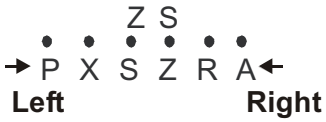
A, P, R, X, S and **Z** sitting in a straight line. **S** and **Z** are sitting in the middle and **A** and **P** are sitting

at the corner. **R** is sitting immediate left of **A**. Find out who is sitting immediate right of **P**.

(A) S **(B)** X

(C) Z **(D)** R

Sol.(B) X is immediate right of P



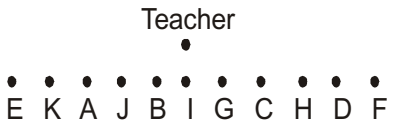
EXAMPLE

Eleven students A, B, C, D, E, F, G, H, I, J and K are sitting in first line facing north towards the teacher. D who is just to the left of F, is at second place to the right of C. A is second to the right of E who is at one end. J is the neighbour of A and B and third place left to the G. H is next to the left D and is at the third place to the right of I. Who is third to the right of K?

(A) I **(B)** J

(C) B **(D)** G

Sol.(C)



SQUARE/RECTANGULAR

In this type of question some persons are made to sit around a square/rectangle table facing the centre or facing outside of the centre.

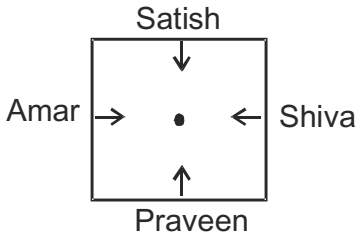
EXAMPLE

Shiva, Satish, Amar and Praveen are playing cards. Amar is just to the right of Satish, who is just to the right of Shiva. Who is an immediate left of Praveen?

(A) Amar **(B)** Satish

(C) Shiva **(D)** Can't be determined

Sol.(A)



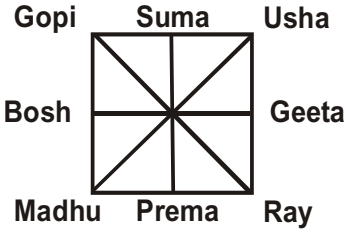
EXAMPLE

4 Boys and **4** Girls sitting in a square table facing to the centre. Four of them are sitting at the corner and four them are sitting in the middle of the side. Madhu is sitting diagonally opposite to Usha, who is sitting just right of Geeta. Ray is sitting next to Geeta and opposite to Gopi, who is just left of Bosh. Suma is not immediate right of Madhu but opposite to Prema. Find out who is sitting opposite to Bosh.

(A) Ray **(B)** Madhu

(C) Geeta **(D)** Usha

Sol.(C) According to the question each Boys and Girls are sitting in a square table with this pattern.



From the diagram clearly **Geeta** is sitting opposite to **Bosh**.

MORE EXAMPLES

Ex.1. A, B and C are three boys while R, S and T are three girls. They are sitting in such a way that the boys are facing the girls.

A and R are diagonally opposite to each other.

C is not sitting at any of the ends.

T is just left of R but opposite to C.

Q.1 Who is sitting opposite to B?

(A) S **(B)** T **(C)** A **(D)** R

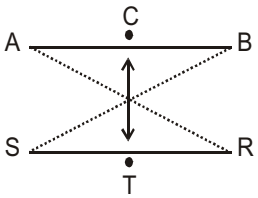
Sol.(D) Hence, R is sitting opposite to B.

Q.2 Who is sitting diagonally opposite to B?

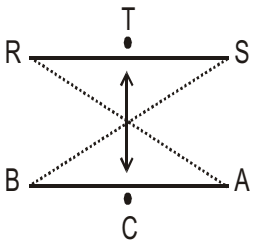
(A) S **(B)** T **(C)** A **(D)** R

Sol.(A) Hence, S is sitting diagonally opposite to B.

Ist position :



IInd position :

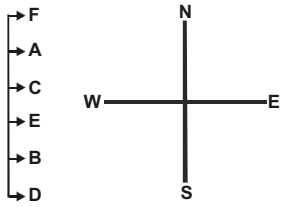


Ex.2. Six friends **A, B, C, D, E and F** are sitting in a straight line facing to East direction. **C** is sitting between **A and E. B** sits immediate right of **E** but just left of **D**. **F** is not sitting at the extreme right end.

Find out who is at extreme left end ?

(A) F **(B)** C **(C)** E **(D)** D

Sol.(A) Six friends **A, B, C, D, E and F** sitting in a straight line according to this pattern.



According to the diagram, **F** is sitting at extreme left end when they are facing to East direction.

Ex.3. 8 persons **A, B, C, D, E, F, G** and **H** are sitting in a circular table and facing outside the centre A is between H and B. C is second to the left of B. F is second to the right of D. F is not neighbour of B. F and G are neighbours, then which option is true?

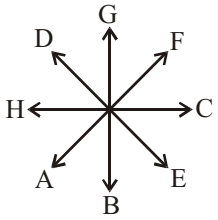
(A) B is immediate left of E.

(B) E is between B and C.

(C) H is second to the right of E.

(D) A is second to the left of E.

Sol.(B)



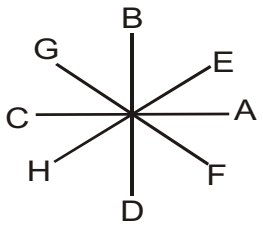
Ex.4. **8** Persons A, B, C, D, E, F, G and H are sitting around a circular table facing the center. A is second to the right of D, who is 4th to the left of B. E is 3rd to the left of C, but C is not an immediate neighbour of B or D. F and G are facing each other, but F is second to the right of H.

Who is sitting in front of E?

(A) B **(B)** E

(C) F **(D)** H

Sol.(D)



H is sitting in front of E.

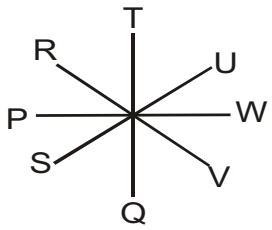
Ex.5. P, Q, R, S, T, U, V and W are sitting in a circle facing the centre R is third to the left of Q. T is fourth to the right of Q. U and P are not immediate neighbour of Q, but P is 3rd to the right of U. W is not an immediate neighbour of Q. V is second to the right of S.

Who is third to the left of W?

(A) P **(B)** S

(C) T **(D)** Q

Sol.(B)



S is 3rd to the left of W.

NOTES

EXERCISE

Q.1-4. Eight Friends A, B, C, D, E, F, G and H are sitting around a circular table facing the centre not necessarily in the same order. B is second to the right of A. B is to Immediate left of H. D is second to right of B. F is fourth to left of H. C is an immediate neighbour of D. E is not an Immediate neighbour of A.

Q.1. Who is sitting third to the left of G?

(A) F **(B)** E

(C) C **(D)** H

Q.2. Who is sitting exactly between A and B?

(A) E **(B)** D

(C) F **(D)** G

Q.3. Three of the following four pairs of people are alike in a certain way based. On their positions in the arrangement given above and so form a group. Which one of the following pairs of people does not belong to that group?

(A) GA **(B)** FC

(C) DB **(D)** HG

Q.4. In which of the following pairs of people, are the people sitting immediately next to each other ?

(A) DC **(B)** FC

(C) DB **(D)** HG

Q.5. Six friends A, B, C, D, E and F are sitting in a row facing East. C is between A and E. B is just to the right of E but just left of D. F is not at the right end. Who is at the right end?

(A) D **(B)** B

(C) E **(D)** C

Q.6. In a row of the six members, P is sitting to the left of Q but to the right of X, R is sitting to the right of X but to the left of Q. Y is to the right of Q and is to the left of Z. Who is third from the both ends?

(A) PR **(B)** RQ

(C) XR **(D)** Can't be determined

Q.7-8. Read the following information carefully and then answer the question that follow. A, B, C, D and E are sitting around a circular table. C is to the immediate right of A and is second to the left of the D. E is not between A and D.

Q.7. Who is between A and D?

(A) E **(B)** A

(C) B **(D)** C

Q.8. Who is next to the right of C?

(A) B **(B)** A

(C) E **(D)** D

Q.9. A group of four boys each sitting at the corners of a square and 4 girls each sitting at the midpoints of the sides. All are facing the centre. Mathur is sitting diagonally opposite to Bose who is to Geeta's right. Roy is next to Geeta and opposite to Gopi, who is to Usha's left. Seema is not Mathur's right but opposite to Prema. Who is opposite to Usha?

(A) Roy **(B)** Seema

(C) Geeta **(D)** Gopi

Q.10. Six friends A, B, C, D, E and F are sitting around a ciruclar table facing center, if F is between A and D. C is between E and B. E is not between D and C. D is second to the left of C, then what is the position of A?

(A) Second to the right of D

(B) Immediate right of B

(C) Third to the right of B

(D) Fourth to the right of D

Q.11-13. Study the following seating arrangement carefully and answer the given questions.

Twelve people are sitting in two parallel rows containing six people each, in such way that there is an equal distance between adjacent persons. In row -1 P, Q, R, S, T and V are sitting 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 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 end of the line. Only two people sit between B and E. E does not sit in front of V. Only two people sits 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.

Q.11. Who amongst the following sit at extreme ends of the rows?

(A) B, E **(B)** S,T

(C) P, R **(D)** B, F

Q.12. Who amongst the following faces A?

(A) R **(B)** T

(C) P **(D)** S

Q.13. How many persons are seated between T and S?

(A) One **(B)** Two

(C) Three **(D)** Four

Q.14-17. Study the following information carefully and answer the questions given below.

Eight students are sitting around the circle and facing at the centre. Avantika is second to the left of Himanshu. Bheem is fourth to the left of Aisha and second to the right of Dhiranjeev. Avantika is not the neighbour of Chiranjeev and Aisha. Chiranjeev is sitting infront of Dhiranjeev and third to the left of Garima. Eleena is second to the right of Himanshu.

Q.14. Who is sitting between Himanshu and Avantika?

(A) Chiranjeev **(B)** Dhiranjeev

(C) Avantika **(D)** None of these

Q.15. Who is sitting infront of Aisha?

(A) Eleena **(B)** Bheem

(C) Chiranjeev **(D)** Dhiranjeev

Q.16. Who is the neighbour of Himanshu and Eleena?

(A) Dhiranjeev **(B)** Garima

(C) Bheem **(D)** Chiranjeev

Q.17. Who is sitting fifth to the right of Eleena?

(A) Aisha **(B)** Garima

(C) Chiranjeev **(D)** Bheem

Q.18-20. Read the given information carefully and answer the given questions.

A, B, C, D, E and F are sitting in a straight line facing south, not necessarily in the same order. A is sitting fourth to the left of F and F is not sitting at the extreme end of the line. D is sitting third to the right of E. B is not an immediate neighbour of A.

Q.18. How many people are sitting between C and F?

(A) One **(B)** Two

(C) Three **(D)** More than three

Q.19. What is the position of E with respect to A?

(A) Second to the left

(B) Third to the right

(C) Second to the right

(D) Immediate right

Q.20. Which of the pairs represents the people sitting at the extreme ends of the line?

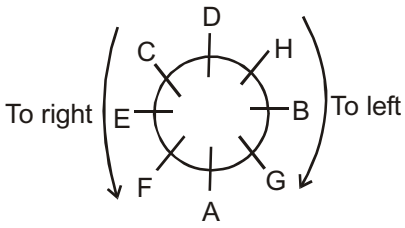
(A) AC **(B)** BA

(C) DC **(D)** DA

NOTES

EXPLANATION

Q.1-4.



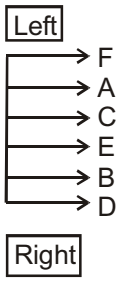
Q.1.(B) E

Q.2.(D) G is sitting exactly between A and B.

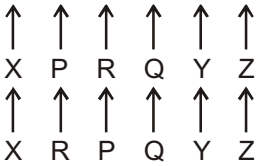
Q.3.(A)

Q.4.(A) DC

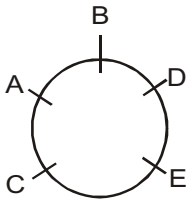
Q.5.(A)



Q.6.(D)



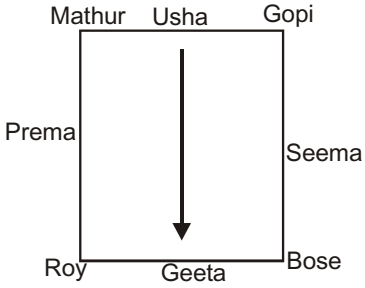
Q.7-8.



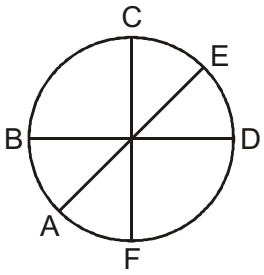
Q.7.(C) B

Q.8.(C) E

Q.9.(C)

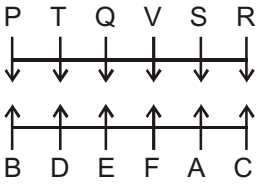


Q.10.(C)



D is third to the right of B

Q.11-13.

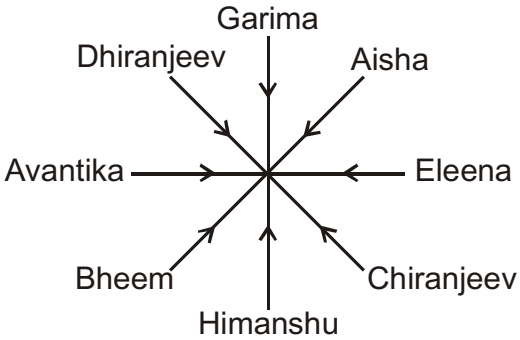


Q.11.(C)

Q.12.(D)

Q.13.(B)

Q.14-17.



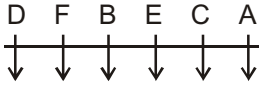
Q.14.(D)

Q.15.(B)

Q.16.(D)

Q.17.(D)

Q.18-20.



Q.18.(B)

Q.19.(C)

Q.20.(D)

CHAPTER-9
ANALOGY

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WHAT IS ANALOGY?

Analogy means correspondence or similarity, ie, having similar features. In questions based on Analogy, a particular relationship is given and another similar relationship has to be identified from the alternatives provided. Questions based on analogy are set up to test a candidate's overall knowledge, power of reasoning and ability to think. These types of questions cover every types of relationships that one can think.

There are many ways of establishing a relationship like Quantity and Unit, Worker and Tools, Cause and Effect, Word-Synonym, Word-Antonym, Country and Capital, State and Capital, Country and Currency, Animal and their Young Ones, Male and Female, Animals and their resting Places, Games and Places of playing. Here, some relationships are given, which are useful for solving questions on Analogy.

Country	Capital	Currency
Bangladesh	Dhaka	Taka
Iraq	Baghdad	Iraqi Dinar
China	Beijing	Yuan/Renminbi
India	New Delhi	Rupee
UK	London	Pound Sterling
Japan	Tokyo	Yen
USA	Washington D.C.	Dollar
Russia	Moscow	Ruble
Greece	Athens	Euro

States of India	Capital
Sikkim	Gangtok
Tamil Nadu	Chennai
West Bengal	Kolkata
Odisha	Bhubaneswar
Goa	Panaji
Bihar	Patna

Worker	Name of Working Place
Lawyer	Court
Waiter	Restaurant
Servant	House
Teacher	School
Beautician	Parlour
Chef	Kitchen
Mechanic	Garage
Sailor	Ship

Male	Female
Dog	Bitch
Son	Daughter
Horse	Mare
Brother	Sister
Bull	Cow
Nephew	Niece
Cock	Hen
Lord	Lady

Individual	Class
Frog	Amphibian
Man	Mammal
Rat	Rodent
Ostrich	Bird
Cup	Corckery
Whale	Mammal
Snake	Reptile
Pen	Stationery

Animal	Progeny
Dog	Puppy
Cow	Calf
Hen	Chick
Bear	Cub
Cat	Kitten

Quantity	Unit
Power	Watt
Mass	Kilogram
Pressure	Pascal
Work	Joule
Current	Ampere

Volume	Litre
Area	Hectare
Force	Newton
Time	Second

Word	Synonym
Assign	Allot
Dissipate	Squander
Substitute	Replace
Brim	Edge
Abduct	Kidnap
Dearth	Scarcity
Haughty	Proud

Word	Antonym
Robust	Weak
Gentle	Harsh
Deep	Shallow
Kind	Cruel
Chaos	Peace
Lethargy	Alertness
Mourn	Rejoice

Individual	Dwelling place
Lion	Den
King	Palace
Spider	Web
Eskimo	Igloo
Horse	Stable
Soldier	Barracks
Bird	Nest
Bee	Hive

Instrument	Measurement
Seismograph	Earthquake
Barometer	Pressure
Ammeter	Current
Odometer	Speed
Thermometer	Temperature

Game	Place of Playing
Tennis	Court
Race	Track
Wrestling	Arena
Badminton	Court
Boxing	Ring
Skating	Rink

Worker	Product
Farmer	Crops
Teacher	Education
Architect	Designs
Tailor	Clothes
Producer	Films
Goldsmith	Ornaments

TYPES OF QUESTIONS ASKED IN VARIOUS COMPETITIONS

Different types of questions that are asked in various competitions, have been given below:

DIRECT SIMPLE ANALOGY

In this type of analogy, we deal with questions which have three components. Two have some relationship and you have to choose from the alternatives one which has the same relationship.

EXAMPLES

Ex.1. **Part** is related to **whole** in the same way as **Arc** is related to -----?

(A) Trapezium **(B)** Circle

(C) Triangle **(D)** Square

Sol.(B)

Ex.2. **Tennis** is related to **Court** in the same way as **Boxing** is related to ?

(A) Pool **(B)** Ring

(C) Ground **(D)** Course

Sol.(B)

Ex.3. **Major** is related to **Lieutenant** in the same way as **Squadron Leader** is related to .....

(A) Group Captain **(B)** Flying Attendant

(C) Flying Officer **(D)** Pilot Officer

Sol.(C) Major and Squadron Leader are equivalent ranks in the Army and the Air Force respectively and so are Lieutenant and Flying Officer.

Ex.4. **College** is related to **student** in the same way as **Hospital** is related to ..... .

(A) Doctor **(B)** Nurse

(C) Treatment **(D)** Patient

Sol.(D) First works for and earns from the second.

COMPLETING THE ANALOGOUS PAIR

In these type of questions, two words are given. These words are related to each other in some or other way.

Another word is also given. The candidate is required to find out the relationship between the first two words and choose the word from the given alternatives, which have the same relationship to the third word, as between the first two.

Ex.5. Botany : Plants : : Entomology : ?

(A) Birds **(B)** Plants

(C) Insects **(D)** Snakes

Sol.(C) Study of plants is botany same way study of insects is entomology

Ex.6. Lion : Den : : Rabbit : ?

(A) Hole **(B)** Pit

(C) Burrow **(D)** Trench

Sol.(C) Lion lives in Den same way rabbit lives in burrow.

Ex.7. Red blood Cells : Erythrocytes : : White Blood Cells : ?

(A) Thrombocytes **(B)** Lymphocytes

(C) Monocytes **(D)** Leucocytes

Sol.(D) Red Blood cells are also called Erythrocytes. Similarly, White Blood Cells are called Leucocytes.

Ex.8. Moon : Chandrayan : : Mars : ?

(A) Apple **(B)** Aryabhata

(C) Mangalyan **(D)** Bhaskara

Sol.(C) The spacecraft landed on moon was named Chandrayan by the Indian space Research Organisation. Similarly, the spacecraft which landed on Mars in 2014 was named Mangalyan.

Ex.9. Mother : Child : : Cloud : ?

(A) Shine **(B)** Water

(C) Rain **(D)** Weather

Sol.(C)

Ex.10. Boat : Ore : : Bicycle : ?

(A) Pedal **(B)** Seat

(C) Road **(D)** Wheel

Sol.(A) Second denotes that part of the first, on which the effort is applied. Hence, option **(A)** is our answer.

Ex.11. Traveller : Journey : : Sailor :?

(A) Water **(B)** Ship

(C) Voyage **(D)** Crew

Sol.(C) Second is the name given to the process of travel of the first. Hence, option **(C)** is our answer.

CHOOSING THE ANALOGOUS PAIR

In these types of questions, a pair of words is given, followed by four pairs of words as alternatives. You are required to choose the pair in which the words bear the same relationship.

Ex.12. Apostate : Religion

(A) Teacher : Education

(B) Traitor : Country

(C) Potentate : Kingdom

(D) Jailor : Law

Sol.(B) Apostate is one who renounces religion. Similarly, traitor is one who betrays his country. Hence, option **(B)** is our answer.

Ex.13. Gland : Enzyme

(A) Muscle : Spasm

(B) Generator : Current

(C) Organ : Kidney

(D) Brain : Cortex

Sol.(B) As gland produces enzyme. Similarly, generator produces current.

CHOOSING A SIMILAR WORD

In these type of questions, a group of three words is given, followed by four other words as alternatives. The candidate is required to choose the alternative, which is similar to the given words.

Ex.14. Kolkata, Mumbai, Mangalore

(A) Delhi **(B)** Lucknow

(C) Cochin **(D)** Hyderabad

Sol.(C) All are port cities of India.

Ex.15. Bhilai, Duragapur, Bokaro

(A) Baroda **(B)** Chennai

(C) Chandigarh **(D)** Rourkela

Sol.(D) All are cities and are famous for steel plants.

OTHER TYPES OF ANALOGY

NUMBER ANALOGY

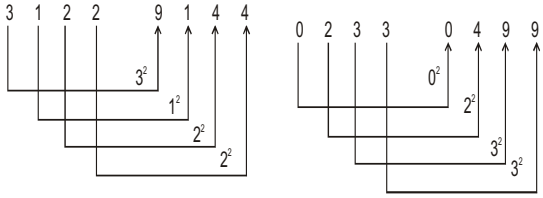
In this type of analogy, questions have two numbers/ pairs bearing a relationship. There is also third number/pair which have the same relationship from the alternative. You are required to find that alternative.

Ex.16. 3, 1, 2, 2 : 9, 1, 4, 4 : : 0, 2, 3, 3 : ?

(A) 1, 4, 6, 6 **(B)** 1, 4, 9, 9

(C) 0, 4, 6, 6 **(D)** 0, 4, 9, 9

Sol.(D)



Ex.17. 42 : 56 : : 72 : ?

(A) 81 **(B)** 90

(C) 92 **(D)** 100

Sol.(B) $6^2 + 6 = 36 + 6 = 42$

$7^2 + 7 = 49 + 7 = 56$

$8^2 + 8 = 64 + 8 = 72$

$9^2 + 9 = 90$

Ex.18. 16 : 56 : : 32 : ?

(A) 96 **(B)** 112

(C) 120 **(D)** 128

Sol.(B) $8 \times 2 = 16$

$8 \times 7 = 56$

$16 \times 2 = 32$

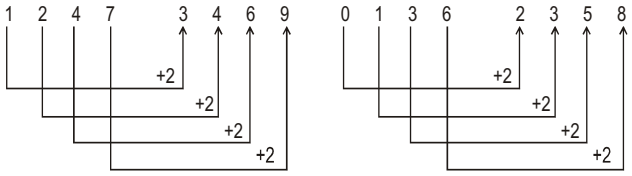
$? = 16 \times 7 = 112$

Ex.19. 1, 2, 4, 7 : 3, 4, 6, 9 : : ? : 2, 3, 5, 8

(A) 0, 1, 3, 6 **(B)** 2, 4, 5, 8

(C) 1, 3, 4, 7 **(D)** 2, 5, 6, 8

Sol.(A)



Ex.20. **2 : 8 : : 3 : ?**

(A) 20 **(B)** 21

(C) 24 **(D)** 27

Sol.(D) Second number is the cube of first number. Hence, 3 : 27. As, 27 is the cube of 3.

Ex.21. 5 : 35 :: ?

(A) 7:77 **(B)** 9:45

(C) 11 :45 **(D)** 3:28

Sol.(A) The first number is multiplied by the next prime number to obtain the second number.

So, $7 \times (11) = 77$

ALPHABETICAL ANALOGY

In this type of analogy, two groups of letters related to each other in same way are given, you are required to find out this relationship and then choose a letter-group which is related in the same way from the four options.

Ex.22. FLOWER : REWOLF : FRUITS : ?

(A) STUIRF **(B)** STIURF

(C) STUIFR **(D)** STRUIF

Sol.(B) Reverse order of given word.

Ex.23. VOHA : WPIB : : CJQX : ?

(A) DKRY **(B)** YRKD

(C) RKDY **(D)** YDKR

Sol.(A) Next alphabet of each alphabet.

Ex.24. ABCD : QRST : : BACD : ?

(A) RQST **(B)** STQR

(C) QRST **(D)** RSTQ

Sol.(A) QRST $\longrightarrow$ RQST

Ex.25. BGEK : YTVP : : AFEJ : ?

(A) UZBK **(B)** BGFK

(C) XSVO **(D)** ZEDI

Sol.(C)

$\overline{B}^{-1}$	$\overline{G}^{-1}$	$\overline{E}^{0}$	$\overline{K}^{-1}$	/	$\overline{Y}^{-1}$	$\overline{T}^{-1}$	$\overline{V}^{0}$	$\overline{P}^{-1}$
A	F	E	J	/	X	S	V	O

Ex.26. BJCI : JBIC : : CXDW : ?

(A) JCDU **(B)** BCJU

(C) EVFU **(D)** XCWD

Sol.(D) B J C I J B I C/ C X D W X C W D

Ex.27. MUMBAI : LTLAZH : : DELHI :?

(A) CDKGG **(B)** IHLED

(C) CDKGH **(D)** BCKGH

Sol.(C) Each letter of the first group is moved one step backward to obtain the corresponding letter of the second group.

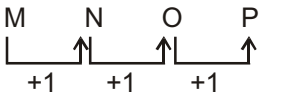
So, DELHI $\rightarrow$ CDKGH

Ex.28. MN : OP : : ?

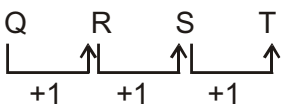
(A) AD : GH **(B)** AB : PQ

(C) QR : ST **(D)** RS : TV

Sol.(C) The letters in both the groups in a pair are consecutive letters in the order.



Similarly



EXERCISE

Q.1-30. In each of the following questions. Select the related letter/word/number/figure from the given alternatives.

Q.1. 'Pitch' is related to 'Cricket', in the same way as 'Arena' is related to ..... .
(A) Tennis **(B)** Gymnastic
(C) Badminton **(D)** Wrestling

Q.2. 'Impossible' is related to 'Feasible', in the same way as 'Theoretical' is related to ..... .
(A) Radical **(B)** Usable
(C) Practical **(D)** Workable

Q.3. 'Cyclone' is related to 'Anticyclone', in the same way as 'Flood' is related to ..... .
(A) Devastation **(B)** Havoc
(C) River **(D)** Drought

Q.4. 'Doctor' is related to 'Patient' in the same way 'Lawyer' is related to .....
(A) Customer **(B)** Criminal
(C) Magistrate **(D)** Client

Q.5. 'Exhaustion' is related to 'Work', in the same way 'Happiness' is related to ....
(A) Sleeping **(B)** Relaxation
(C) Success **(D)** Practice

Q.6. Walking : Running : : Wind : ?
(A) Air **(B)** Rain
(C) Storm **(D)** Weather

Q.7. Venerate : Worship : : Extol: ?
(A) Glorify **(B)** Homage
(C) Compliment **(D)** Recommend

Q.8. Planet: Orbit: : Projectile : ?
(A) Trajectory **(B)** Milky way
(C) Planet **(D)** Path

Q.9. Cobbler : Leather : : Carpenter : ?
(A) Furniture **(B)** Wood
(C) Hammer **(D)** Chair

Q.10. Ocean : Water :: Glacier : ?
(A) Refrigerator **(B)** Ice
(C) Mountain **(D)** Cave

Q.11. EJOT : VQLG : : BGLQ : ?
(A) AEIM **(B)** AFKP **(C)** YTOJ **(D)** ZUPK

Q.12. AZBY : BYAZ : BXCW : ?
(A) CWBX **(B)** CWDX
(C) BWXZ **(D)** BWWZ

Q.13. EIGHTY : GIEYTH : : OUTPUT : ?
(A) TUOTUP **(B)** TUOUTP
(C) UTOPTU **(D)** UOTUPT

Q.14. RH : 13 : : DP : ?
(A) 20 **(B)** 10 **(C)** 15 **(D)** 18

Q.15. $\frac{M}{X}:\frac{31}{42}::\frac{L}{O}:?$
(A) $\frac{21}{32}$ **(B)** $\frac{15}{23}$ **(C)** $\frac{21}{51}$ **(D)** $\frac{11}{41}$

Q.16. LUX : 57 : : SIT : ?
(A) 48 **(B)** 44 **(C)** 46 **(D)** 42

Q.17. 42 : 56 : : 110 : ?
(A) 18 **(B)** 132 **(C)** 136 **(D)** 140

Q.18. 9 : 162 : : 8 : ?
(A) 162 **(B)** 128 **(C)** 96 **(D)** 112

Q.19. 35 : 15 : : 91 : ?
(A) 18 **(B)** 35 **(C)** 32 **(D)** 21

Q.20. 9 : 22 : : 16 : ?
(A) 60 **(B)** 32 **(C)** 140 **(D)** 64

Q.21. 32 : 13 : : 27 : ?
(A) 43 **(B)** 28 **(C)** 53 **(D)** 40

Q.22. MEAL: MFL; TAKE : TLE; SIDE : ?
(A) SELI **(B)** LIS **(C)** SME **(D)** SIL

Q.23. Pound : Yen : : Polo : ?
(A) Hockey **(B)** Horse
(C) Passenger **(D)** Stick

Q.24. ACCE : EGGI : : IKKM : ?
(A) MOOQ **(B)** NOOP
(C) MPPQ **(D)** NPPR

Q.25. 27 : 7295 : : 15 : ?
(A) 1444 **(B)** 2255 **(C)** 2895 **(D)** 3243

Q.26. Asthma : Lungs : : Conjunctivitis : ?
(A) Bones **(B)** Teeth **(C)** Eyes **(D)** Blood

Q.27. Thermometer : Temperature : : Glucometer : ?
(A) Body Sugar **(B)** Body resistance
(C) Blood **(D)** Blood Sugar

Q.28. 72 : 449 : ? : 3681
(A) 94 **(B)** 96 **(C)** 74 **(D)** 92

Q.29. 9 : 593 : : 6 : ?
(A) 156 **(B)** 142 **(C)** 149 **(D)** 161

Q.30. MTBA : AZHO : : ? : QIXW
(A) EDSK **(B)** ABDC **(C)** CBAD **(D)** BCQI

EXPLANATION

Q.1.(D) 'Cricket' is played on 'pitch'. Similarly, 'Wrestling' is done in 'Arena'. '

Q.2.(B) 'Impossible' is antonym of 'Feasible', similarly 'Theoretical' is the antonym of 'Practical'.

Q.3.(D) The words in each pair represent opposite conditions.

Q.4.(D) 'Doctor' deals with 'Patient'. Similarly, 'Lawyer' deals with 'Client'.

Q.5.(C) One is achieved by another.

Q.6.(C) 'Running' is higher degree of 'Walking'. So, Similarly, 'Storm' is higher degree of 'Wind'.

Q.7.(A) The words in each pair are the synonymous of each other.

Q.8.(A) First is the motion of second.

Q.9.(B) Second is the raw material required by the first.

Q.10.(B) First contains the second.

Q.11.(C) Each letter of the first group occupies the same position from the beginning of the alphabet as the corresponding letter of the second group occupies from the end of the alphabet.

5th from starting -» E -» V <- 5th from last,

10th from starting -»J -> Q <- 10th from last,

15th from starting -» O -> L «- 15th from last,

20th from starting -> T -» G <- 20th from last Similarly,

2nd from starting -> B —» Y

7th from starting -> G -> T

12th from starting —» L —» O

17th from starting —» Q —» J

Q.12.(A) AZBY interchange to BYAZ Similaly BXCW will be interchange in - CWBX.

Q.13.(A) The first three letters and the last three letters of the first group are individually reversed in order to obtain the second group.

Q.14.(B) As, RH => (18+ 8) ÷ 2 = 26 ÷ 2 = 13 Similarly, DP => (4+16) ÷ 2 = 20 ÷ 2 = 10

Q.15.(C) As M = 13 => 31, X = 24 => 42 Similarly L = 12 => 21 & O = 15 => 51

Q.16.(A) As, LUX = 12+ 21+24 = 57 Similarly, SIT => 19 + 9 + 20 =48

Q.17.(B) Clearly, and Similarly, 42 = 7 × 6, 56 = 7 × (6 + 2), 110= 11 × 10 Hence, required number = 11 × (10 + 2) = 11 × 12 = 132

Q.18.(B) $9^2 \times 2 = 162$ Similarly $8^2 \times 2 = 128$

Q.19.(A) 3+5 = 8/2 = 4 = 4×3 = 12 + 3 = 15, Similarly 9 + 1 = 10/2 = 5 = 5×3 = 15 + 3 = 18

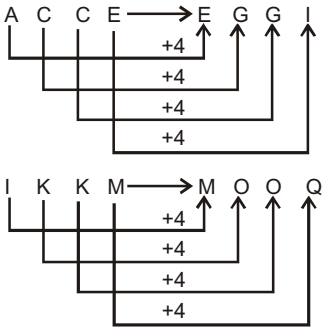
Q.20.(B) As, 3 × 3 = 9; 5 × 5 - 3 = 22, Similarly, 4 × 4 = 16; 6 × 6 - 4 = 32

Q.21.(C) As, 32=>$3^2 + 2^2$ = 9+4 = 13 Similarly, 27 =>2^2+7^2 = 4+49 = 53

Q.22.(C)

Q.23.(A) Pound and yen both are name of currency of two country similarly polo and Hockey name of two sports.

Q.24.(A)



Q.25.(B) $(27)^2$ = 729 —»729<u>5</u>

Similarly $(15)^2$ = 225 —» 225<u>5</u>

Q.26.(C) Asthma affects lungs, similarly conjunctivitis affects eyes.

Q.27.(D) Thermometer is used to measure temperature. Similarly, Glucometer is used to measure blood sugar.

Q.28.(B)

72 = 7, 2 = 7^2, 2^2 = 49, 04 = 449

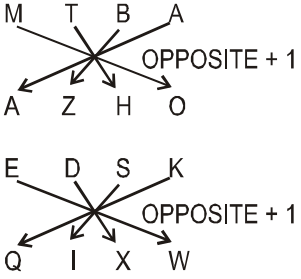
96 = 9, 6 = 9^2, 6^2 = 81, 36 = 3681

Q.29.(D)

$9^2 + 8^3$ = 81 + 512 = 593

$6^2 + 5^3$ = 36 + 125 = 161

Q.30.(A)



CHAPTER-10
CLASSIFICATION

Scan the QR code to get video of this chapter.

WHAT IS CLASSIFICATION

Classification means 'to assort the items of a given group on the basis of a certain common quality they possess and then spot the stranger or 'odd one out'. These questions are based on words, letters and numerals. In these types of words problems, we consider the defining quality of particular things. In these questions, four elements or parts are given, out of which one doesn't belong to the group. You are required to find the 'odd one'.

TYPES OF CLASSIFICATION

These are the types of questions which we shall consider in Classification:

CHOOSING THE ODD WORD

In these type of problems, some words are given which belong to real world. They have some common features except the odd one. You are required to find the 'odd man out'.

Ex.1-20. In each of the following questions, four words have been given out of which three are alike in same manner while the other one is different. Choose the odd one.

Ex.1. **(A)** Heering **(B)** Shark
(C) Whale **(D)** Barracuda

Sol.(C) Except Whale all other belong to class pieces, Whale is a mammal.

Ex.2. **(A)** Microbe **(B)** Microfilm
(C) Microphone **(D)** Microscope

Sol.(A) Microbe is living organism. Other are scientific apparatus.

Ex.3. **(A)** Harmless **(B)** Guilty
(C) Innocent **(D)** Fearless

Sol.(B) All other reflect the positive qualities of human being, while guilty reflects his negative quality.

Ex.4. **(A)** Andaman-Nicobar **(B)** Pondicherry
(C) Delhi **(D)** Goa

Sol.(C) The three states/UTs are near sea beach or an island in the sea.

Ex.5. **(A)** Analysis **(B)** Search
(C) Conclusion **(D)** Investigation

Sol.(C) Conclusion in the final stage of analysis, search and investigation.

Ex.6. **(A)** Intimacy **(B)** Attachment
(C) Friendship **(D)** Enmity

Sol.(D) Except Enmity, all other words represent cordial relationship.

Ex.7. **(A)** Diligent **(B)** Dignified
(C) Dissident **(D)** Devoted

Sol.(C) Except Dissident, all other words imply positive attitude.

Ex.8. **(A)** Heat **(B)** Light
(C) Bulb **(D)** Electricity

Sol.(C) Bulb is an item while all other are phenomena.

Ex.9. **(A)** Wave **(B)** Current
(C) Tide **(D)** Storm

Sol.(C) Except Tide, all other related to both air and water. But tide is a regular rise and fall in the level of sea, caused by the attraction of the moon and sun.

Ex.10. **(A)** Softball **(B)** Baseball
(C) Cricket **(D)** Basketball

Sol.(D) Basketball is different from others. In Softball, Baseball and Cricket, bats and balls are used. Basketball involves only ball.

Ex.11. **(A)** Annoy **(B)** Distress
(C) Harass **(D)** Ravage

Sol.(D) Ravage is the different from other words.

Ex.12. **(A)** Tomato **(B)** Potato
(C) Carrot **(D)** Onion

Sol.(A) Except Tomato all others are grown underground.

Ex.13. **(A)** Flute **(B)** Violin
(C) Guitar **(D)** Sitar

Sol.(A) Except Flute, all others are stringed musical instruments.

Ex.14. **(A)** Prison **(B)** Court
(C) Handcuffs **(D)** Uniform

Sol.(D) Prison, court and Handcuffs are related in some way. Uniform is meant for a wide range of groups, viz, school uniform, military uniform and so on.

Ex.15. **(A)** River **(B)** Canal
(C) Stream **(D)** Pond

Sol.(D) In all others water flow in unidirection or they have no closed boundary on all the four sides whereas pond is an enclosed body of water.

Ex.16. **(A)** Blind **(B)** Dumb
(C) Deaf **(D)** Idiot

Sol.(D) The rest three are physical defects.

Ex.17. **(A)** Pear **(B)** Apple
(C) Guava **(D)** Orange

Sol.(D) Out of given fruits orange is citrus fruit. So, it is different from others.

Ex.18. **(A)** Deck **(B)** Quay
(C) Stern **(D)** Bow

Sol.(B) All except quay are parts of a ship.

Ex.19. **(A)** Tomato **(B)** Brinjal
(C) Cucumber **(D)** Potato

Sol.(D) All the vegetables except potato grow above the ground level.

Ex.20. **(A)** Mustard **(B)** Onion
(C) Olive **(D)** Seasame

Sol.(B) All except onion are used for extracting oil.

CHOOSING THE ODD PAIR OF WORDS

In this type of classification, different pairs are classified on the basis of some common features/ properties like names, places, uses, situations, origin, etc.

Ex.21-33. In each of the following questions, four pairs of words are given out of which words in four/three pairs bear a certain common relationship. Choose the pair in which the words are differently related.

Ex.21. **(A)** Paper : Pencil **(B)** Head : Cap
(C) Ink : Inkpot **(D)** Present : Wrapper

Sol.(A) Except the pair Paper-Pencil in all other pairs, one is kept on other.

Ex.22. **(A)** Reward : Punishment
(B) Object : Permit
(C) Sharp : Blunt
(D) Cold : Cool

Sol.(D) Cold and cool are relative synonyms. In all other pairs, the two words are antonymous to each other.

Ex.23. **(A)** Maharashtra : Mumbai
(B) Karnataka : Bengaluru
(C) Rajasthan : Jaisalmer
(D) Meghalaya : Shillong

Sol.(C) The capital of Rajasthan is Jaipur in all other pair states capitals are given.

Ex.24. **(A)** Sports : Ground **(B)** Cinema : Screen
(C) Drama : Stage **(D)** Rubber : Erase

Sol.(D) Sports are organised in ground. Cinema is shown on screen. Drama is played on stage. But rubber is used to erase writings on paper.

Ex.25. **(A)** Quiet : Calm **(B)** Seldom : Never
(C) Peace : Tranqull **(D)** Rapid : Slow

Sol.(D) Rapid and slow are antonymous to each other.

Ex.26. **(A)** Mother : Daughter
(B) Uncle : Nephew
(C) Father : Son
(D) Brother : Sister

Sol.(D) In all other pairs, two generations of persons have been specified.

Ex.27. **(A)** Artist : painting **(B)** Baker : cake
(C) Cobbler : shoes **(D)** Watch : time

Sol.(D) Except in Watch-Time, in all others Worker-Work item relationship has been shown.

Ex.28. **(A)** Game : Coach
(B) Drama : Director
(C) Counselling : Counsellor
(D) Student : Teacher

Sol.(D) Except the pair student-teacher, in all other pairs the activity and related terms are given. The work of coach is to impart training in games. Director directs drama. counsellor provides counselling.

Ex.29. **(A)** Phycology : Algae
(B) Ornithology : Birds
(C) Mycology : Fungi
(D) Biology : Botany

Sol.(D) The scientific study of the second is called the first in all the pairs except Biology : Botany.

Ex.30. **(A)** Time : Second **(B)** Pressure : Barometer
(C) Length : Metre **(D)** Volume : Litre

Sol.(B) Except in the pair pressure-Barometer, in all other pairs the second is the unit of the first. Barometer is a scientific instrument used for measuring atomospheric pressure.

Ex.31. **(A)** Gold : Ornaments

(B) Cloth : Garments

(C) Leather : Footwear

(D) Earthen pots : Clay

Sol.(D) Except pair **(D)**, in all other pairs, the first is the raw material used to make the second.

Ex.32. **(A)** Broad : Wide **(B)** Light : Heavy

(C) Tiny : Small **(D)** Big : Large

Sol.(B) Light is antonym of heavy. But in other pairs words are synonyms.

Ex.33. **(A)** Petrol : Car

(B) Ink : Pen

(C) Garbage : Dustbin

(D) Lead : Pencil

Sol.(D) In all other pairs first is required by the second for its functioning.

CHOOSING THE ODD LETTER GROUP

In these type of problems, some groups of letters are given. One out of them is different and this is to be chosen by the candidate as the answer.

Ex.34-39. Choose the group of letters which is different from others.

Ex.34. **(A)** AEFJ **(B)** KOPT

(C) UYZD **(D)** EHIL

Sol.(D) $A \xrightarrow{+4} E \xrightarrow{+1} F \xrightarrow{+4} J$

$K \xrightarrow{+4} O \xrightarrow{+1} P \xrightarrow{+4} T$

$U \xrightarrow{+4} Y \xrightarrow{+1} Z \xrightarrow{+4} D$

$E \xrightarrow{+3} H \xrightarrow{+1} I \xrightarrow{+3} L$

Ex.35. **(A)** DINS **(B)** CHNR

(C) BGLQ **(D)** AFKP

Sol.(B)

$\overset{4}{D} \xrightarrow{+5} \overset{9}{I} \xrightarrow{+5} \overset{14}{N} \xrightarrow{+5} \overset{19}{S}$

$\overset{3}{C} \xrightarrow{+5} \overset{8}{H} \xrightarrow{+6} \overset{14}{N} \xrightarrow{+4} \overset{18}{R}$

$\overset{2}{B} \xrightarrow{+5} \overset{7}{G} \xrightarrow{+5} \overset{12}{L} \xrightarrow{+5} \overset{17}{Q}$

$\overset{1}{A} \xrightarrow{+5} \overset{6}{F} \xrightarrow{+5} \overset{11}{K} \xrightarrow{+5} \overset{16}{P}$

Ex.36. **(A)** MKGA **(B)** RPLF

(C) VTPJ **(D)** PNID

Sol.(D) $\overset{13}{M} \xrightarrow{-2} \overset{11}{K} \xrightarrow{-4} \overset{7}{G} \xrightarrow{-6} \overset{1}{A}$

$\overset{18}{R} \xrightarrow{-2} \overset{16}{P} \xrightarrow{-4} \overset{12}{L} \xrightarrow{-6} \overset{6}{F}$

$\overset{22}{V} \xrightarrow{-2} \overset{20}{T} \xrightarrow{-4} \overset{16}{P} \xrightarrow{-6} \overset{10}{J}$

$\overset{16}{P} \xrightarrow{-2} \overset{14}{N} \xrightarrow{-5} \overset{9}{I} \xrightarrow{-5} \overset{4}{D}$

Ex.37. **(A)** H **(B)** Q

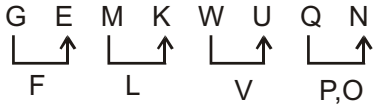
(C) T **(D)** Z

Sol.(B) All others are english alphabet even number.

Ex.38. **(A)** GE **(B)** MK

(C) WU **(D)** QN

Sol.(D) Here,



Ex.39. **(A)** DG2 **(B)** EK5

(C) JR6 **(D)** PY8

Sol.(C) Taking A=1, B = 2,...Z = 26,then,

DG2 = G - (D + 2) = 7 - (4 + 2) = 1

EK5 = K - (E + 5) = 11 - (5 + 5) = 1

JR6 = R - (J + 6) = 18 - (10 + 6) = 2

PY8 = Y - (P + 8) = 25 - (16 + 8) = 1

CHOOSING THE ODD NUMBER /PAIR OF NUMBERS

In these type of questions, certain numbers/pair of numbers are given, out of which except one, all have some common characteristics and hence are alike. The 'different one' is to be choosen as the answer.

Ex.40-51. In each of the following questions, four numbers are given. Out of these, four/three are alike in a certain way but the fourth one is different. Choose the one which is different from the rest four/three.

Ex.40. **(A)** (52, 142) **(B)** (54, 126)

(C) (56, 168) **(D)** (58, 184)

Sol.(C) 52=5+2=7

142=1+4+2 = 7

5+4=9

126=1+2+6 = 9

56=5+6=11=1+1=2

168=1+6+8=15 = 1+5=6

Ex.41. **(A)** 94-7 **(B)** 42-6
(C) 35-5 **(D)** 56-8

Sol.(A) Except in the number pair 94-7, in all others we get the second number by dividing the first number by 7.

Ex.42. **(A)** 14, 9 **(B)** 17, 8
(C) 42, 3 **(D)** 21, 6

Sol.(C) 42 is a multiple of 3.

Ex.43. **(A)** 26 -62 **(B)** 36-63
(C) 46-64 **(D)** 56-18

Sol.(D) Except in pair 56-18, in all others the position digit have been interchanged.

Ex.44. **(A)** 5, 3, 2, 9 **(B)** 2, 4, 3, 9
(C) 1, 4, 3, 8 **(D)** 3, 2, 3, 8

Sol.(A) Except in the number group (5, 3, 2, 9), in all other groups the sum of the first three numbers is equal to the fourth number.

Ex.45. **(A)** (9, 36, 81) **(B)** (32, 64, 88)
(C) (55, 135, 165) **(D)** (35, 63, 78)

Sol.(A) In option (A) all are square of numbers.

Ex.46. **(A)** 1023-1046 **(B)** 1169-1192
(C) 1494-1517 **(D)** 1899-1921

Sol.(D) Except in the pair 1899-1921, in all other the difference between the two numbers is 23.

Ex.47. **(A)** 2 **(B)** 32
(C) 56 **(D)** 128

Sol.(C) Each of the numbers except 56, can be expressed in terms of powers of 2.

Ex.48. **(A)** 57 **(B)** 87
(C) 131 **(D)** 133

Sol.(C) Except 131, all other numbers are non-prime (composite) numbers.

Ex.49. **(A)** 144 **(B)** 169
(C) 256 **(D)** 288

Sol.(D) Except 288, all other numbers are square of natural numbers.

Ex.50. **(A)** 125 **(B)** 216
(C) 729 **(D)** 525

Sol.(D) Except 525, all other numbers are cubes of natural numbers.

Ex.51. **(A)** 21:24 **(B)** 28 : 32
(C) 14 : 16 **(D)** 54:62

Sol.(D) Here, $\frac{21}{24}=\frac{7}{8}, \frac{28}{32}=\frac{7}{8}$
$\frac{14}{16}=\frac{7}{8}$ and $\frac{54}{62}=\frac{27}{31}$

NOTES

EXERCISE

Q.1-30. In the following questions, three out of the four alternatives are same in a certain way and so form a group, find the odd one that does not belong to the group.

Q.1. **(A)** Teeth **(B)** Tongue
(C) Palate **(D)** Chin

Q.2. **(A)** Torrent **(B)** Lake
(C) River **(D)** Stream

Q.3. **(A)** River **(B)** Earth
(C) Aeroplane **(D)** Rock

Q.4. **(A)** Misdeed **(B)** Corruption
(C) Failure **(D)** Offence

Q.5. **(A)** Trident **(B)** Trinity
(C) Triangle **(D)** Triumph

Q.6. **(A)**13 - 19 **(B)** 21 - 15
(C) 24 - 48 **(D)** 81 - 63

Q.7. **(A)**117 : 13 **(B)** 162 : 18
(C) 171 : 19 **(D)** 304 : 16

Q.8. **(A)** 357 **(B)** 663
(C) 177 **(D)** 683

Q.9. **(A)** 496 **(B)** 618
(C) 6 **(D)** 28

Q.10. **(A)** Turban **(B)** Gloves
(C) Cap **(D)** Helmet

Q.11. GREAT : ꓤꓤƎA⊥ :: TORTOISE : ?
(A) TOꓤ⊥OISE **(B)** ⊥Oꓤ⊥OISE
(C) TOꓤ⊥OIꙄE **(D)** ⊥Oꓤ⊥OIꙄE

Q.12. **(A)** Angola-Luanda
(B) Monaco-Rabat
(C) Afghanistan-Kabul
(D) Cuba-Havana

Q.13. **(A)** CEIO **(B)** WYCI
(C) VXBF **(D)** UWAG

Q.14. **(A)** 728 **(B)** 511
(C) 342 **(D)** 217

Q.15. **(A)** Alligator **(B)** Crocodile
(C) Turtle **(D)** Fish

Q.16. **(A)** CQXJ **(B)** WHDS
(C) VGEU **(D)** UDFW

Q.17. **(A)** 125 **(B)** 512
(C) 1331 **(D)** 1728

Q.18. **(A)** 1727 **(B)** 3751
(C) 6583 **(D)** 5026

Q.19. **(A)** VEENS **(B)** ORFU
(C) VIDEID **(D)** GHIET

Q.20. **(A)** Taj Mahal - India
(B) Great Wall of China - China
(C) The Colosseum - Italy
(D) Mount Fuji - Brazil

Q.21. **(A)** CDGL **(B)** WXAF
(C) VXBH **(D)** UVYD

Q.22. **(A)** EDKL **(B)** LMST
(C) NMTV **(D)** QPWS

Q.23. **(A)** 43 **(B)** 53
(C) 63 **(D)** 73

Q.24. **(A)** Trivandrum **(B)** Bangalore
(C) Bhubaneshwar **(D)** Vijayawada

Q.25. **(A)** Monitor **(B)** Keyboard
(C) Mouse **(D)** Pen drive

Q.26. **(A)** Australia - Red kangaroo
(B) Bangladesh - Royal Bengal tiger
(C) Indonesia - Carabao
(D) China - Giant panda

Q.27. **(A)** Allium cepa - Onion
(B) Mangifera indica - Mango
(C) Solanum melongena - Banana
(D) Cucumis sativus - Cucumber

Q.28. **(A)** 63 **(B)** 92
(C) 49 **(D)** 50

Q.29. **(A)** (29, 11) **(B)** (18, 09)
(C) (17, 08) **(D)** (25, 06)

Q.30. **(A)** X **(B)** L
(C) V **(D)** R

EXPLANATION

Q.1.(D) Except 'Chin', all other parts are inside the mouth.

Q.2.(B) 'Stream' is present in some form or other in all other options.

Q.3.(C) Except 'Aeroplane', all others are natural.

Q.4.(C) Except 'Failure', all others are illegal activities.

Q.5.(D) Except 'Triumph', Tri stands for three in all the other terms.

Q.6.(A) Except pair A, in all other pairs both number are divisible by 3.

Q.7.(D) In all other pairs, first number is 9 times the second.

Q.8.(D) Except D, sum of all digits in each number is 15.

Q.9.(B) Except 618, all are Perfect numbers.

Q.10.(B) All except Gloves covers the head.

Q.11.(D)

Q.12.(B) Except B, In each options Country and their Capital, but Capital of Monaco is Monaco.

Q.13.(C)

C +2 E +4 I +6 O

W +2 Y +4 C +6 I

V +2 X +4 B +4 F

U +2 W +4 A +6 G

Q.14.(D) $9^3 = 729 - 1 = 728$

$8^3 = 512 - 1 = 511$

$7^3 = 343 - 1 = 342$

$6^3 = 216 + 1 = 217$

Q.15.(D)

Q.16.(C)

Q.17.(D) 1+2+5=8

5+1+2=8

1+3+3+1=8

1+7+2+8=18

Q.18.(D) 4×4 = 16+1 = 17, 5×5 = 25+2 = 27

6×6 = 36+1 = 37, 7×7 = 49+2 = 51

8×8 = 64+1 = 65, 9×9 = 81+2 = 83

7×7=49+1 = 50, 5×5 = 25+1 = 26

Q.19.(A) ORFU = FOUR

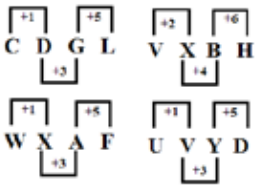
VIDEID = DIVIDE

GHIET = EIGHT

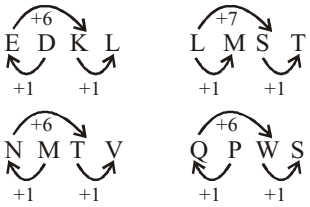
VEENS = NO WORD CAN BE FORMED

Q.20.(D) Except D, In each options Country and their famous place, but Mount Fuji is related to Japan.

Q.21.(C)



Q.22.(B)



Q.23.(C) Except C, All are odd prime number.

Q.24.(D) Except Vijayawada, all are capitals of the state of India.

Q.25.(D) Except (D) all others are the basic parts of a computer system.

Q.26.(C) Relation of country and national animal (The national animal of Indonesia is Komodo dragon.)

Q.27.(C) Relation to the scientific name of fruit and vegetable. The scientific name of banana is Musa acuminata.

Q.28.(C) 49, is a square of 7.

Q.29.(D)

29 = 2 + 9 = 11

18 = 1 + 8 = 09

17 = 1 + 7 = 08

25 = 2 + 5 = 07

Q.30.(C) Place values of X, L, and R are divisible by 6. But the place value of V is not divisible by 6.

CHAPTER-11
NUMBER SERIES

Scan the QR code to get video of this chapter.

In this chapter, series of numbers or a series of single pairs or groups of letters or combinations of letters are given. Each pair or single element before comma is called the term. The terms of the series form a certain pattern as regards the position of the letters in the English alphabets. You are required to identify this pattern and find the missing term or the wrong term in the given series which will satisfy the pattern.

DIFFERENT TYPE OF SERIES

In each of the following questions, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the sereis.

EXAMPLES

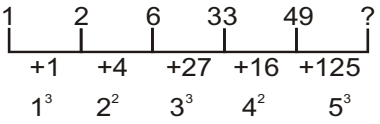
Ex.1. Series based on square or cube?

1, 2 , 6, 33, 49, ?

(A) 74 **(B)** 124

(C) 176 **(D)** 174

Sol.(D)



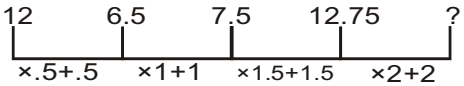
Ex.2. Series based on decimal number (than generally its solution starts with .5 or 1.5 in most of the cases).

12, 6.5, 7.5, 12.75, ?

(A) 27.75 **(B)** 27.50

(C) 38.25 **(D)** 26.75

Sol.(B)



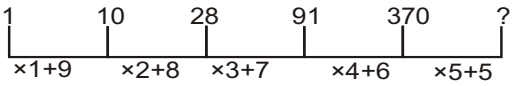
Ex.3. Series based on multiplication (if suddenly number increase in bulk then we use this method).

1, 10, 28, 91, 370, ?

(A) 1070 **(B)** 1850

(C) 1855 **(D)** 1775

Sol.(C)



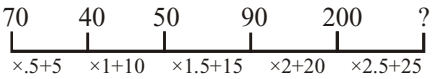
Ex.4. Half pattern series (if second number is just half of first number and third number is just near about second number than this type of series always starts with a multiplication of .5).

70, 40, 50, 90, 200, ?

(A) 525 **(B)** 500

(C) 425 **(D)** 520

Sol.(A)



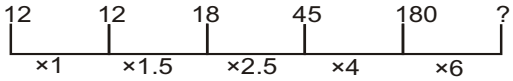
Ex.5. Completely divisable series (if next number is completely divisible by previous number than we use this series).

12, 12, 18, 45, 180, ?

(A) 540 **(B)** 1070

(C) 920 **(D)** 1080

Sol.(D)



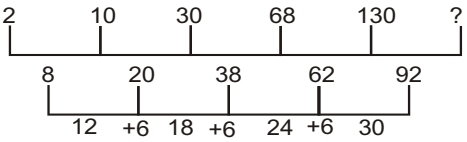
Ex.6. Double difference series.

2, 10, 30, 68, 130, ?

(A) 218 **(B)** 216

(C) 222 **(D)** 92

Sol.(C)

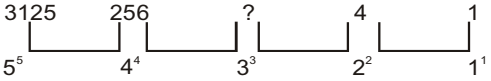


Ex.7. 3125, 256, ?, 4, 1

(A) 27 **(B)** 64

(C) 11 **(D)** 25

Sol.(A)



Ex.8. 2, 3, 6, 18, 108, ?

(A) 1938 **(B)** 1944

(C) 970 **(D)** 1954

Sol.(B) $2 \times 3 = 6$

$3 \times 6 = 18$

$6 \times 18 = 108$

$18 \times 108 = 1944$

Ex.9. 6, 9, 22.5, 90, ?

(A) 180 **(B)** 270

(C) 540 **(D)** 480

Sol.(C) 6 9 22.5 90 ?

×1.5 ×2.5 ×4 ×6

Ex.10. 150, 252, 392, 576, 810, ?

(A) 1070 **(B)** 1080

(C) 1100 **(D)** 1160

Sol.(C) 150 252 392 576 810 ?

102 140 184 234 290

38 +6 44 +6 50 +6 56

Ex.11. 4320, 720, ?, 36, 12, 6, 6

(A) 134 **(B)** 102

(C) 144 **(D)** 108

Sol.(C) 4320 720 ? 36 12 6 6

÷6 ÷5 ÷4 ÷3 ÷2 ÷1

Ex.12. 20, 20, 24, 42, 90, ?

(A) 190 **(B)** 200

(C) 180 **(D)** 210

Sol.(A) 20 20 24 42 90 ?

(1^3-1^2) (2^3-2^2) (3^3-3^2) (4^3-4^2) (5^3-5^2)

Ex.13. 12, 22, 69, 272, 1365, ?

(A) 8196 **(B)** 8195

(C) 8190 **(D)** 8184

Sol.(D) 12 22 69 272 1365 ?

×2-2 ×3+3 ×4-4 ×5+5 ×6-6

Ex.14. 33, 321, 465, 537, 573, 591, ?

(A) 597 **(B)** 576

(C) 600 **(D)** 606

Sol.(C) 33 321 465 537 573 591 ?

288 144 72 36 18 9

Ex.15. 2, 6, 20, 42, 110, ?

(A) 156 **(B)** 220

(C) 196 **(D)** 330

Sol.(A) 2 6 20 42 110 ?

2^2-2 3^2-3 5^2-5 7^2-7 11^2-11 13^2-13

Ex.16. 1328, 1722, 2188, 2732, 3360, ?

(A) 4076 **(B)** 4178

(C) 4078 **(D)** 4096

Sol.(C) 1328 1722 2188 2732 3360 ?

11^3-3 12^3-6 13^3-9 14^3-12 15^3-15 16^3-18

Ex.17. 1780, 939, ?, 121, 0

(A) 400 **(B)** 410

(C) 300 **(D)** 360

Sol.(B) 1780 939 ? 121 0

841 529 289 121

29^2 23^2 17^2 11^2

Ex.18. 1000, 759, 618, 545, ?

(A) 512 **(B)** 517

(C) 514 **(D)** 520

Sol.(C) 1000 759 618 545 ?

241 141 73 31

6^3+5^2 5^3+4^2 4^3+3^2 3^3+2^2

FIND OUT WRONG TERM

Ex.19. 1, 5, 23, 91, 263, 521, 515

(A) 23 **(B)** 91

(C) 263 **(D)** 515

Sol.(B) 1 5 23 91 263 521 515

×6-1 ×5-2 ×4-3 ×3-4 ×2-5 ×1-6

Ex.20. -2, +5, -1, +12, +29, +166, +981

(A) 166 **(B)** 5

(C) 12 **(D)** 29

Sol.(A) -2 +5 -1 +12 +29 +166 +981

×1+7 ×2-11 ×3+15 ×4-19 ×5+23 ×6-27

Ex.21. 8450, 8793, 9009, 9135, 9198

(A) 9135 **(B)** 8793

(C) 9198 **(D)** 9009

Sol.(A) 8450 8793 9009 9135 9198

343 216 126 64

7^3 6^3 5^3 4^3

Ex.22. 2.3, 15.9, 79.8, 423, 2574, 18067

(A) 423 **(B)** 15.9

(C) 2.3 **(D)** 79.8

Sol.(D) 2.3 15.9 79.8 423 2574 18067

$\times 3+3^2$ $\times 4+4^2$ $\times 5+5^2$ $\times 6+6^2$ $\times 7+7^2$

Ex.23. 10, 12.5, 27.5, 85, 342.5, 1725, 10292.5

(A) 27.5 **(B)** 10292.5

(C) 1725 **(D)** 342.5

Sol.(C) 10 12.5 27.5 85 342.5 1725 10292.5

×1+2.5 ×2+2.5 ×3+2.5 ×4+2.5 ×5+2.5 ×6+2.5

Ex.24. 15, 8, 35, 24, 63, 49, 99

(A) 24 **(B)** 63

(C) 99 **(D)** 49

Sol.(D) (3^2+6) (4^2-8) (5^2+10) (6^2-12) (7^2+14) (8^2-16) (9^2+18)

Ex.25. 384, 381, 372, 345, 264, 154

(A) 154 **(B)** 264

(C) 384 **(D)** 345

Sol.(A) 384 381 372 345 264 154

3 9 27 81 243

CONTINUOUS PATTERN SERIES

This type of questions consists of a series of small/capital letters which follow a particular pattern. However, some letters are missing from the series. In some of the questions involving alphabetical series, a set of letters is given four or five times with blank spaces, in between. The series follows a specific pattern and you are required to find letter which should come in place of the missing spaces.

These questions are based on the letter series. In each of these series, some of the letters are missing. Select the correct alternatives.

Ex.26-35. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it.

Ex.26. ab_aa_aaa_a_ab_a

(A) abbab **(B)** abaaa

(C) aabba **(D)** abbaa

Sol.(D) ab a a/a b aa/a b a a/ ab a a

Ex.27. _a_aaaba_ __ba_ab_

(A) abaaaa **(B)** abaaba

(C) aababa **(D)** ababaa

Sol.(A) a a b a/aaba/ a a ba/ a ab a

Ex.28. m_nm_n_an_a_ma_

(A) amammn **(B)** aammnn

(C) ammanm **(D)** aamnan

Sol.(B) m a n/m a n/m an/m a n/ma n

Therefore, ? =aammnn

Ex.29. a_baa_aaba_ca_b

(A) bcca **(B)** ccaa

(C) acaa **(D)** abac

Sol.(C) a a baa c/aaba a c/a a b

Ex.30. cab_c_bdca_d_abd

(A) d,a,b,c **(B)** c,c,a,a

(C) b,c,d,a **(D)** a,b,c,d

Sol.(A) cab d/ c a bd/ ca bd / c abd

Ex.31. a_cdd_bcd_abc_dab_

(A) baddc **(B)** abddc

(C) badcd **(D)** bdadc

Sol.(A) a b c d d/ a b c d d/ a b c d d/ a b c

Ex.32. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

a_ca_ca_caa_

(A) caca **(B)** cacc

(C) caac **(D)** ccca

Sol.(B) a c c/a a c/a c c/a a c

Ex.33. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?

a_c_baab_cb_

(A) abbc **(B)** abab

(C) aabb **(D)** bcca

Sol.(D) a b c / c b a/ a b c/ c b a

Ex.34. abca_bcaab_ca_bbc_a

(A) ccaa **(B)** bbaa

(C) abac **(D)** abba

Sol.(C) The pattern of the series is: abc / aabc / aabbc / aabbcc / a $\Rightarrow$ abac

In each subsequent block, one new letter is introduced to form a series aa ... bb ... cc ...

Ex.35. _cb_ca_bacb_ca_bac_d

(A) addddb **(B)** addbbb

(C) bdddb **(D)** bbbddd

Solutions.

Sol.(A) The pattern of the series is acbd / cadb / acbd / cadb / acbd $\Rightarrow$ addddb.

The sequence is made of repetition of two blocks acbd and cadb alternatively.

EXERCISE

Q.1-22. A series is given, with one term missing. Choose the correct alternative from the given options that will complete the series.

Q.1. DF, GI, KM, NP, RT, ?
(A) UW **(B)** YZ
(C) XZ **(D)** UX

Q.2. PMT, OOS, NQR, MSQ, ?
(A) LUP **(B)** LVP
(C) LVR **(D)** LWP

Q.3. ABD, DGK, HMS, MTB, SBL, ?
(A) XKW **(B)** ZAB
(C) ZKU **(D)** ZKW

Q.4. WFB, TGD, QHG, ?
(A) NIL **(B)** NIK
(C) MJK **(D)** OIK

Q.5. DFI, KMP, ?, YAD
(A) QSV **(B)** RTW
(C) SUX **(D)** RTU

Q.6. AYBZC, DWEXF, GUHVI, JSKTL, ?
(A) MQORN **(B)** MQNRO
(C) NQMOR **(D)** QMONR

Q.7. YYZ, VYZ, SYZ, PYZ, ?
(A) KYZ **(B)** LYZ
(C) MYZ **(D)** OYZ

Q.8. 5, 15, 45, 43, 129, 387, 385, ?
(A) 1153 **(B)** 1196
(C) 1145 **(D)** 1155

Q.9. ZA, XC, VE, TG, __ , PK, __
(A) IR, NM **(B)** RI, MN
(C) RI, NM **(D)** IR, MN

Q.10. 65, 55, 275, 265, 1325, __
(A) 1219 **(B)** 1328
(C) 1137 **(D)** 1315

Q.11. 9, 30, 99, 324, (?)
(A) 1849 **(B)** 1053
(C) 1563 **(D)** 1142

Q.12. KWZ, PDA, QEB, (?)
(A) JMV **(B)** JVR
(C) JVY **(D)** JVZ

Q.13. 51 (?) 57 65 81
(A) 52 **(B)** 51
(C) 53 **(D)** 54

Q.14. 26 28 58 176 (?)
(A) 706 **(B)** 782
(C) 759 **(D)** 728

Q.15. 3, 13, 33, 63, 103, (?)
(A) 143 **(B)** 153
(C) 158 **(D)** 113

Q.16. 2, 4, 16, 96, ?
(A) 768 **(B)** 751
(C) 760 **(D)** 762

Q.17. 16, 20, 28, 40, ?
(A) 96 **(B)** 82
(C) 56 **(D)** 28

Q.18. 9, 4.5, 4.5, 6.75, (?)
(A) 12.5 **(B)** 13.5
(C) 11.5 **(D)** 14.5

Q.19. 12, 6, 18, 9, 27, 13.5, ?
(A) 40.5 **(B)** 35.5
(C) 55 **(D)** 63.4

Q.20. 11, 13, 19, 49, 69, ?
(A) 263 **(B)** 187
(C) 199 **(D)** 210

Q.21. 5, 4, 11, 20, 35, 66, ?
(A) 113 **(B)** 117
(C) 119 **(D)** 121

Q.22. eac, gce, ieg, kgi, ?
(A) njl **(B)** mik
(C) pnk **(D)** mnl

Q.23. Find the term which does not fit into the series.
380, 188, 92, 48, 20, 8, 2
(A) 188 **(B)** 48
(C) 8 **(D)** 92

Q.24. Find the term which does not fit into the series.
1, 3, 7, 15, 27, 63, 127
(A) 15 **(B)** 27
(C) 63 **(D)** 127

Q.25. Find the term which does not fit into the series.

105, 85, 60, 30, 0, -45, -90

(A) 0 **(B)** 60

(C) 85 **(D)** -45

Q.26. Find the term which does not fit into the series.

1, 5, 9, 16, 25, 37, 49

(A) 9 **(B)** 25

(C) 37 **(D)** 16

Q.27. What should come next in the following letter series?

P Q P Q R P Q R S P Q R S T P Q R S T U P Q R S T U V P Q R S T ?

(A) S **(B)** U

(C) Q **(D)** R

Q.28. What should come next in the following letter series?

A B C D E F Z Y X W V U A B C D E Z Y X W V U A B C D Z Y X W V ?

(A) U **(B)** A

(C) B **(D)** Z

Q.29-35. Which set of letters when sequentially placed at the gaps in the given letters series shall complete it?

Q.29. ab _ d _ _ b _ dm _ _ xdm

(A) abmdx **(B)** xmaxab

(C) axdbm **(D)** abxmd

Q.30. pq _ st _ p _ rst _ pq _

(A) rstqp **(B)** tsrqp

(C) rtqtr **(D)** rtspq

Q.31. xyzu _ yz _ v _ _ uv _

(A) uvxyz **(B)** vuzyx

(C) uvzyx **(D)** vuxyz

Q.32. pqrsttpq _ s _ tpqrrs _ _ _

(A) rstqp **(B)** tsrqp

(C) rstpq **(D)** None of these

Q.33. ac _ ga _ eg _ ce _

(A) dbag **(B)** ecag

(C) deag **(D)** ebdg

Q.34. ac _ bacc _ a _ cba _ cb

(A) cbcc **(B)** cbbc

(C) caac **(D)** bbcb

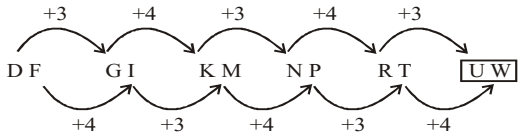
Q.35. nc _ ln _ clncc _ nc _ l _ ccl

(A) cclcc **(B)** ccncc

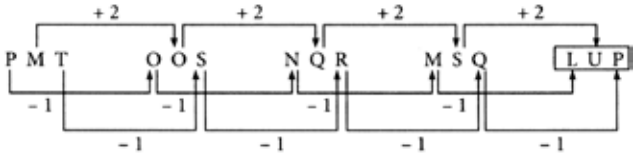
(C) clclc **(D)** cclcn

EXPLANATION

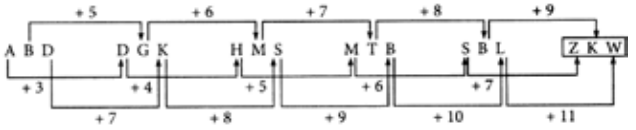
Q.1.(A)



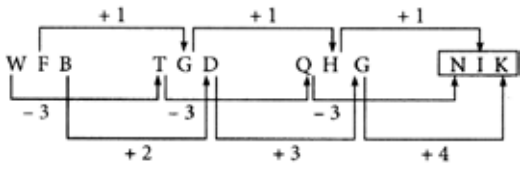
Q.2.(A)



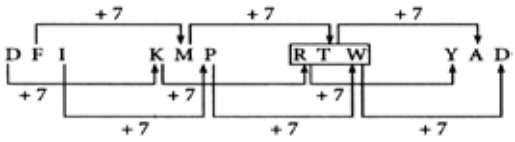
Q.3.(D)



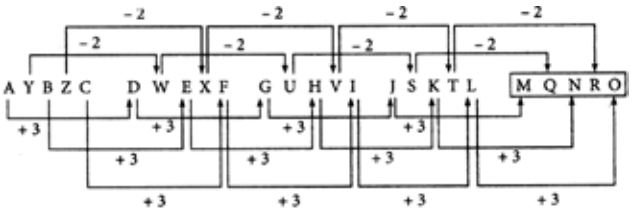
Q.4.(B)



Q.5.(B)



Q.6.(B)



Q.7.(C) YZ is common in each term and remaining letters have gap of -3.

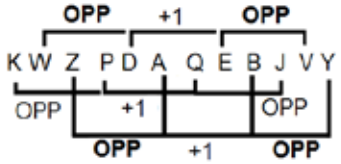
Q.8.(D) 5×3, 15×3, 45-2, 43×3, 129×3, 387-2, 385×3, 1155

Q.9.(C) RI, NM

Q.10.(D) 65-10, 55×5, 275-10, 265×5, 1325-10, 1315

Q.11.(B) 9×3+3 = 30, 30×3+9 = 99, 99×3+27 = 324, 324×3+81 = 1053

Q.12.(C) JVY



Q.13.(C) 51 + 2 = 53
53 + 4 = 57
57 + 8 = 65
65 + 16 = 81

Q.14.(A) 26 × 1 + 2 = 28
28 × 2 + 2 = 58
58 × 3 + 2 = 176
176 × 4 + 2 = 706

Q.15.(B) +10, +20, +30, +40, +50

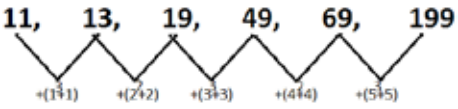
Q.16.(A) 2×2, 4×4, 16×6, 96×8

Q.17.(C) 16+4 = 20
20+8 = 28
28+12 = 40
40+16 = 56

Q.18.(B) 9×0.5, 4.5×1, 4.5×1.5, 6.75×2, 13.5

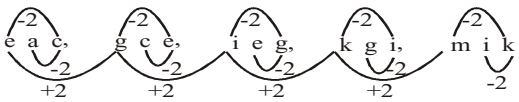
Q.19.(A) 40.5
12/2, 6×3, 18/2, 9×3, 27/2, 13.5×3

Q.20.(C)

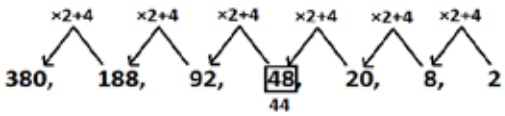


Q.21.(D) 5+4+11 = 20
4+11+20 = 35
11+20+35 = 66
20+35+66 = 121

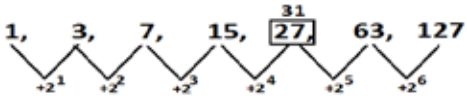
Q.22.(B)



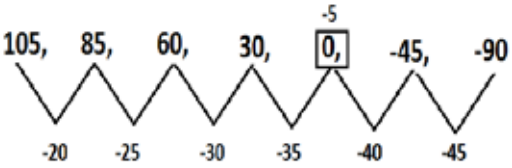
Q.23.(B)



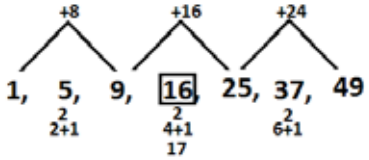
Q.24.(B)



Q.25.(A)



Q.26.(D)



Q.27.(B) PQ/ PQR/ PQRS/ PQRST/ PQRSTU /PQRSTUV/ PQRS

Q.28.(A) ABCDEF / ZYXWVU / ABCDE/ ZYXWVU / ABCD / ZYXWV U

Q.29.(B) Here repeted block is 'abxdm', Now, Abxdm / abxdm / abxdm

Q.30.(C) The last letter each block of five letters is brought in the beginning of the next block.

Q.31.(A) In each block, first letter of each previous block is moved to the end of the successive block. Now, xyzuv/yzuvx/zuvxy/uvxyz

Q.32.(C) The last letter of each previous block is moved to the beginning of the successive block. Now, pqrst/ tpqrs/stpqr/rstpq

Q.33.(B) aceg/aceg/aceg/aceg. The series is made of repetition of block- aceg.

Q.34.(A) accb/accb/accb/accb/cbcc. The series is made of repetition of block- accb.

Q.35.(D) nccl/nccl/nccl/nccl/nccl. The series is made of repetition of block- nccl.

CHAPTER-12
MISSING NUMBER

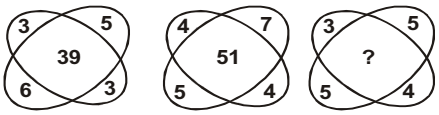
Scan the QR code to get video of this chapter.

In this chapter, we deal with questions which have a numbers/ blocks/matrixes or a simple sequence. All follow a definite pattern. We are given numbers or characters associated with these blocks/sequences including one which is missing. The candidate is required to find this pattern and accordingly find the missing character in the figure.

DIFFERENT TYPES OF EXAMPLES

Ex.1-25. Find the missing number in the following figures.

Ex.1. Numbers are required in the place of "?" in the following question.



(A) 35 **(B)** 37 **(C)** 45 **(D)** 47

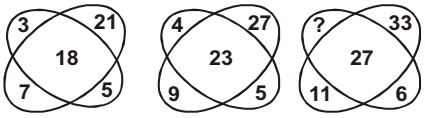
Sol.(B) $(6\times5) + (3\times3) = 30 + 9 = 39$

$(7\times5) + (4\times4) = 35 + 16 = 51$

Similarly,

$(5\times5) + (3\times4) = 25 + 12 = \mathbf{37}$

Ex.2. Numbers are required in the place of "?" in the following question.



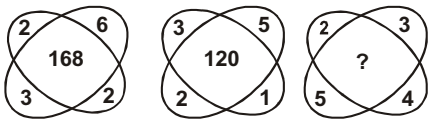
(A) 7 **(B)** 8 **(C)** 5 **(D)** 4

Sol.(D) $5\times3+21/7=15+3=18$

$5\times4+27/9=20+3=23$

$6\times x+33/11=27$, ie $x = 4$

Ex.3. Numbers are required in the place of "?" in the following question.



(A) 84 **(B)** 195 **(C)** 240 **(D)** 200

Sol.(B) The pattern is as follows :

Moving clockwise we get,

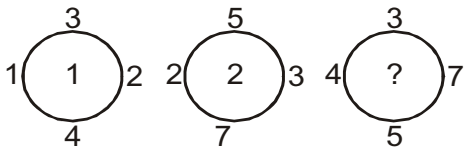
$(2 + 6 + 2 + 3)^2 - 1 = 168;$

$(3 + 5 + 1 + 2)^2 - 1 = 120;$

Therefore, Missing Number

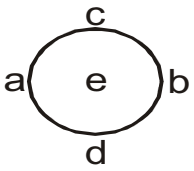
$= (2 + 3 + 5 + 4)^2 - 1 = 195$

Ex.4.



(A) 4 **(B)** 5 **(C)** 6 **(D)** 8

Sol.(C) Clearly, pattern associated with given question is-



$\Rightarrow e = (b \sim a) \times (c \sim d)$

= Difference between left and right numbers

× Difference between bottom and top numbers

So, missing number

$= (5 - 3) \times (7 - 4) = 2\times3 = 6$

Ex.5.

?	13	49
9	17	69
13	11	59

(A) 9 **(B)** 5 **(C)** 10 **(D)** 21

Sol.(B) Number in third column

= 2 × Number in first column

+ 3 × Number in second column

So, $(2\times9) + (17\times3) = 69$

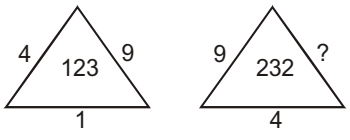
and $(13\times2) + (11\times3) = 59$

Hence, $(?\times2) + (13\times3) = 49$

$\Rightarrow ?\times2 = 49 - 39$

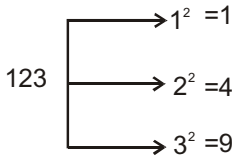
$= 10 = \frac{10}{2} = \mathbf{5}$

Ex.6.

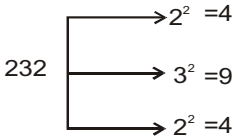


(A) 2 **(B)** 6 **(C)** 4 **(D)** 16

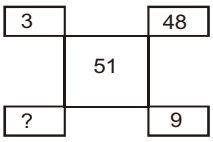
Sol.(C) Clearly, the numbers along the sides of triangles are the squares of digits of numbers at the centre.



Similarly,



Ex.7. Numbers in the following question have been arranged using a particular pattern. Find the number in place of '?'

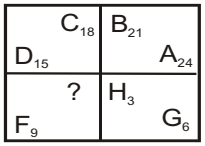


(A) 25 **(B)** 20 **(C)** 32 **(D)** 42

Sol.(D) Clearly, middle number is sum of upper two numbers.

Similarly, ? + 9 = 51 $\Rightarrow$? = 51-9=42

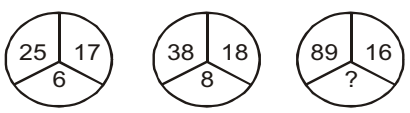
Ex.8.



(A) E_{31} **(B)** E_{12} **(C)** F_{12} **(D)** H_8

Sol.(B) Alphabet appears in anticlockwise direction and the numerals are the multiple of 3 appear in clockwise direction. Hence, the missing one = E_{12}

Ex.9.



(A) 13 **(B)** 15

(C) 17 **(D)** 19

Sol. (B) The sum of the two numbers in the upper part is seven times the number in the lower part.

(25+17)÷7 = 6 (38 +18) ÷ 7 = 8

So, missing term = (89 ÷ 16) ÷ 7 = 105 ÷7= 15

Ex.10. Numbers are required in the place of "?" in the following equation

$3^{(?)} + \sqrt{?} - (2)^2 = 10$

(A) 2,4 **(B)** 5,81 **(C)** 4, 16 **(D)** 2,25

Sol.(D) Clearly, $3^{?} + \sqrt{?}$ =10 + 2^2 = 10+4 = 14

This equation is valid for 2, 25 as;

$3^2 + \sqrt{25} - (2)^2 = 10$

Ex.11. Numbers are required in the place of "?" in the following question.

5	9	15
16	29	?
49	89	147

(A) 45 **(B)** 48 **(C)** 51 **(D)** 54

Sol. (B) 5 × 3 + 1 = 16

16 × 3 + 1 = 49

9 × 3 + 2 = 29

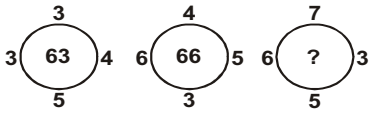
29 × 3 + 2 = 89

therefore,

15 × 3 + 3 = **48**

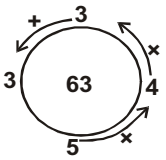
48 × 3 + 3 = 147

Ex.12. Numbers are required in the place of "?" in the following question.

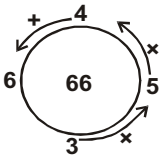


(A) 57 **(B)** 53 **(C)** 105 **(D)** 111

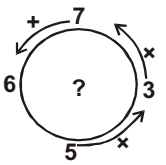
Sol.(D)



5 × 4 × 3 = 60; 60 + 3 = 63

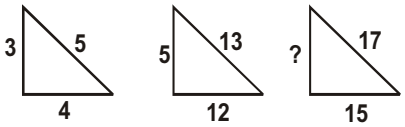


3 × 5 × 4 = 60; 60 + 6 = 66



5 × 3 × 7 = 105; 105 + 6 = 111

Ex.13. Numbers are required in the place of "?" in the following question.



(A) 2 **(B)** 8 **(C)** 64 **(D)** 6

Sol.(B) $\sqrt{(3)^2+(4)^2}$

$=\sqrt{9+16}=\sqrt{25}=5$

$=\sqrt{(5)^2+(12)^2}$

$=\sqrt{25+144}=\sqrt{169}=13$

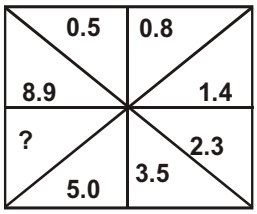
$\Rightarrow (?)^2 + (15)^2$

$= (17)^2$

$\Rightarrow (?)^2 = 289 - 225 = 64$

$\therefore ? = \sqrt{64} = 8$

Ex.14. Numbers are required in the place of "?" in the following question.



(A) 8.6 **(B)** 6.0

(C) 5.8 **(D)** 6.8

Sol.(D) The pattern is as follows:

Moving clockwise we get,

0.5 + 0.3 = 0.8; 0.8 + 0.6 = 1.4;

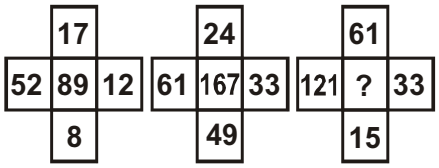
1.4 + 0.9 = 2.3; 2.3 + 1.2 = 3.5;

3.5 + 1.5 = 5.0; 5.0 + 1.8 = 6.8;

6.8 + 2.1 = 8.9

Therefore Missing number = 6.8

Ex.15. Numbers are required in the place of "?" in the following question.



(A) 240 **(B)** 230 **(C)** 232 **(D)** 251

Sol.(B) 52 + 8 + 12 + 17 = 89

61 + 49 + 33 + 24 = 167

121 + 15 + 33 + 61 = 230

Ex.16.

4	9	20
10	8	21
6	4	?

(A) 9 **(B)** 10 **(C)** 11 **(D)** 12

Sol.(C) $\frac{4}{2} + 9 \times 2 = 20$

$\frac{10}{2} + 8 \times 2 = 21$

So. $\frac{6}{2} + 4 \times 2 = \underline{\mathbf{11}}$

Ex.17.

48	60	28
10	12	6
7	?	3

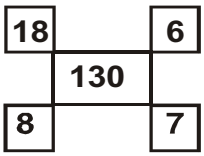
(A) 9 **(B)** 10 **(C)** 11 **(D)** 12

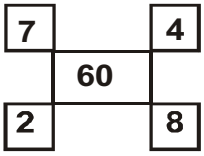
Sol.(D) 48 - 28 = 20 × 3 = 60

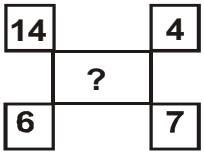
10 - 6 = 4 × 3 = 12

7 - 3 = 4 × 3 = **12**

Ex.18.







(A) 77 **(B)** 88 **(C)** 99 **(D)** 80

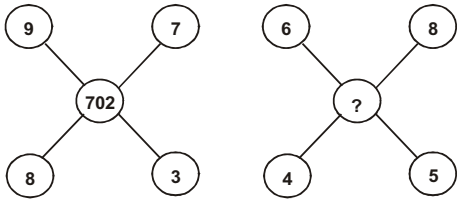
Sol.(B)

18 - 8 = 10
6 + 7 = 13 > 10 × 13 = 130

7 - 2 = 5
4 + 8 = 12 > 12 × 5 = 60

14 - 6 = 8
7 + 4 = 11 > 8 × 11 = 88

Ex.19.



(A) 525 **(B)** 523 **(C)** 529 **(D)** 506

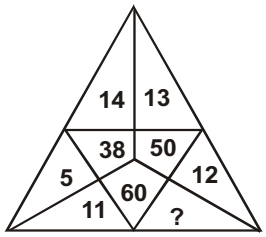
Sol.(D) 9 + 7 + 8 + 3 = 27

27^2 - 27 = 702

So, 6 + 8 + 4 + 5 = 23

23^2 - 23 = 506

Ex.20.



(A) 16 **(B)** 18 **(C)** 19 **(D)** 17

Sol.(C) 5 + 14 = 19 × 2 = 38

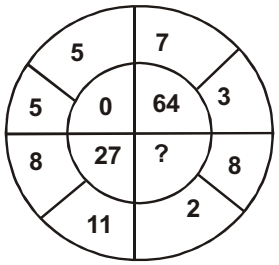
13 + 12 = 25 × 2 = 50

So, 11 + x = 60 ÷ 2

x = (30 – 11)

x = 19

Ex.21.



(A) 216 **(B)** 125 **(C)** 100 **(D)** 144

Sol.(A) 5 - 5 = 0 $\Rightarrow 0^3 = 0$

7 - 3 = 4 $\Rightarrow 4^3 = 64$

11 - 8 = 3 $\Rightarrow 3^3 = 27$

8 - 2 = 6 $\Rightarrow 6^3 = 216$

Ex.22.

10	17	8
5	3	15
6	14	?
42	68	92

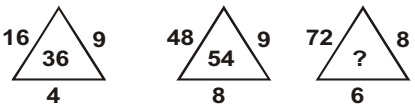
(A) 23 **(B)** 10 **(C)** 25 **(D)** 46

Sol.(A) (42 ÷ 2) - (10+5) = 21 - 15 = 6

(68÷2) - (17+3) = 34 - 20 = 14

(92÷2) - (8+15) = 46 - 23 = 23

Ex.23.



(A) 96 **(B)** 76 **(C)** 48 **(D)** 32

Sol.(A) 16 × 9 ÷ 4 = 36

48 × 9 ÷ 8 = 54

72 × 8 ÷ 6 = 96

Ex.24.

2	6
80	24

3	?
120	36

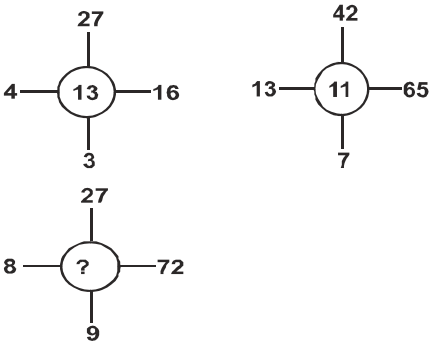
(A) 6 **(B)** 17 **(C)** 8 **(D)** 9

Sol.(D) 2 × 3 = 6 6 × 4 = 24

24 ÷ 3 × 10 = 80 3 × 3 = **9**

9 × 4 = 36 36 ÷ 3 × 10 = 120

Ex.25.



(A) 9 **(B)** 18 **(C)** 12 **(D)** 6

Sol.(C) 16 ÷ 4 + 27 ÷ 3 = 4 + 9 = 13

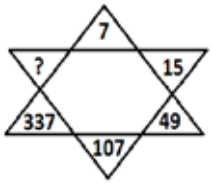
65 ÷ 13 + 42 ÷ 7 = 5 + 6 = 11

72 ÷ 8 + 27 ÷ 9 = 9 + 3 = 12

EXERCISE

Q.1-21. Find the missing number from the given responses.

Q.1.



(A) 690 **(B)** 521
(C) 536 **(D)** 699

Q.2.

(A) 5 **(B)** 6
(C) 8 **(D)** 9

Q.3.

(A) 84 **(B)** 195
(C) 240 **(D)** None of these

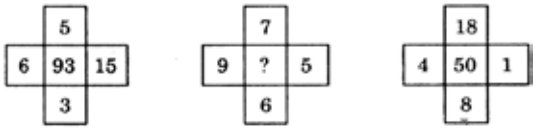
Q.4.

(A) 232 **(B)** 268
(C) 298 **(D)** 350

Q.5.

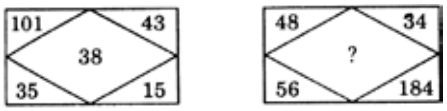
(A) 262 **(B)** 622
(C) 631 **(D)** 824

Q.6.



(A) 5 **(B)** 19
(C) 27 **(D)** 89

Q.7.



(A) 127 **(B)** 142
(C) 158 **(D)** 198

Q.8.

5	5	2
2	4	1
8	3	10
40	30	?

(A) 10 **(B)** 12
(C) 13 **(D)** 20

Q.9.

28	60	48
5	6	7
14	39	27
7	?	16

(A) 18 **(B)** 23
(C) 24 **(D)** 27

Q.10.

13	12	5
17	15	8
25	24	?
29	21	20

(A) 7 **(B)** 9
(C) 11 **(D)** 15

Q.11.

5	9	8	7
8	6	9	10
7	13	?	19
5	7	8	9

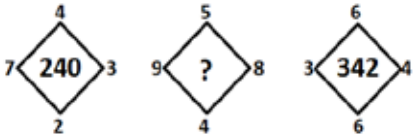
(A) 9 **(B)** 10
(C) 12 **(D)** 15

Q.12.

15	32	26
24	13	31
12	16	19
108	?	320

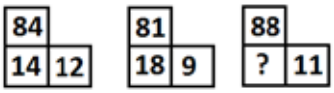
(A) 160 **(B)** 140
(C) 116 **(D)** 144

Q.13.



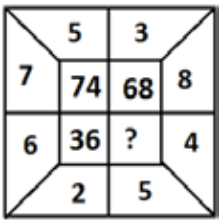
(A) 650 **(B)** 343 **(C)** 516 **(D)** 125

Q.14.



(A) 16 **(B)** 18
(C) 25 **(D)** 14

Q.15.

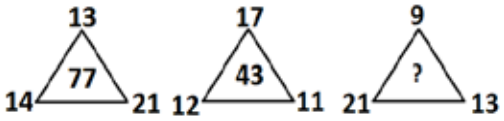


(A) 40 **(B)** 35
(C) 56 **(D)** 44

Q.16.

(A) 5 **(B)** 6
(C) 9 **(D)** 8

Q.17.



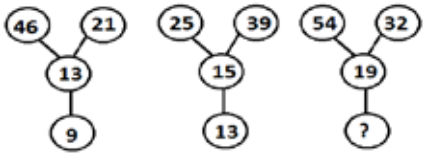
(A) 165 **(B)** -351
(C) -324 **(D)** 144

Q.18.

3C	27E	9D
7K	21O	3M
4D	?	7G

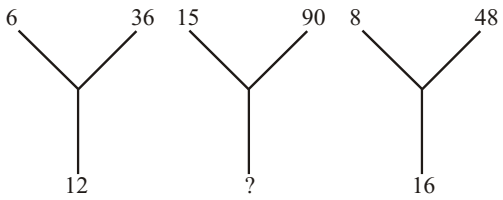
(A) 11E **(B)** 28H
(C) 35I **(D)** 28J

Q.19.



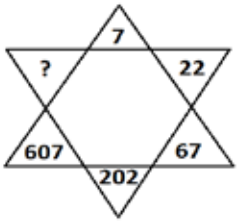
(A) 13 **(B)** 14
(C) 15 **(D)** 17

Q.20.



(A) 50 **(B)** 45
(C) 40 **(D)** 30

Q.21.



(A) 2125 **(B)** 1625
(C) 1822 **(D)** 2345

NOTES

EXPLANATION

Q.1.(D) $7\times2+1^2 = 15,\ 15\times3+2^2 = 49,\ 49\times2+3^2 = 107,\ 107\times3+4^2 = 337,\ 337\times2+5^2 = 699$

Q.2.(D) We have : 93 - (27 + 63) = 3; 79 - (38 + 37) = 4.

So, missing number = 67 - (16 + 42) = 9.

Q.3.(B) We have : $(2 + 6 + 2 + 3)^2 - 1 = 168$; $(3 + 5 + 2 + I)^2 - 1 = 120$.

So, missing number = $(2 + 3 + 5 + 4)^2 - 1$

$= (196 - 1) = 195$.

Q.4.(A) We have : $(466 - 341) \times 2 = 250$.

So, missing number = $(398 - 282) \times 2$

$= (116 \times 2) = 232$.

Q.5.(B) We have : (915 - 364) = 551, (789 - 543) = 246.

So, missing number = (863 - 241) = 622.

Q.6.(D) We have : $(6 \times 3) + (5 \times 15) = 93$, $(4 \times 8) + (18 \times 1) = 50$

So, missing number = $(9 \times 6) + (7 \times 5)$

$= (54 + 35) = 89$

Q.7.(B) We have : (101 + 15) - (35 + 43) = 38

So, missing number = (48 + 184) - (56 + 34) = (232 - 90) = 142

Q.8.(A) In the first column, $\frac{5\times2\times8}{2} = 40$

In the second column, $\frac{5\times4\times3}{2} = 30$

So, missing number is $\frac{2\times1\times10}{2} = 10$

Q.9.(D) In the first row, (48 - 28) × 3 = 60; in the second row, (7 - 5) × 3 = 6; in the third row, (27 - 14) × 3 = 39

Missing number = (16 - 7) × 3 = 27

Q.10.(A) In the first row, $(13)^2 = (12)^2 + 5^2$; in the second row, $(17)^2 = (15)^2 + 8^2$; in the fourth row, $(29)^2 = (21)^2 + (20)^2$. Let the missing numbbr be x. Then,

$(25)^2 = (24)^2 + x^2 \Leftrightarrow x^2 = (25)^2 - (24)^2 = 49 \Leftrightarrow x = 7$.

Q.11.(D) In the first column, $(5 + 8 + 7) \div 4 = 5$.

In the second column, $(9 + 6 + 13) \div 4 = 7$.

In the fourth column, $(7 + 10 + 19) \div 4 = 9$.

Let the missing number be x. Then, in the third column, we have :

$(8 + 9 + x) \div 4 = 8 \Leftrightarrow 17 + x = 32$

$\Leftrightarrow x = 15$.

Q.12.(B) 15, 24, 12 = (1+5) × (2+4) × (1+2)

$= 6 \times 6 \times 3 = 108$

32, 13, 16 = (3+2) × (1+3) × (1+6)

$= 5 \times 4 \times 7 = 140$

Q.13.(A) $4+3+2+7 = 16\times15 = 240$

$6+4+6+3 = 19\times18 = 342$

$5+8+4+9 = 26\times25 = 650$

Q.14.(A) $14\times12 = 168 \div 2 = 84$

$18\times9 = 162 \div 2 = 81$

$(11\times x) \div 2 = 88,\ x = 16$

Q.15.(A) (3, 8) = (SMALL DIGIT+1, LARGE DIGIT-1)
$= 3\times (3+1) + 8 \times (8-1) = 12 + 56 = 68$

(4, 5) = (SMALL DIGIT+1, LARGE DIGIT-1)
$= 4\times (4+1) + 5 \times (5-1) = 20 + 20 = 40$

Q.16.(D) $6\times4 = 24+1 = 25$

$7\times4 = 28+1 = 29$

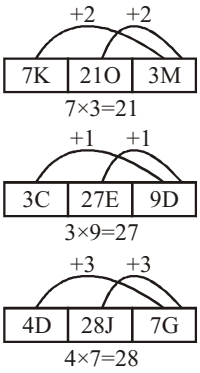
$8\times4 = 32+1 = 33$

$9\times4 = 36+1 = 37$

Q.17.(C) $13\times21 = 273,\ 14^2 = 196,\ 273 - 196 = 77$

$9\times13 = 117,\ 21^2 = 441,\ 117 - 441 = -324$

Q.18.(D)



Q.19.(A) $46+21=67-13=54 = 5+4 = 9$

$25+39=64-15=49 = 4+9 = 13$

$54+32=86-19=67 = 6+7 = 13$

Q.20.(D) $6 \times 2 = 12 \times 3 = 36$

$15 \times 2 = 30 \times 3 = 90$

$8 \times 2 = 16 \times 3 = 48$

Q.21.(C) $7 \times 3 + 1 = 22$

$22 \times 3 + 1 = 67$

$67 \times 3 + 1 = 202$

$202 \times 3 + 1 = 607$

$607 \times 3 + 1 = 1822$

CHAPTER-13
ARITHMETICAL REASONING

Scan the QR code to get video of this chapter.

DIFFERENT TYPES OF EXAMPLE

Ex.1. The age of X is 2/3 rd that of Y. After 6 years X will be 46 years old. the present age of Y is ?

(A) 40 years **(B)** 56 years

(C) 60 years **(D)** 100 years

Sol.(C) X = 2/3 Y $\therefore$ Y = 3/2 X

Age of X after 6 years = 46 years

$\therefore$ Present age of X = 46 - 6 = 40 years

Now, present age of Y = $\frac{3}{2} \times 40 = 60$ years

Ex.2. The age of Shyam is 1/3 rd that of his mother. He is 2 years older than his sister. The age of his sister is 8 years, what is the age of his mother?

(A) 25 years **(B)** 26 years

(C) 24 years **(D)** 30 years

Sol.(D) Age of Shyam's sister = 8 years

Age of Shyam = 2+8 = 10 years

Let the age of Shyam's mother = x years

According to question $\frac{x}{3} = 10$

$\therefore$ x = 3 × 10 = 30 years

Ex.3. A,B,C,D are four friends. Average age of A and C is 35 years and that of B, and D is 40 years. Average age of B, C and D is 40 years. The sum of the ages of A and D is equal to that of B and C. Find out the ages (in years) of A, B, C and D.

(A) 20, 30, 40, 50 **(B)** 20, 25, 30, 35

(C) 30, 35, 40, 45 **(D)** 30, 40, 50, 60

Sol.(C) A + C = 70 years

B + D = 80 years

B + C + D = 120 years

$\therefore$ C = 40 years and A = 30 years

A + D = B + C

or, 30 + D = B + 40

or, D - B = 10

$\therefore$ B = 35 years and D = 45 years

Ex.4. The average age of 30 students is 15 years. If the teacher age is also included then the average age increases by 1 year. The age of the teacher is-

(A) 56 years **(B)** 46 years

(C) 35 years **(D)** 45 years

Sol.(B) Total age of 30 students = 30×15=450

Total age of 30 students and teacher

= 16 × 31 = 496 years

$\therefore$ Age of teacher

= (496 - 450) = 46 years

Ex.5. Kamal is 5 times older than her sister Geeta, who is 2 years less than his brother Ram. If Ram is 8 years old, then what will be the age of Kamal?

(A) 30 years **(B)** 24 years

(C) 40 years **(D)** 28 years

Sol.(A) The age of Ram = 8 years.

The age of Geeta = 8 - 2 = 6 years.

$\therefore$ The age of Kamal = 6 × 5 = 30 years.

Ex.6. Your age is 10 years less than half your mother's age who is 5 years younger than your father. If your father is 45 years old what is your age ?

(A) 20 years **(B)** 15 years

(C) 10 years **(D)** 5 years

Sol.(C) The age of mother = 45 - 5 = 40 years

The age of son = $\frac{40}{2}$ -10

= $\frac{40-20}{2}$ = 10 years

Ex.7. A man was 32 years of age when he had his first son. His wife was 35 years of age when his son attained the age of 7 years. The difference in age between the man and his wife is?

(A) 7 years **(B)** 3 years

(C) 5 years **(D)** 4 years

Sol.(D) At the time of birth of son, the age of mother = 35- 7 = 28 years

Difference in age = 32 - 28 = 4 years

Ex.8. Ashok's mother was 3 times as old as Ashok 5 years ago. After 5 years she will be twice as old as Ashok. How old is Ashok today ?

(A) 10 years **(B)** 15 years

(C) 20 years **(D)** 25 years

Sol.(B) Suppose the present age of Ashok is x years and that of his mother is y years.

5 years ago

$3(x-5) = (y-5)$

$\Rightarrow 3x-15 = y-5$

$\Rightarrow 3x-y = 10$

5 years hence,

$2(x+5) = (y+5)$

$\Rightarrow 2x + 10 = (y+5)$

$\Rightarrow 2x - y = -5$

$x = 15$ years

Ex.9. A man is 3 years older than his wife and four times as old as his son. If the son becomes 15 years old after 3 years, what is the present age of the wife ?

(A) 60 years **(B)** 51 years

(C) 48 years **(D)** 45 years

Sol.(D) Suppose the present age of son is x years.

Therefore, present age of the father = 4x years.

According to question

$x + 3 = 15$

$\therefore x = 15 - 3 = 12$ years

The present age of father

$= 4x = 4 \times 12 = 48$ years

$\therefore$ The present age of man's wife

$= 48 - 3 = 45$ years.

Ex.10. 50 men can dig 40 holes in 30 days. How long will 25 men take to dig 20 holes?

(A) 15 days **(B)** $22\frac{1}{2}$ days

(C) 30 days **(D)** 45 days

Sol.(C) $\frac{M_1D_1H_1}{W_1} = \frac{M_2D_2H_2}{W2}$

$\because$ 50 men can dig 40 holes in 30 days

$\therefore$ 25 men can dig 20 holes in

$\frac{30 \times 50 \times 20}{40 \times 25}$ = 30 days

Ex.11. There are some boys and dogs at a place. If total number of heads is 7 and total number of legs is 20, then find out how many boys and how many dogs are there ?

(A) 2 boys and 5 dogs

(B) 3 boys and 4 dogs

(C) 4 boys and 3 dogs

(D) 5 boys and 2 dogs

Sol.(C) Number of heads = B + D = 7 (i)

Number of legs = 2B + 4D = 20 (II)

From statements (i) and (II)

B = 4 and D = 3

Ex.12. A father gives money to his five sons as given below. How much does he give to his youngest one?

I	II	III	IV	V
Rs.145	Rs.100	Rs.64	Rs.37	?

(A) Rs. 29 **(B)** Rs. 25

(C) Rs. 22 **(D)** Rs. 19

Sol.(D) The distribution of money among the five sons is based on the following pattern:

I $\Rightarrow$ Rs. 145

II $\Rightarrow$ 145 - 45 (i.e. 9×5)

= Rs. 100

III $\Rightarrow 100-9 \times 4$ = Rs. 64

IV $\Rightarrow 64 - 9 \times 3$ = Rs. 37

V $\Rightarrow 37 - 9 \times 2$ = Rs. 19

Ex.13. The number of apples in a basket doubles every minute. If the basket is full of apples in an hour, when was the basket half-filled?

(A) 38 minutes **(B)** 55 minutes

(C) 47 minutes **(D)** 59 minutes

Sol.(D) In the 59th minute the basket was half-filled.

Ex.14. Ramya has 52 marbles. If Janani had 9 more than what she now has, she would have half as many as Ramya. How many marbles are there with Janani now ?

(A) 17 **(B)** 15

(C) 26 **(D)** 35

Sol.(A) According to question

Number of marbles with Janani.

52/2-9 = 17

Ex.15. There are 8 members in a friends group who greet each other on the Deepawali day be sending cards. How many greeting cards will be used for this purpose by this group ?

(A) 50 **(B)** 64

(C) 56 **(D)** 60

Sol.(C) Number of greeting cards used = $8 \times 7 = 56$

Ex.16. A large sheet of paper is cut into two halves. The two halves are put together i.e. one above the other and again cut into halves. How many pieces will there be for ten such cuttings ?

(A) 20 **(B)** 512

(C) 1024 **(D)** 2048

Sol.(C) Required number of cuttings = AR^{n-1}

Here, A = 2, R = 2 and n = 10

$2 \times 2^{10-1} = 2 \times 2^9 = 1024$

Ex.17. The population of a city doubles every 7 years. If in 2009 population is 12483, by which year population increases by 49932?

(A) 2016 **(B)** 2023

(C) 2030 **(D)** 2037

Sol.(C) In 2016 the population would be = $12483 \times 2 = 24996$

In 2023, the population would be = $24996 \times 2 = 49932$

In 2030, the population would be = $49932 \times 2 = 99864$

Therefore, increase in population by 2030

99864 - 12483 = 87381

Increase in population by 2023

= 49932 - 12483 = 37449

Thus, the required year would be after 2023 and before 2030.

Ex.18. A book has 300 pages and each page has 20 lines of 10 words each. How many words are there in the book altogether ?

(A) 6000 **(B)** 60000

(C) 66000 **(D)** 600000

Sol.(B) Total number of words

$= 300 \times 20 \times 10 = 60000$

Ex.19. The number of students in a course increases every year in a college. Find out the number in 2010 from the following information :

Year	2005	2006	2007	2008	2009	2010
No. of Students	20	23	29	38	50	?

(A) 70 **(B)** 75

(C) 55 **(D)** 65

Sol.(D) +3,+6,+9 and so on. So 50+15 = 65

Ex.20. There are twelve dozens of apples in a basket. Two dozens are added later. Ten apples got spoilt and are removed. The remaining are transferred equally into two baskets. How many are there in each?

(A) 168 **(B)**158

(C) 79 **(D)** 89

Sol.(C) Total number of apples $= 14 \times 12 = 168$

Ten apple were removed

Remaining apples = 168 - 10 = 158

Now, 158/2 = 79

Ex.21. Amar uses a Maruti Van and Anthony a Racing Car from Mumbai to Pune. Maruti Van has a speed of 120 km and the Racing Car of 210 km per hour. After driving for 12 minutes, what will be the difference of distance between the two?

(A) 20km **(B)** 18km

(C) 15km **(D)** 16km

Sol.(B) Amar travelled = $\frac{120}{60}$

= 24 km in 12 minutes

Anthony travelled = $\frac{210}{60} \times 12$

= 42 km in 12 minutes

$\therefore$ Difference of distance

= 42 - 24 = 18 km

Ex.22. If the speed of a train is 92.4 km/ hr., then how many metres are covered by it in 20 minutes?

(A) 30,800 m. **(B)** 32,800 m.

(C) 38,200 m. **(D)** 38.000 m.

Sol.(A) Speed of the train = 92.4 kmph

$= \frac{92.4 \times 1000}{60}$ metres per minute

= 1540 metres per minute

$\frac{92.4 \times 1000}{60}$ Distance covered in 20 minutes

= 30800 metres

Ex.23. KSRTC bus left Bangalore for Tumkur at an average speed of 50 km/hr. An hour later a car left the same station following the bus at an average speed of 75 km/hr. How far from Bangalore did the car overtake the bus ?

(A) 200 km **(B)** 100 km

(C) 150km **(D)** 175km

Sol.(C) Bus will cover 150 km in 3 hours. while car cover in 2 hour

Ex.24. In a platform, train 'A' 225 m long is stopped to allow train 'B' 375m long to pass. Speed of 'B' is 90 km per hour, time taken by train 'B' to cross train 'A' completely will be

(A) 6.67 sec **(B)** 9 sec

(C) 2.5 sec **(D)** 24 sec

Sol.(D) Time taken by train B to cross the standing train A will be equal to time taken by the train B to cover a total distance of (225+375) metres.

$$t = \frac{225+375}{V}$$

Speed of train B

$$= 90 \times \frac{5}{18} = 25 \text{ m per second}$$

$$\Rightarrow t = \frac{600}{25} = 24 \text{ second}$$

Ex.25. Excluding stoppages, the speed of a bus is 54 kmph and including stoppages, it is 45 kmph. How many minutes does the bus stop per hour ?

(A) 9 **(B)** 10

(C) 12 **(D)** 20

Sol.(B) Relative speed = (54-45) kmph = 9 kmph

$$\text{Stoppage per hour} = \frac{9}{54} \times 60 = 10 \text{ minutes}$$

Ex.26. If 10 boys walk 10 km in 10 days, then how many days it will take for 3 boys to walk 10 km?

(A) 1 days **(B)** 3 days

(C) 6 days **(D)** 10 days

Sol.(D) 10 boys walk 10 km in 10 days, i.e., any number of boys can walk 10 km in 10 days.

Ex.27. Seeta and Geeta have two glasses of equal volumes. Both have some milk in their glasses. Seeta says to Geeta, "Give me half the milk in your glass so that my glass will be full of milk". Geeta says to Seeta, "Instead you give me one-fourth of the milk in your glass so that my glass will be full of milk". Find the ratio of volumes of milk in their glasses.

(A) 2 : 4 **(B)** 8 : 6

(C) 4 : 3 **(D)** 2 : 3

Sol.(D)

Seeta	**Geeta**
x	y
$x + \frac{y}{2}$	$y + \frac{x}{4}$
$\frac{2x+y}{2}$	$\frac{4y+x}{4}$

$4x + 2y = 4y + x$

$3x = 2y$

$$\frac{x}{y} = \frac{2}{3} = 2 : 3$$

Ex.28. A single discount equivalent to a discount series of 30%, 20% and 10% is

(A) 49.6% **(B)** 50.4%

(C) 53.0 % **(D)** 47.0 %

Sol.(A) $$100 - \frac{(100-x)(100-y)(100-z)}{100 \times 100}$$

$$100 - \frac{(100-30)(100-2)(100-10)}{100 \times 100}$$

$$100 - \frac{70 \times 80 \times 90}{100 \times 100} = 49.6\%$$

EXERCISE

Q.1. Father's age is twice that of his son's age. Thirty years back, father's age was four times that of son's age. What is the age of son now?
(A) 35 **(B)** 38 **(C)** 40 **(D)** 45

Q.2. Some equation are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis.
61+ 42 = 42, 23 + 34 = 35 then 27 + 22 = ?
(A) 36 **(B)** 22 **(C)** 27 **(D)** 23

Q.3. 20 years ago, Ajay's age was 1/2 of what his age is now. What is his age now?
(A) 20 years **(B)** 40 years
(C) 35 years **(D)** 30 years

Q.4. Vivek is twice as old as Rahul, who is three year older than Mahesh, if Vivek age is five time of Mahesh age. What is the age of Rahul?
(A) 2 year **(B)** 4 year
(C) 5 year **(D)** 8 year

Q.5. Find out a set of number amongst the four sets of numbers given in the alternatives. Which is the most similar to the numbers given in the question.
Given set : (144, 48, 8)
(A) (120, 40, 8) **(B)** (126, 42, 7)
(C) (216, 54, 9) **(D)** (168, 42, 6)

Q.6. Find out the correct answer for the unsolved equation on the basis of the given equation.
If 324 × 150 = 54, 251 × 402 = 48 and 523 × 246 = 120, then 651 × 345 = ?
(A) 122 **(B)** 144 **(C)** 152 **(D)** 178

Q.7. In a class, 70% of student play cricket, 40% play football and 20% of the students neither play cricket nor football. What percent of the students play cricket and football both?
(A) 20 **(B)** 10 **(C)** 40 **(D)** 30

Q.8. Find out the correct answer for the unsolved equation on the basis of the given equation?
If 22 × 33 × 44 = 29, 11 × 33 × 77 = 59 then 23 × 41 × 47 = ?
(A) 40 **(B)** 38 **(C)** 39 **(D)** 41

Q.9. Find out a set of number amongst the four sets of numbers given in the alternatives which is the most similar to the number given in the question.
Given set: (34, 52, 23)
(A) (42, 47, 23) **(B)** (42, 46, 24)
(C) (41, 47, 24) **(D)** (40, 47, 22)

Q.10. A father's age is one year more than 5 times of his son's age. After 3 years, the father's age would be 2 less than four times the son's age. Find the present age of the father?
(A) 30 years **(B)** 40 years
(C) 31 years **(D)** 29 years

Q.11. In a town 60% of people vote for A television episode 40% vote for B television episode and 25% vote for A television episode and B television episode also. What percent of the people vote neither for television episode A nor television episode B?
(A) 10 **(B)** 15 **(C)** 20 **(D)** 25

Q.12. How many numbers amongst the numbers 9 to 54 are there which are exactly divisible by 9 but not by 3?
(A) 8 **(B)** 6 **(C)** 5 **(D)** None

Q.13. What is the sum of the squares of numbers from 1 to 9?
(A) 105 **(B)** 245 **(C)** 275 **(D)** 285

Q.14. Ten years ago Ajeet was half of Bindu in age. If the ratio of their present ages is 3 : 4, what will be the total of their present ages-
(A) 30 **(B)** 35 **(C)** 37 **(D)** 41

Q.15. A man is 24 years older than his son. In two years, his age will be twice the age of his son. The present age of his son is-
(A) 20 years **(B)** 21 years
(C) 22 years **(D)** 24 years

Q.16. The total age of Ajay and Bunty is 12 years more than the total age of Bunty and Chandni. Chandni is how many year younger than Ajay?
(A) 11 **(B)** 12 **(C)** 13 **(D)** 14

Q.17. Rahul age after 15 years will be 5 times his age 5 years back, What is the present age of Rahul ?
(A) 15 **(B)** 14 **(C)** 10 **(D)** 8

Q.18. Total of the ages of A, B and C at present is 126 years. Ten years ago, the ratio of their ages was 1: 2: 3. What is the age of B at present ?
(A) 25 **(B)** 30 **(C)** 42 **(D)** 60

Q.19. Present ages of Shashank and Arpita are in the ratio of 5 : 4 respectively. Three years hence, the ratio of their ages will become 11 : 9 respectively. What is Arpita's present age?
(A) 24 **(B)** 27
(C) 40 **(D)** None of these

Q.20. Atul is younger than Rohit by 4 years. If the age of Atul and Rohit in the respective ratio of 7 : 9, how old is Atul?
(A) 16 years **(B)** 18 years
(C) 28 years **(D)** 14 years

EXPLANATION

Q.1.(D) x = 2y ..(I)
x - 30 =4 (y-30) ..(II)
2y - 30 = 4y - 120
- 2y = - 90
y = 45

Q.2.(A) 61 + 42 ⇒ (6+1) × (4+2) = 7×6 = 42
23 + 34 ⇒ (2+3) × (3+4) = 5×7 = 35
27 + 22 ⇒ (2+7) × (2+2) = 9×4 = 36

Q.3.(B) Suppose the present age of Ajay is x years.
20 years ago his age was X/2 years.

Q.4.(C) Vivek = 2 Rahul .....(1)
Rahul = Mahesh + 3 .....(2)
Vivek = 5 Mahesh ..... (3)
From (3) - Mahesh = $\frac{\text{Vivek}}{5}$
From (2) - Rahul = $\frac{\text{Vivek}}{5}$ + 3
Rahul = $\frac{2\text{Rahul}}{5}$+3
5 Rahul = 2 Rahul + 15
Rahul = 5, Vivek = 10, Mahesh = 2

Q.5.(B) 8×6 =48 ⇒ 48×(6 – 3) = 144
(144, 48, 8)
7×6 = 42 ⇒ 42×(6 – 3) = 126
(126, 42, 7)

Q.6.(B) (3+2+4) × (1+5+0)
9×6 = 54
(2+5+1) × (4+0+2)
8×6 = 48
(6+5+1) × (3+4+5)
12×12 = $\boxed{144}$

Q.7.(D) Cricket + Football = 70+40=110
Either Cricket or Football = 100 - 20 = 80
Both Cricket and Football = 110 - 80 = 30

Q.8.(B) 22×33×44 ⇒ 2×2=4, 3×3=9, 4×4=16 ⇒ 4+9+16=29
11×33×77 ⇒ 1×1=1, 3×3=9, 7×7=49 ⇒ 1+9+49=59
23×41×47 ⇒ 2×3=6, 4×1=4, 4×7 = 28 ⇒ 6+4+28=38

Q.9.(B) $34=3^2+4^3=9+64=73$
$23=2^2+3^3=4+27=31$
$\frac{73+31}{2}=\frac{104}{2}=52$
$42=4^2+2^3=16+8=24$
$24=2^2+4^3=4+64=64=68$
$\frac{24+68}{2}=\frac{92}{2}=46$

Q.10.(C) Let the present age of son be x years.
The present age of the father = 5x+1 years
5x + 1+3 = 4(x+3) – 2
5x +4 = 4x + 12 – 2
x = 10 – 4 = 6
The present age of the father is 31 years.

Q.11.(D) Percent of the people who vote neither television episode A nor television episode B = 100 - (60 + 40 - 25)
= 100 - (60 + 15)
= 100 - 75 = 25 %

Q.12.(D) Any number divisible by 9 is also divisible by 3.So, Answer will be none.

Q.13.(D) 1+4+9+16+25+36+49+64+81 = 285

Q.14.(B) Ajeet's age 10 years ago = x
Bindu's age 10 years ago = 2x
(x + 10) / (2x+ lO) = 3/4
=> x = 5.
Total of their present ages = (x + 10 + 2x + 10) = (3x + 20) = 35 years.

Q.15.(C) Son's present age = x
Man's present age = (x + 24)
=> (x + 24) + 2 = 2(x + 2)
=> x + 26 = 2x + 4
x = 22

Q.16.(B) Given that Ajay+Bunty = 12 + Bunty + Chandni
=> Ajay – Chandni = 12 + Bunty – Bunty = 12
=> Chandni is younger than Ajay by 12 years

Q.17.(C) Clearly,
x+15 = 5(x-5)
<=> 4x = 40 => x = 10

Q.18.(B) Their ages 10 years ago is x, 2x and 3x
x + 10 + 2x + 10 + 3x + 10 = 126, x = 16
B's present age = (2x + 10) = 42 years

Q.19.(A) Present ages of Shashank and Arpita = 5x and 4x respectively.
$\frac{5x+3}{4x+3}=\frac{11}{9}$
9(5x + 3) = 11(4x + 3)
45x + 27 = 44x + 33
45x - 44x = 33 - 27
x = 6
Arpita's present age = 4x = 24 years.

Q.20.(D) If the age of Rohit = x
Age of Atul = x-4
x-4/x = 7/9
9x-36 = 7x
9x-7x = 36
2x = 36
x = 18
Age of Atul = 18-4 = 14

CHAPTER-14
SYMBOLS AND NOTATIONS

Scan the QR code to get video of this chapter.

In this chapter the number, letter and symbols are indicate by mathematical sign. You have to use these mathematical sign to balance the given equation.

DIFFERENT TYPES OF EXAMPLE

✍ In the following you have to identify the correct response from the given premises stated according to following symbols.

Ex.1. If '+' stands for division, '÷' stands for multiplication, '×' stands for subtraction and '–' stands for addition, which one of the following is correct?

(A) 18÷6–7+5×2=20 **(B)** 18+6÷7×5–2=18

(C) 18×6+7÷5–2=16 **(D)** 18÷6×7+5–2=22

Sol.(B) + → ÷ ; ÷ → ×

× → - ; - → +

18+6÷7×5–2=18

After conversion

18÷6×7–5+2=18

3×7–5+2=18

21–5+2=18

23–5=18

18=18

Ex.2. If '–' stands for division, '+' for multiplication, '÷' for subtraction and '×' for addition, which of the following equations is correct?

(A) 6÷20×12+7–1=70

(B) 6+20–12÷7×1=62

(C) 6–20÷12×7+1=57

(D) 6+20–12÷7–1=38

Sol.(A) – → ÷ ; + → ×

÷ → – ; × → +

6÷20×12+7–1=70

After conversion

6–20+12×7÷1=70

6–20+84=70

90–20 = 70

70=70

Ex.3. If + means ÷, – means ×, ÷ means + and × means –, then

63×24+8÷4+2–3=?

(A) 54 **(B)** 66

(C) 186 **(D)** 48

Sol.(B) + → ÷ ; - → ×

÷ → + ; × → -

63×24+8÷4+2–3=?

After conversion

63–24÷8+4÷2×3=?

63–3+2×3=?

63 –3+6=?

? = 66

Ex.4. If ÷ means addition, × means subtraction, then(15×9)÷(12×4)×(4÷4) is equal to:

(A) 96 **(B)** 6

(C) $\frac{3}{128}$ **(D)** $\frac{143}{4}$

Sol.(B) ÷ → + ; × → -

(15×9)÷(12×4)×(4÷4)

After conversion

(15–9)+(12–4)–(4+4)=?

(6) + (8) – (8) = ?

? = 6+8–8

? = 6

Ex.5. Find the correct mathematical signs for the following equation from the given alternatives.

33 ? 11 ? 3 ? 6 = 115

(A) –, ×, + **(B)** +, –, ×

(C) ×, ÷, – **(D)** ÷, ×, ×

Sol.(C) 33×11÷3–6=115

$$\Rightarrow \left(\frac{363}{3}\right) - 6 = 115$$

$\Rightarrow$ 121–6 = 115

In the following question you have to identify the correct response from the given premises stated according to following symbols.

Ex.6. If P denotes +, Q denotes –, R denotes ÷ and S denotes ×, then

18 S 36 R 12 Q 6 P 7 = ?

(A) 115 **(B)** 25

(C) 55 **(D)** $\frac{648}{13}$

Sol.(C) P → + ; Q → -

R → ÷ ; S → ×

18 S 36 R 12 Q 6 P 7 = ?

18×36÷12–6+7=?

18×3–6+7=?

54–6+7=?

61–6 = 55

Ex.7. If J represents +, K represents –, L represents ÷ and M represents ×, then

8 M 36 L 4 K 16 J 3 = ?

(A) 115 **(B)** 55

(C) 59 **(D)** 25

Sol.(C) J → + ; K → –

L → ÷ ; M → ×

8 M 36 L 4 K 16 J 3 = ?

8 × 36 ÷ 4 – 16 + 3 = ?

8 × 9 – 16 + 3 = ?

72 – 13 = 59

Ex.8. If A denotes +, B denotes – and C denotes ×, then

(10 C 4) A (4 C 4) B 6 = ?

(A) 46 **(B)** 50

(C) 55 **(D)** 58

Sol.(B) A → + ; B → - ; C → ×

(10 C4) A (4C4) B6 = ?

→ (10×4)+(4×4)–6 = ?

→ 40+16–6 = 50

Ex.9. If ⬡ = 6, Δ =3, ⌂=5, ◇=4, □=8, ▭=10, then (□×Δ) ÷ ◇= ?

(A) ⬡ **(B)** ◇

(C) ▭ **(D)** Δ

Sol.(A) (□×Δ) ÷ ◇= ?

→ (8×3)÷4 = ?

→ (24÷4)=6

= ⬡

Ex.10. If ▭ = 12

Δ =15

□ = 6

▱ = 4

○ = 3

⬡ = 5

Then write your answer in symbol.

▭ ÷ ▱ = ?

(A) ○ **(B)** Δ

(C) ▱ **(D)** □

Sol.(A) ▭ ÷ ▱ = ?

12÷4=3 = ○

Ex.11. Certain numbers have symbols as given below.

1	2	3	4	5	6	7	8	9	0
()	▯	(	[	]	◖	◗	)	⌒	⌣

What is the number indicated by these symbols?

[ ] ⌒ ⌣ ◖

(A) 5 6 9 0 7 **(B)** 4 5 0 9 6

(C) 4 5 9 0 6 **(D)** 4 7 0 9 5

Sol.(C) [ ] ⌒ ⌣ ◖

4 5 9 0 6

Ex.12. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.

15 * 24 * 3 * 6 * 17

(A) – ÷ + = **(B)** + ÷ – =

(C) + × = ÷ **(D)** – × = +

Sol.(B) 15 * 24 * 3 * 6 * 17

15 + 24 ÷ 3 – 6 = 17

15+8–6 = 17

17 = 17

Ex.13. Which set of symbols can replace * ?

25 * 2 * 6 = 4 * 11 * 0

(A) ×, –, ×, + **(B)** +, –, ×, +

(C) ×, +, ×, – **(D)** ×, +, +, ×

Sol.(A) 25 * 2 * 6 = 4 * 11 * 0

25×2–6=4×11+0

50–6=44+0

44=44

Ex.14. If > denotes +, < denotes –, + denotes ÷, ^ denotes ×, – denotes =, × denotes > and = denotes < then choose the correct statement of the following.

(A) 13 > 7 < 6 + 2 = 3 ^ 4

(B) 9 > 5 > 4 – 18 + 9 > 16

(C) 9 < 3 < 2 > 1 × 8 ^ 2

(D) 28 + 4 ^ 2 = 6 ^ 4 + 2

Sol.(B) > → + ; < → - ; + → ÷ ; ^ → ×

- → = ; × → > ; = → <

9 > 5 > 4 – 18 + 9 > 16

→ 9 + 5 + 4 = 18 ÷ 9 + 16

→18 = 18

Ex.15. If SENT is written as '+ ^ × –' and ANT is written as '* × –', then how is TEN written in that code ?

(A) × + – **(B)** – ^ ×

(C) * – × **(D)** – × ^

Sol.(B)

S	E	N	T
↓	↓	↓	↓
+	^	×	–

Therefore,

T	E	N
↓	↓	↓
–	^	×

Ex.16. Which interchange of signs or numbers will make the following equation correct?

(7 + 2) × 3 × 4 – 1 = 20

(A) 2 and 3 **(B)** × and –

(C) 7 and 3 **(D)** + and ×

Sol.(D) (7+2) × 3 ×4–1 = 20

(7×2) + 3 +4–1 = 20

14+3+4–1=20

NOTES

EXERCISE

Q.1. In the following question,? stands for any of the mathematical signs at different places which are given as choicer with the correct sequence of signs which when is substituted, makes the question as correct equation.

128 ? 28 ? 100 ? 2 D 3 ? 6

(A) + – × ÷ = **(B)** = + – × ÷

(C) + – ÷ × = **(D)** + × – ÷ =

Q.2. Find the correct alternatives when following interchanges take place: symbols - and ×, and digits 5 and 8.

(A) 8 + 2 × 4 = 2 - 5 **(B)** 5 × 2 + 4 = 2 - 8

(C) 8 × 2 = 4 + 2 - 5 **(D)** 8 × 2 – 4 = 2 + 5

Q.3. In the following question '?' stands for any of the mathematical signs at different places which are given as choices with the correct sequence of signs which when is substituted makes the question as correct equation.

45 ? 5 ? 2 ? 3 ? 5 ? 3

(A) × ÷ = × + **(B)** ÷ × = × +

(C) ÷ + = × - **(D)** ÷ × = × -

Q.4. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.

4 * 6 * 6 * 2 * 20

(A) + ÷ = ÷ **(B)** × - + =

(C) + - = ÷ **(D)** - + = ÷

Q.5. Which of the following interchange of signs would make the given equation correct?

(12 ÷ 6) + 3 × 7 = 42

(A) + and × **(B)** 6 and 7

(C) ÷ and + **(D)** 12 and 3

Q.6. Find the correct alternatives when following interchanges take place: Symbols + and –, 8 and 5.

(A) 5 – 8 + 17 × 2 = 18

(B) 8 – 17 + 5 × 2 = 16

(C) 5 – 17 + 8 × 2 = 15

(D) 17 – 5 + 8 × 2 = 28

Q.7. In the following question,? stands for any of the mathematical signs at different places which are given as choices with the correct sequence of signs which when is substituted, makes the question as correct equation.

(37 ? 3) ? 5 ? 9 ? 1

(A) + = ÷ – **(B)** – ÷ = +

(C) + ÷ = – **(D)** ÷ + = –

Q.8. Stands for any of the mathematical sings at different places which are given as choices under the question select the choice with the correct sequence of sings which when substituted makes the question as a correct equation.

30 * 5 * 8 * 12 * 15 = 51

(A) + × – ÷ **(B)** ÷ × – +

(C) ÷ – × + **(D)** × ÷ - +

Q.9. If ÷ denotes -, + denotes ÷, × denotes + and - denotes ×, then find the value of 84 + 2 ÷ 35 × 16 - 2 = ?

(A) 42 **(B)** 39 **(C)** 43 **(D)** 38

Q.10. If '-' stands for '+', '+' stands for '÷', '×' stand for '-' and '÷' stand for '×', then which one of the following is correct?

(A) 18 ÷ 6 × 7 + 5 – 2 = 22

(B) 18 × 6 + 7 ÷ 5 – 2 = 16

(C) 18 ÷ 6 – 7 + 5 × 2 = 20

(D) 18 + 6 ÷ 7 × 5 – 2 = 18

Q.11. If '-' stands for '+', '+' stands for '×', '×' stand for '-' then which one of the following is not correct?

(A) 22 + 7 – 3 × 9 = 147

(B) 7 + 28 – 3 × 52 = 147

(C) 44 – 9 + 6 × 11 = 87

(D) 33 × 5 -10 + 20 = 228

Q.12. If ÷ denotes ×, + denotes -, × denotes + and - denotes ÷, then find the value of 125 – 5 × 10 ÷ 13 + 28 = ?

(A) 129 **(B)** 127 (C) 143 **(D)** 138

Q.13. If ' * ' means subtraction, ' - ' means division, ' $ ' means addition and ' % ' means multiplication then-

23 $ 13 * 16 % 28 - 14 $ 24 = ?

(A) 28 **(B)** 68

(C) 38 **(D)** None of these

Q.14. If 'P' denotes 'multiplied by', 'T' denotes 'subtracted from', 'M' denotes 'added to' and 'B' denotes 'divided by' then what should be the correct response of '12 P 6 M 15 T 16 B 4'?

(A) 70 **(B)** 75 **(C)** 83 **(D)** 110

Q.15. If A stands for '+', M stands for '×', D stands for '÷', G stands for '>' and L stands for '<' then which of the following alternatives will be logically correct ?

(A) 18 D 6 A 8 L 4 L 6 G 2

(B) 18 A 2 D 2 G 5 M 6

(C) 18 A 6 M 2 G 3 M 3 A 4

(D) 18 D 6 A 8 L 6 D 2

Q.16. In the following problem, '=' stands for '÷', '+' stands for '-', '×' stands for '=', '-' stands for '+' and '÷' stands for '×'. Find the correct equation.

(A) 8 ÷ 4 + 1 - 5 = 6 × 4

(B) 4 × 6 ÷ 4 + 4 = 7

(C) 5 ÷ 3 - 25 + 20 = 10 × 38

(D) 96 ÷ 2 × 6 ÷ 105 + 1

Q.17. Which interchange of signs will make the following equation correct?

14 ÷ 14 × 8 + 4 = 42

(A) ÷ and = **(B)** + and =

(C) × and = **(D)** + and ÷

Q.18. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.

15 * 8 * 4 * 7 * 23

(A) × ÷ – = **(B)** – ÷ × =

(C) × – ÷ = **(D)** ÷ × – =

Q.19. Which interchange of signs will make the following equation correct?

24 × 8 – 4 + 8 ÷ 4 = 52

(A) + and × **(B)** ÷ and –

(C) × and – **(D)** ÷ and +

Q.20. Select the correct combination of mathematical signs to replace * signs and to balance the given equation.

14 * 7 * 2 * 4 * 0

(A) ÷ – × = **(B)** × ÷ – =

(C) × – ÷ = **(D)** ÷ × – =

EXPLANATION

Q.1.(C) 128 ? 28 ? 100 ? 2 ? 3 ? 6
128 + 28 - 100 ÷ 2 × 3 = 6
128 + 28 - 50 × 3 = 6
128 + 28 - 150 = 6
156 - 150 = 6
6 = 6

Q.2.(B) 8×2+4=2-5
8-2+4=2×5
6+4=2×5
10=10

Q.3.(B) 45÷5×2=3×5+3
18 = 18

Q.4.(B) 4 × 6 - 6 + 2 = 20 → 24 - 6 + 2 = 20 → 26 - 6 = 20

Q.5.(C) (12 ÷6) + 3 × 7 = 42
= (12+6) ÷ 3× 7 = 42
= 18 ÷ 3 × 7 = 42

Q.6.(C) 5 – 17 + 8 × 2 = 8 + 17 – 5 × 2 = 25 – 10 = 15

Q.7.(C) (37 + 3) ÷ 5 = 9 – 1
40 ÷ 5 = 8
8 = 8

Q.8.(B) 30 * 5 * 8 * 12 * 15= 30 ÷ 5 × 8 – 12 + 15
= 6 × 8 – 12 + 15= 48 – 12 + 15= 36 + 15
= 51

Q.9.(B) 84 + 2 ÷ 35 × 16 - 2 = 84 ÷ 2 - 35 + 16 × 2
= 42 – 35 + 32
= 42-3 = 39

Q.10.(D) 18 + 6 ÷ 7 × 5 – 2 = 18
18 ÷ 6 × 7 - 5 + 2 = 18
3 × 7 - 5 + 2 = 18
21 - 5 + 2 = 18
23 - 5 = 18
18 = 18

Q.11.(B)

Q.12.(B) 125 – 5 × 10 ÷ 13 + 28 = 125 ÷ 5 + 10 × 13 - 28
= 25 + 10 × 13 - 28
= 25 + 130 - 28 = 127

Q.13.(A) 23 $ 13 * 16 % 28 - 14 $ 24
= 23+13-16×28÷14+24
= 28

Q.14.(C) 12 P 6 M 15 T 16 B 4
= 12 × 6 + 15 - 16 ÷ 4= 12 × 6 + 15 - 4
= 72 + 15 - 4 = 72 + 15 - 4 = 87 - 4= 83

Q.15.(C) 18 A 6 M 2 G 3 M 3 A 4
18+6×2>3×3+4
18 + 12 > 9 + 4
30 > 13

Q.16.(C) 5 x 3 + 25 - 20 ÷ 10 = 38
15 + 25 - 2 = 38
40 - 2 = 38
38 = 38

Q.17.(D) Correct equation is
14 + 14 × 8 ÷ 4 = 42

Q.18.(A) 15 × 8 ÷ 4 – 7 = 23

Q.19.(B) The correct equation is-
24×8÷4+8–4 = 52

Q.20.(D) The correct equation is 14÷7×2–4=0

CHAPTER-15
WORD FORMATION AND LOGICAL ORDER OF WORDS

Scan the QR code to get video of this chapter.

Word formation is advanced level alphabet test. This test is meant to test the ability of the candidate in word building process. In word formation, a main word is given and we have to choose that word, which can or cannot be formed from the main word. Sometime, a set of English letters are given in a jumbled order, and the candidates are asked to arrange them in a meaningful order. In some situations we are asked to choose particular letters from a word and arrange them to form a meaningful word.

DIFFERENT QUESTIONS OF WORD FORMATION

In this chapter, we will deal with two types of questions :

WORD FORMATION USING LETTERS FROM A GIVEN WORD

In this type, three sub-types of questions are asked.

First, a word has been given, followed by four other words, one of which can or cannot be formed by using the main word.

Second, a word has been given and candidates are asked to make new meaningful words using letters like 1st, 3rd, 5th, 8th, etc, of the given word.

Third, a word has been given and candidates are asked to form as many meaningful English words as possible from the given word, using each letter only once in each word.

Ex.1-6. In each of the following questions, a word has been given, followed by four other words, one of which **cannot be** formed using the letters of the given word. Find that word.

Ex.1. **CONSTRUCTION**

(A) SUCTION **(B)** COINS

(C) CAUTION **(D)** NOTION

Sol.(C) CAUTION—All the letters except 'A' are present in the main word. Hence, 'CAUTION' cannot be formed from the letters of the given word 'CONSTRUCTION'.

Ex.2. **NATIONALISATION**

(A) NOTATION **(B)** SALINATION

(C) INSTALLATION **(D)** SANITATION

Sol.(C) INSTALLATION—All the letters except second 'L' are present in the main word. Hence, 'INSTALLATION' **cannot be** formed from the letters of the given word 'NATIONALISATION'.

Ex.3. **INFRASTRUCTURE**

(A) NATURE **(B)** CHARTER

(C) FRACTURE **(D)** RESTRAIN

Sol.(B) The letter 'H' is not present in the keyword. Therefore the word CHARACTER arter cannot be formed.

Ex.4. **ADMINISTRATION**

(A) MIND **(B)** RATION

(C) MINISTER **(D)** STATION

Sol.(C) There is no 'E' letter in the keyword. Therefore, the word minister cannot be formed.

Ex.5. **RECOMMENDATION**

(A) MEDIATE **(B)** MEDICINE

(C) COMMON **(D)** REMINDE

Sol.(B) There is only on 'I' letter is the keyword. Therefore, the word MEDICINE cannot be formed.

Ex.6. **REHABILITATION**

(A) RELATION **(B)** BRITTLE

(C) BRITAIN **(D)** BROACH

Sol.(D) There is no 'C' letter in the given word.

Ex.7-12. In each of the following questions, a word has been given, followed by four other words, one of which **can be** formed by using the letters of the given word. Find that word.

Ex.7. **MEASUREMENT**

(A) ASSURE **(B)** MASTER

(C) SUMMIT **(D)** MANTLE

Sol.(B) MASTER—All the letters of this word are present in the main word. Hence, 'MASTER' can be formed from the letters of the given word 'MEASUREMENT'.

Ex.8. **COMPENSATION**

(A) TINY **(B)** COPY

(C) MENTION **(D)** MOTIVE

Sol.(C) MENTION—All the letters of this word are present in the main word.

Hence, 'MENTION' can be formed from the letters of the given word 'COMPENSATION'.

Ex.9. **ENVIRONMENT**

(A) EMINENT **(B)** ENTRANCE

(C) ENTERTAIN **(D)** MOVEMENT

Sol.(A) **E N** V **I** RO N **M E N T** - EMINENT

Ex.10. **MULTIPLICATION**

(A) MUTUAL **(B)** LIMITATION

(C) APPLICATION **(D)** NATION

Sol.(B) **M** U L **T I** P **L I** C **A T I O N** - LIMITATION

Ex.11. **DETERMINATION**

(A) DECLARATION **(B)** NATIONAL

(C) TERMINATED **(D)** DEVIATION

Sol.(C) **D E T E R M I N A T** I O N - TERMINATED

Ex.12. **EXAMINATION**

(A) EXAMINE **(B)** NAME

(C) MINOR **(D)** GAME

Sol.(B) **E** X **A M** I **N** A T IO N - NAME

Ex.13. If it is possible to make a meaningful word with the 1st, 4th, 7th and 11th letters from the word 'INTERPRETATION', which of the following will be the third letter of that word? If more than one such word can be made, given 'M' as the answer and if no such word can be formed, give 'X' as the answer.

(A) T **(B)** R

(C) M **(D)** X

Sol. (C) 1st, 4th, 7th and 11th letters are I, E, R and T respectively.

Hence, two meaningful words RITE and TIRE can be formed.

Ex.14. How many meaningful English words can be formed by using letters of the word 'ALEP'?

(A) One **(B)** Two

(C) Three **(D)** More than three

Sol.(D) Such meaningful words are: 'PEAL', 'LEAP', 'PALE', 'LAPE'

WORD FORMATION BY UNSCRAMBLING LETTERS

In these type of questions, a set of English letters is given in a jumbled order. The candidate is required to arrange these letters to form a meaningful word.

Ex.15. Make a meaningful word from the given responses.

AL _ E_

(A) S T **(B)** L R

(C) T R **(D)** M R

Sol.(C) A L **T** E **R**

Ex.16. Select the combination of numbers so that the letters arranged will form a meaningful word.

H	N	R	C	A	B
1	2	3	4	5	6

(A) 2, 5, 3, 4, 1, 6 **(B)** 3, 5, 6, 4, 1, 2

(C) 4, 1, 5, 6, 2, 3 **(D)** 6, 3, 5, 2, 4, 1

Sol.(D) Clearly, the given letters, when arranged in the order of'6, 3, 5, 2, 4, 1,' form the word 'BRANCH'.

Ex.17. Rearrange the letters given below to form a meaningful word and select from the given alternatives, the word which is almost opposite in meaning to the word so formed.

A, R, T, Y, D

(A) Dirty **(B)** Quiet

(C) Quick **(D)** Slow

Sol.(C) The word is 'Tardy' which means 'Sluggish', opposite of which is 'Quick'.

Ex.18. If alphabets are serially numbered, one of the answers given below has meaningful word hidden in it. Identify the answer.

(A) 5, 18, 5, 8, 1, 3, 5

(B) 20, 5, 1, 3, 8, 5, 18

(C) 5, 1, 3, 5, 20, 8, 18

(D) 18, 5, 3, 8, 1, 5, 20

Sol.(B) 20, 5, 1, 3, 8, 5,18

T E A C H E R

Ex.19. If alphabets are serially numbered, one of the answers given below has meaningful word hidden in it. Identify the answer.

(A) 13, 8, 9, 17, 14, 22

(B) 1, 12, 7, 5, 2, 18, 1

(C) 1, 7, 5, 12, 18, 1

(D) 4, 21, 7, 18, 13, 1

Sol.(B) 1, 12, 7, 5, 2, 18, 1

A L G E B R A

Ex.20. Some letters are given with numbers from 2 to 9. Select the sequence of numbers which arranges the letters into a meaningful word.

N A E X I M O T N A I
9 2 3 4 5 6 7 8 9 2 5

(A) 3, 4, 6, 2, 9, 5, 8, 5, 2, 9, 7

(B) 3, 6, 2, 4, 2, 9,5, 7, 5, 9, 8

(C) 3, 4, 2, 2, 6, 5, 9, 7, 8, 9, 5

(D) 3, 4, 2, 6, 5, 9, 2, 8, 5, 7, 9

Sol.(D) 3 4 2 6 5 9 2 8 5 7 9

E X A M I N A T I O N

LOGICAL ORDER OF WORDS

As the name implies, in this type of problems, a sequence is formed with a certain number of words given in such a way that a particular arrangement of the words gives a logical step-by-step completion of the process or the activity described. With two examples we elaborate the working of this type of problems:

Ex.21. Arrange the following words in a logical and meaningful order.

1. Travel **2.** Destination

3. Payment **4.** Berth/Seat number

5. Reservation

6. Availability of berth/seat for reservation

(A) 6, 2, 5, 4, 3, 1 **(B)** 5, 3, 4, 1, 6, 2

(C) 2, 6, 3, 5, 4, 1 **(D)** 1, 2, 5, 4, 3, 6

Sol.(C) From the above words, it is clear that in order to perform a journey, from the above words, it is deduced destination is to be identified, secondly availability of berth seat is ascertained, followed payment for reservation. As a result, berth is allotted and travelling is completed.

Ex.22. Arrange the following words in a logical and meaningful order.

1. Country **2.** Furniture

3. Forest **4.** Wood

5. Trees

(A) 1, 3, 5, 4, 2 **(B)** 1, 4, 3, 2, 5

(C) 2, 4, 3, 1, 5 **(D)** 5, 2, 3, 1, 4

Sol.(A) From the above words, it is deducted that a country contains forests, a forest has trees, trees give wood that is used to make furniture.

SEQUENCE OF OCCURRENCE OF EVENTS OR VARIOUS STAGES IN A PROCESS :

In this type of questions, certain inter-related words are given and numbered, followed by various sequences of the numbers denoting them, as alternatives. The candidate is required to arrange these words in a logical sequence based on a common property and then choose the correctly graded sequence from the given alternatives.

Ex.23-26. Which one of the following option would be a meaingful order of the following words.

Ex.23. **1.** Butterfly **2.** Cocoon

3. Egg **4.** Worm

(A) 1, 4, 3, 2 **(B)** 1, 3, 4, 2

(C) 2, 4, 1, 3 **(D)** 3, 4, 2, 1

Sol. (D) Logical order of the given words.

Egg → Worm → Cocoon → Butterfly

Thus, the correct order is 3, 4, 2, 1.

Ex.24. **1.** Furit **2.** Flower

3. Seed **4.** Pollination

5. Bud

(A) 1, 2, 3, 4, 5 **(B)** 4, 2, 5, 3, 1

(C) 5, 2, 4, 3, 1 **(D)** 5, 2, 4, 1, 3

Sol. (D) Meaningful order of the given words.

Bud→ Flower → Pollination → Fruit → Seed

Thus, the correct order is 5, 2, 4, 1, 3.

Ex.25. **1.** Doctor **2.** Fever

3. Prescribe **4.** Diagnose

5. Medicine

(A) 2, 1, 3, 4, 5 **(B)** 1, 4, 3, 2, 5

(C) 2, 1, 4, 3, 5 **(D)** 2, 4, 3, 5, 1

Sol.(C) Meaningful order of the given words.

Fever→ Doctor → Diagnose → Prescribe → Medicine

Thus, the correct order is 2, 1, 4, 3, 5.

Ex.26. **1.** Birth **2.** Death

3. Funeral **4.** Marriage

5. Education

(A) 1, 3, 4, 5, 2 **(B)** 1, 5, 4, 2, 3

(C) 2, 3, 4, 5, 1 **(D)** 4, 5, 3,1,2

Sol.(B) Clearly, the given words when arranged in the order of various events as they occur in a man's life, form the sequence : Birth, Education, Marriage, Death, Funeral.

So the correct order becomes 1, 5, 4, 2, 3.

SEQUENCE OF OBJECTS IN A CLASS OR GROUP, FROM PART TO THE WHOLE :

Ex.27-30. Which one of the following option would be a meaingful order of the following words.

Ex.27. **1.** Venus **2.** Earth
3. Mars **4.** Mercury
5. Jupiter
(A) 4, 2, 1, 3, 5 **(B)** 4, 2, 1, 5, 3
(C) 4, 1, 2, 3, 5 **(D)** 4, 1, 2, 5, 3

Sol. (C) Logical order of the given words. (As per the mean distance from the sun)

Mercury → Venus → Earth → Mars → Jupiter

Thus, the correct order is 4, 1, 2, 3, 5.

Ex.28. **1.** Pages **2.** Book rack
3. Library **4.** Books
5. Catalogue
(A) 2, 5, 4, 3, 1 **(B)** 1, 5, 4, 3, 2
(C) 1, 4, 2, 5, 3 **(D)** 1, 2, 4, 5, 3

Sol.(C) Logical order of the given words in ascending order.

Pages → Books → Book racks → Catalogue → Library

Thus, the correct order is 1, 4, 2, 5, 3

Ex.29. **1.** Artists **2.** Practice
3. Script **4.** Feedback
5. Drama
(A) 2, 1, 3, 5, 4 **(B)** 3, 1, 2, 5, 4
(C) 4, 3, 5, 1, 2 **(D)** 1, 5, 2, 3, 4

Sol.(B) Meaningful order of the word.

Script→ Artists → Practice → Drama → Feedback

Thus, the correct order is 3, 1, 2, 5, 4

Ex.30. **1.** Shoulder **2.** Wrist
3. Elbow **4.** Palm
5. Finger
(A) 2, 4, 5, 3, 1 **(B)** 3, 1, 4, 2, 5
(C) 3, 4, 5, 2, 1 **(D)** 5, 4, 2, 3,1

Sol.(D) Clearly, we are given the names of parts of a hand, which may be arranged

(i) from top to bottom, i.e., Shoulder, Elbow, Wrist, Palm, Finger, which is 1, 3, 2, 4, 5; or

(ii) from bottom to top, i.e., Finger, Palm, Wrist, Elbow, Shoulder, which is 5, 4, 2, 3, 1.

Out of these, the sequence 5, 4, 2, 3, 1 is given in the alternatives provided.

SEQUENCE OF INCREASING/DECREASING SIZE, VALUE, INTENSITY ETC. :

Ex.31-34. Which one of the following option would be a meaingful order of the following words.

Ex.31. **1.** Elephant **2.** Cat
3. Mosquito **4.** Tiger
5. Whale
(A) 5, 3, 1, 2, 4 **(B)** 1, 3, 5, 2, 4
(C) 3, 2, 4, 1, 5 **(D)** 2, 5, 1, 4, 3

Sol.(C) Meaningful order of words:

Mosquito→ Cat → Tiger→ Elephant → Whale

Thus, the correct order is 3, 2, 4, 1, 5.

Ex.32. **1.** Amoeba **2.** Oyster
3. Worm **4.** Cow
(A) 1, 3, 2, 4 **(B)** 1, 2, 3, 4
(C) 4, 3, 2, 1 **(D)** 3, 4, 2, 1

Sol.(A) Meaningful order of words:

Amoeba→ Worm → Oyster→ Cow

Thus, the correct order is 1, 3, 2, 4.

Ex.33. **1.** Bungalow **2.** Flat
3. Cottage **4.** House
5. Palace **6.** Mansion
(A) 3, 2, 1, 4, 6, 5 **(B)** 3, 2, 4, 1, 5, 6
(C) 3, 2, 4, 1, 6, 5 **(D)** 5, 6, 4, 1, 2, 3

Sol.(C) Clearly, the names of various dwelling units (when arranged in increasing order of their sizes, form the sequence : Cottage, Flat, House, Bungalow, Mansion, Palace.

Thus, the correct order is 3, 2, 4, 1, 6, 5.

Ex.34. **1.** Euphoria **2.** Happiness
3. Ambivalence **4.** Ecstasy
5. Pleasure
(A) 1, 4, 2, 5, 3 **(B)** 2, 1, 3, 4, 5
(C) 4, 1, 2, 5, 3 **(D)** 4, 1, 3, 2, 5

Sol. (C) All the given words stand for 'joy", but the intensity increases in the order —

Ecstasy, Euphoria, Happiness, Pleasure, Ambivalence.

Thus, the correct order is 4, 1, 2, 5, 3

SEQUENCE IN WHICH A CHAIN OF GIVEN OBJECTS IS FORMED :

Ex.35-40. Which one of the following option would be a meaingful order of the following words.

Ex.35. **1.** Wall **2.** Clay
3. House **4.** Room
5. Bricks
(A) 5, 2, 1, 4, 3 **(B)** 2, 5, 4, 1, 3
(C) 2, 5, 1, 4, 3 **(D)** 1, 2, 3, 4, 5

Sol.(C) Meaningful order of words
Clay→ Bricks → Wall→ Room → House
Thus, the correct order is 2, 5, 1, 4, 3

Ex.36. **1.** Exhaust **2.** Night
3. Day **4.** Sleep
5. Work
(A) 1, 3, 5, 4, 2 **(B)** 3, 5, 1, 2, 4
(C) 3, 5, 1, 4, 2 **(D)** 3, 5, 2, 1, 4

Sol.(B) Meaningful order of words
Day→ Work → Exhaust→ Night → Sleep
Thus, the correct order is 3, 5, 1, 2, 4

Ex.37. **1.** Ocean **2.** Rivulet
3. Sea **4.** Glacier
5. River
(A) 5, 4, 3, 1, 2 **(B)** 4, 2, 5, 3, 1
(C) 5, 2, 3, 4, 1 **(D)** 4, 2, 1, 3, 5

Sol.(B) Meaningful order of words
Glacier→ Rivulet → River→ Sea → Ocean
Thus, the correct order is 4, 2, 5, 3, 1

Ex.38. **1.** Foundation **2.** Plastering
3. Building **4.** Painting
(A) 1, 2, 3, 4 **(B)** 1, 3, 2, 4
(C) 4, 3, 2, 1 **(D)** 3, 2, 4, 1

Sol.(B) Meaningful order of words
Foundation→ Building → Plastering→ Painting
Thus, the correct order is 1, 3, 2, 4

Ex.39. **1.** Phrase **2.** Letter
3. Word **4.** Sentence
(A) 1,2,3,4 **(B)**1,3,2,4
(C) 2, 3, 1, 4 **(D)** 2, 3, 4, 1

Sol.(C) A group of letters makes a word. A group of words makes a phrase. A group of phrases makes a sentence.
Thus, the correct order is 2, 3, 1, 4.

Ex.40. **1.** Frog **2.** Eagle
3. Grasshopper **4.** Snake
5. Grass
(A) 1, 3, 5, 2, 4 **(B)** 3, 4, 2, 5, 1
(C) 5, 3, 1, 4, 2 **(D)** 5, 3, 4, 2, 1

Sol.(C) Clearly, a **grasshopper** feeds on **grass, a frog** feeds on a **grasshopper, a snake** feeds on a **frog and an eagle** feeds on a **snake.** Thus, a food-chain is formed So, the correct order is 5, 3, 1, 4, 2.

NOTES

EXERCISE

Q.1-5. In each of the following questions, a word has been given, followed by four other words. One of which can not be formed by using the letters from the given word. Find that word.

Q.1. **INTELLIGENCE**

(A) TILIAGE **(B)** INCITE

(C) GENTLE **(D)** NEGLECT

Q.2. **SUPERVISION**

(A) PISTON **(B)** NOISE

(C) PERSON **(D)** REVISION

Q.3. **RECOMMENDATIONS**

(A) NURSE **(B)** SOON

(C) MEANT **(D)** RAINS

Q.4. **ORIENTATION**

(A) NATION **(B)** TENSION

(C) NOTION **(D)** ORIENT

Q.5. **INFRASTRUCTURE**

(A) NATURE **(B)** CHARTER

(C) FRACTURE **(D)** RESTRAIN

Q.6-10. In each of the following questions, a word has been given, followed by four other words. One of which can be formed by using the letters from the given word. Find that word.

Q.6. **REMEMBERING**

(A) NEGRO **(B)** AGREE

(C) RAIN **(D)** GREEN

Q.7. **ARISTOCRATIC**

(A) CREATION **(B)** STATIC

(C) SECRET **(D)** ARREST

Q.8. **CORRESPONDING**

(A) DISCERN **(B)** RESPONSE

(C) REPENT **(D)** CORRECT

Q.9. **ENVIRONMENT**

(A) EMINENT **(B)** ENTRANCE

(C) ENTERTAIN **(D)** MOVEMENT

Q.10. **BLANDISHMENT**

(A) BOARD **(B)** METAL

(C) SHAPE **(D)** CRASH

Q.11-14. Letters of the words given below have been jumbled up and you are required to construct the words. Each letter has been numbered and each word is followed by four options. Choose the option which gives the correct order of the letters as indicated by the numbers to form meaningful words.

Q.11. **P N O A C L M I**

1 2 3 4 5 6 7 8

(A) 2, 7, 8, 6, 4, 3, 1, 5

(B) 4, 7, 5, 2, 6, 8, 1, 3

(C) 5, 3, 7, 1, 6, 4, 8, 2

(D) 7, 1, 8, 5, 6, 2, 4, 3

Q.12. **E M I H T R**

1 2 3 4 5 6

(A) 1, 2, 3, 4, 5, 6 **(B)** 4, 1, 6, 2, 3, 5

(C) 5, 1, 6, 4, 3, 2 **(D)** 6, 1, 2, 3, 5, 4

Q.13. **R M A T A U E**

1 2 3 4 5 6 7

(A) 2, 3, 4, 1, 5, 6, 7

(B) 3, 1, 2, 5, 4, 7, 6

(C) 3, 2, 5, 4, 7, 6, 1

(D) 4, 1, 3, 2, 6, 5, 7

Q.14. **J C O P T E R**

1 2 3 4 5 6 7

(A) 1, 3, 4, 5, 6, 7, 2

(B) 2, 6, 4, 5, 1, 3, 7

(C) 4, 7, 3, 1, 6, 2, 5

(D) 7, 6, 4, 5, 1, 3, 2

Q.15-20. In each of the following questions, arrange the words in a meaningful, logical order and then select the appropriate sequence from the alternatives given below each of the groups of words.

Q.15. **1.** College **2.** Child

3. Salary **4.** School

5. Employment

(A) 2, 4, 1, 5, 3 **(B)** 2, 4, 1, 5, 3

(C) 2, 3, 5, 1, 4 **(D)** 1, 2, 3, 5, 4

Q.16. **1.** Family **2.** Community

3. Member **4.** Locality

5. Country

(A) 3, 1, 2, 4, 5 **(B)** 3, 1, 2, 5, 4

(C) 3, 1, 4, 2, 5 **(D)** 3, 1, 4, 5, 2

Q.17. **1.** Puberty **2.** Adulthood **3.** Senescence **4.** Infancy **5.** Old age
(A) 5, 2, 3, 4, 1 **(B)** 4, 3, 2, 1, 5
(C) 4, 2, 1, 3, 5 **(D)** 2, 4, 3, 1, 5

Q.18. **1.** Gold **2.** Iron **3.** Sand **4.** Platinum **5.** Diamond
(A) 2, 4, 3, 5, 1 **(B)** 3, 2, 1, 5, 4
(C) 4, 5, 1, 3, 2 **(D)** 5, 4, 3, 2, 1

Q.19. **1.** Poverty **2.** Population **3.** Death **4.** Unempoloyment **5.** Disease
(A) 3, 4, 2, 5, 1 **(B)** 2, 4, 1, 5, 3
(C) 2, 3, 4, 5, 1 **(D)** 1, 2, 3, 4, 5

Q.20. **1.** Child **2.** Adult **3.** Infant **4.** Old **5.** Adolescent
(A) 3, 4, 1, 2, 5 **(B)** 3, 1, 5, 2, 4
(C) 3, 4, 2, 1, 5 **(D)** 3, 1, 4, 2, 5

Q.21-25. Arrange the following words according to the order given in the dictionary.

Q.21. **1.** College **2.** Cooperation **3.** Creation **4.** Coordinate **5.** Colleagues
(A) 2, 3, 1, 4, 5 **(B)** 5, 3, 2, 1, 4
(C) 5, 1, 2, 4, 3 **(D)** 3, 1, 5, 2, 4

Q.22. **1.** Electrodialysis **2.** Electrokinetics **3.** Electropositive **4.** Electroanalysis **5.** Electronegative
(A) 4, 5, 1, 2, 3 **(B)** 4, 1, 5, 2, 3
(C) 4, 2, 5, 3, 1 **(D)** 4, 1, 2, 5, 3

Q.23. **1.** Breakfast **2.** Breakdown **3.** Breastbone **4.** Brewery **5.** Breaker
(A) 5, 1, 2, 3, 4 **(B)** 2, 3, 4, 1, 5
(C) 2, 5, 3, 1, 4 **(D)** 2, 5, 1, 3, 4

Q.24. **1.** Yearning **2.** Yearlong **3.** Yearbook **4.** Yearling **5.** Yesterday **6.** Yeastiness
(A) 6, 5, 1, 2, 3, 4 **(B)** 3, 4, 1, 5, 2, 6
(C) 3, 4, 2, 1, 6, 5 **(D)** 3, 1, 4, 6, 5, 2,

Q.25. **1.** Proximo **2.** Proxy **3.** Prude **4.** Prudent **5.** Prune
(A) 3, 2, 5, 1, 4 **(B)** 5, 4, 2, 1, 3
(C) 1, 2, 4, 5, 3 **(D)** 1, 2, 3, 4, 5

EXPLANATION

Q.1.(A) TILLAGE—All the letters except 'A' are present in the main word. Hence, 'TILLAGE' cannot be formed from the letters of the given word 'INTELLIGENCE'.

Q.2.(A) PISTON—All the letters except T are present in the main word. Hence, 'PISTON' cannot be formed from the letters of the given word 'SUPERVISION'.

Q.3.(A) NURSE—All the letters except 'U' are present in the main word. Hence, 'NURSE' cannot be formed from the let ters of the given word 'RECOMMENDATIONS'.

Q.4.(B) TENSION—All the letters except 'S' are present in the main word. Hence, in order 5, 3, 7, 1, 6, 4, 8, 2 form the word 'COMPLAIN'.

Q.5.(B) CHARTER—All the letters except 'H' are present in the main word. Hence, 'CHARTER' cannot be formed from the let ters of the gi v en word 'INFRASTRUCTURE'.

Q.6.(D) All the letters of word'GREEN'are there in main word 'REMEMBERING'.

Q.7.(B) All the letters of word 'STATIC' are then in main word 'ARISTOCRATIC'.

Q.8.(A) All the letters of word 'DISCERN' are then in main word 'CORRESPONDING'.

Q.9.(A) All the letters of word 'EMINENT' art there in main word 'ENVIRONMENT

Q.10.(B) All the letters of word 'METAL' are then in main word 'BLANDISHMENT'.

Q.11.(C) Clearly, the given letters, when arranged present in the main word. Hence, in order 5, 3, 7, 1, 6, 4, 8, 2 form the word 'COMPLAIN'.

Q.12.(B) HERMIT - (4, 1, 6, 2, 3, 5)

Q.13.(C) AMATEUR - (3, 2, 5, 4, 7, 6, 1)

Q.14.(C) PROJECT - (4, 7, 3, 1, 6, 2, 5)

Q.15.(A) **Q.16.(A)** **Q.17.(C)**
Q.18.(B) **Q.19.(B)** **Q.20.(B)**
Q.21.(C) **Q.22.(D)** **Q.23.(D)**
Q.24.(C) **Q.25.(D)**

CHAPTER-16
CLOCK

Scan the QR code to get video of this chapter.

INTRODUCTION

MINUTE SPACES

The face or dial of watch is a circle whose circumference is divided into 60 equal parts, called minute spaces.

HOUR HAND AND MINUTE HAND

A clock has two hands, the smaller one is called the hour hand or short hand while the larger one is called minute hand or long hand.

For hour hand

12 hrs. = 360^0

1 hour = 30^0

As 1 hr = 60 min., therefore

60 min = 30^0

therefore, 1 min = $\frac{30}{60}$

1 min = $\frac{1^0}{2}$

For minute hand

60 min. = 360^0

1 min = $\frac{360^0}{60}$

1 min = 6^0

RELATIVE SPEED OF MINUTE HAND WITH RESPECT TO HOUR HAND IN ONE MINUTE

1 min = $6^0 - \frac{1^0}{2} = 5\frac{1}{2} \Rightarrow$ 1 min = $\frac{11^0}{2}$

Also we can say

$1^0 = \frac{2}{11}$ min. $\Rightarrow 6\times1^0 = \frac{2}{11}$ min$\times6$

$\Rightarrow 6^0 = \frac{12}{11}$ min

As minute hand speed is 6^0 per minute, therefore

1 min. = $\frac{12}{11}$ min

SOME IMPORTANT POINTS

i. In 60 minutes, the minute hand gains 55 minutes on the hour hand.

ii. In every hour, both the hands coincide once.

iii. The hands are in the same straight line when they are coincide or opposite to each other.

iv. When the two hands are at right angles, they are 15 minute spaces apart.

v. When the hands are in opposite directions, they are 30 minute spaces apart.

vi. Angle traced by hour hand in 12 hrs = 360°

vii. Angle traced by minute hand in 60 min. = 360°.

viii. If a watch or a clock indicates 8:15, when the correct time is 8, it is said to be 15 minutes fast. On the other hand, if it indicates 7:45, when the correct time is 8, it is said to be 15 minutes slow. Every 24 hour or in one day.

1. Both hand of the clock coincide one time in one hour but 11 time in 12 hour or 22 time in 24 hour.

2. Both hand of the clock opposite one time in one hour but 11 time in 12 hour or 22 time in 24 hour.

3. Both hand of the clock right angled twice in one hour but 22 time in 12 hour or 44 time in 24 hour.

4. In 24 hours both hands of the clock lies, 44 times in a straight line. (22 time coincide + 22 time opposite).

There are three type of questions in this chapter.

I. Calculate time from given angle.

II. Calculate angle from given time.

III. Miscellaneous.

CALCULATE TIME FROM GIVEN ANGLE

Ex.1. At what time between 5:00 to 6:00 O'clock both hand of the clock form right angle for the second time?

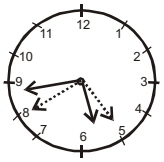
(A) $43\frac{5}{11}$ min past 5 **(B)** $43\frac{7}{11}$ min past 5

(C) 40 min past 5 **(D)** 45 min past 5

Sol.(B) Two right angle formed in one hour.

At 5 O'clock, the hands are 25 min space apart.

To form right angle for the second time between 5:00 to 6:00, the minute hand has to gain (25+15) = 40 min. space as In 1 min. $\Rightarrow \frac{12}{11}$ min. gain.



Therefore in 40 min

$= \frac{12}{11} \times 40$

$= 43\frac{7}{11}$ min

Hence required time = $43\frac{7}{11}$ min past 5.

Alternate Method:

Right angle means 90^0, we can also use formula to solve this type of question.

$$\mathbf{M = \frac{2}{11}\ (H_1 \times 30 \pm A^0)}$$

Where M = minute, H_1 = First hour = 5

A^0 = Given angle = 90^0

$M = \frac{2}{11}\ (5 \times 30 \pm 90^0)$

$= \frac{2}{11}\ (150 \pm 90^0) \quad = \frac{300 \pm 180}{11}$

Hence $M_1 = \frac{300+180}{11}$ and

$M_2 = \frac{300-180}{11}$

$M_1 = 43\frac{7}{11}$ and $M_2 = 10\frac{10}{11}$

Hence required time for right angle for the second time = $43\frac{7}{11}$ min past 5.

Ex.2. At what time between 6:00 to 7:00 O'clock both hand of the clock coincides?

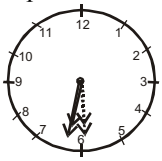
(A) $33\frac{7}{11}$ min past 6 **(B)** $32\frac{8}{11}$ min past 6

(C) $34\frac{6}{11}$ min past 6 **(D)** $38\frac{2}{11}$ min past 6

Sol.(B) Coincides means 0^0

At 6 O'clock, the hands are 30 min space apart.

To form 0^0 between 6:00 to 7:00, the minute hand moves equivalent to hourhand. Therefore minute hand has to move 30 min space to coincide as in 1 minute $\Rightarrow \frac{12}{11}$ min. gain.



Therefore in 30 min = $\frac{12}{11} \times 30 = 32\frac{8}{11}$ min

Hence required time = $32\frac{8}{11}$ min past 6.

Alternate Method:

Coincide means 0^0, $\mathbf{M = \frac{2}{11}\ (H_1 \times 30 \pm A^0)}$

Where M = minute, H_1 = First hour = 6

A^0 = Given angle = 0^0

$M = \frac{2}{11}\ (6 \times 30 \pm 0^0)$

$= \frac{2}{11}\ (180 \pm 0^0)$

$= \frac{360 \pm 0}{11} = \frac{360}{11} = 32\frac{8}{11}$

Hence required time for right angle for the second time = $32\frac{8}{11}$ min past 6.

Ex.3. At what time between 7:00 to 8:00 O'clock both hand of the clock be in straight line but not together?

(A) 5 min past 7 **(B)** $5\frac{2}{11}$ min past 7

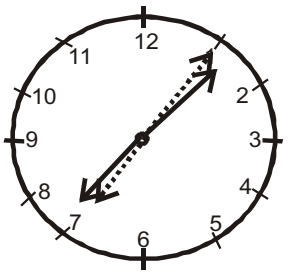
(C) $6\frac{4}{11}$ min past 7 **(D)** $5\frac{5}{11}$ min past 7

Sol.(D) Both hands of the clock be in straight line but not together means opposite i.e., 180^0

At 7 O'clock, the hands are 35 min space apart.

To form 180^0 between 7:00 to 8:00, the minute hand has to gain (35-30) = 5 min. space

As in 1 min $\Rightarrow \frac{12}{11}$ min. gain.



Therefore in 5 min

$= \frac{12}{11} \times 5 = 5\frac{5}{11}$ min

Hence required time = $5\frac{5}{11}$ min past 7.

Alternate Method:

Both hands of the clock be in straight line but not together means opposite i.e., 180^0,

$$\mathbf{M = \frac{2}{11}\ (H_1 \times 30 \pm A^0)}$$

Where M = minute, H_1 = First hour = 7

A^0 = Given angle = 180^0

$M = \frac{2}{11}\ (7 \times 30 \pm 180^0) = \frac{2}{11}\ (210\text{-}180^0)$

$= \frac{420-360}{11} = \frac{60}{11} = 5\frac{5}{11}$

Hence required time for straight line but not coincide (opposite)= $5\frac{5}{11}$ min past 7

Ex.4. At what time between 5:00 to 6:00 O'clock both hand of the clock form right angle for the First time?

(A) $13\frac{5}{11}$ min past 5

(B) $10\frac{10}{11}$ min past 5

(C) 10 min past 5

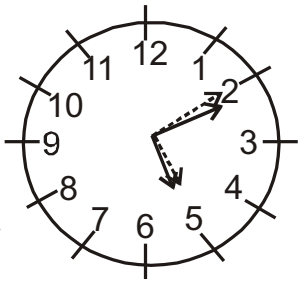
(D) 15 min past 5

Sol.(B) Two right angle formed in one hour.

At 5 O'clock, the hands are 25 min space apart.

To form right angle for the first time between 5:00 to 6:00, the minute hand has to gain (25 -15) = 10 min. space as In 1 min.

$\Rightarrow \frac{12}{11}$ min.



gain.

Therefore in 10 min = $\frac{12}{11} \times 10 = 10\frac{10}{11}$ min

Hence required time = $10\frac{10}{11}$ min past 5.

Alternate Method:

Right angle means 90^0, we can also use formula to solve this type of question.

$$\mathbf{M = \frac{2}{11}\ (H_1 \times 30 \pm A^0)}$$

Where M = minute, H_1 = First hour = 5

A^0 = Given angle = 90^0

$M = \frac{2}{11}\ (5 \times 30 \pm 90^0) = \frac{2}{11}\ (150 \pm 90^0)$

$= \frac{300 \pm 180}{11}$

Hence $M_1 = \frac{300+180}{11}$ and M_2

$= \frac{300-180}{11}$

$M_1 = 43\frac{7}{11}$ and $M_2 = 10\frac{10}{11}$

Hence required time for right angle for the First time $= 10\frac{10}{11}$ min past 5.

CALCULATE ANGLE FROM GIVEN TIME

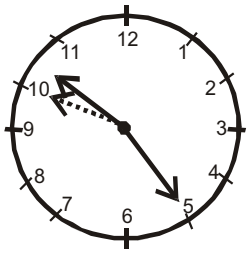
Ex.5. The reflex angle between the hands of a clock at 10:25 is:

(A) 180º **(B)** $192\frac{1^\circ}{2}$

(C) 195º **(D)** $197\frac{1^\circ}{2}$

Sol.(D) At 10:25 min. hand will be at 5 and the hour hand will be some forward from 10 from 10 to 5 min space = 25 min. and

1 min = 6^0.



Therefore 25 min = 150^0

The distance covered by hour hand in one min = $\frac{1^0}{2}$, Therefore in 25 min.

$= 25 \times \frac{1}{2} = 12.5$

Angle between the both hand

$= 150^0 + 12.5^0 = 162.5^0$

reflex angle = $360^0 - 162.5^0 = 197.5^0$

Alternative Method:

$$\mathbf{M = \frac{2}{11}\ (H_1 \times 30 \pm A^0)}$$

Where M=minute= 25, H_1=Ist hour = 10

A^0 = Given angle

$25 = \frac{2}{11}\ (10 \times 30 \pm A^0)$

$25 = \frac{600 \pm 2A^0}{11}$ $\pm 2A^0 = 600 - 275$

$2A = 325$

$A = 162.5^0$

Reflex angle = $360^0 - 162.5^0 = 197.5^0$

Ex.6. The angle between the minute hand and the hour hand of a clock when the time is 4:20, is:

(A) 0º **(B)** 10º

(C) 5º **(D)** 20º

Sol.(B) Angle traced by hour hand in $\frac{13}{3}$ hrs

$= \left(\frac{360}{12} \times \frac{13}{3}\right)^0 = 130º$

Angle traced by min. hand in 20 min.

$= \left(\frac{360}{60} \times 20\right)^0 = 120º.$

Required Angle = $130^0 - 120^0 = 10^0$

Ex.7. At what angle the hands of a clock are inclined at 15 minutes past 5?

(A) $58\frac{1^o}{2}$ **(B)** 64º

(C) $67\frac{1^o}{2}$ **(D)** $72\frac{1^o}{2}$

Sol.(C) Angle traced by hour hand in $\frac{21}{4}$ hrs

$= \frac{360}{12}$ x $\frac{21^o}{4} = 157\frac{1^o}{2}$

Angle traced by min. hand in 15 min.

$= \frac{360}{60}$ x 15º= 90º.

Required angle

$= 157\frac{1^\circ}{2} - 90º = 67\frac{1^\circ}{2}$

Ex.8. At 3:40, the hour hand and the minute hand of a clock form an angle of:

(A) 120º **(B)** 125º

(C) 130º **(D)** 135º

Sol.(C) m =40, h = 3

$$\theta = \frac{11m}{2} - 30h$$

$$\theta = \frac{11}{2} \times 40 - 30 \times 3$$

$= 220\text{-}90 = 130^o$

Ex.9. The angle between the minute hand and the hour hand of a clock when the time is 8:30, is:

(A) 80º **(B)** 75º

(C) 60º **(D)** 105º

Sol.(B) Angle traced by hour hand in $\frac{17}{2}$ hrs

$= \left(\frac{360}{12} \times \frac{17}{2}\right)^\circ = 255^o$

Angle traced by min. hand in 30 min.

$= \left(\frac{360}{60} \times 30\right)^0 = 180.$

Required angle

$= (255 - 180)º$

$= 75º.$

EXERCISE

Q.1. A clock is so placed that at 12 noon, its minute hand points towards north-east. In which direction does the hour hand point at 1:30 P.M.?
(A) North **(B)** East **(C)** South **(D)** West

Q.2. A watch is one minute slow at 1.00 pm. on Tuesday and two minutes fast at 1.00 pm on Thursday. When did it show the correct time?
(A) 1:00 am. on Wednesday
(B) 5:00 am. on Wednesday
(C) 1:00 pm. on Wednesday
(D) 5:00 pm. on Wednesday

Q.3-6. Read the information given below and answer the following questions.
It is 4 O'clock by a clock.

Q.3. At which time a first right angle will be formed by the minute and the hour hand before it is 5 O'clock in that clock ?
(A) $5\frac{5}{11}$ min. past 4 **(B)** 5 min. past 4
(C) 6 min. past 4 **(D)** None of these

Q.4. At what time will the minute hand and the hour hand coincide before it is 5 O'clock by that clock?
(A) 20 min. past 4 **(B)** $21\frac{9}{11}$ min. past 4
(C) 27 min. past 4 **(D)** $20\frac{9}{11}$ min past 4

Q.5. At what time will the minute and the hour hand make a right-angle for the second time before 5 O'clock?
(A) 35 min. past 4 **(B)** 39 min. past 4
(C) $38\frac{2}{11}$ min. past 4 **(D)** 40 min. past 4

Q.6. At what time, will the minute and the hour hand be opposite to each other before 5 O'clock?
(A) $55\frac{6}{11}$ min. past 4 **(B)** 54 min. past 4
(C) 55 min. past 4 **(D)** $54\frac{6}{11}$ min. past 4

Q.7-10. Read the information given below and answer the following questions.
A clock is showing 3 O'clock

Q.7. At what time, will the both hands form right angle for the first time before 4 O'clock and after 3 O'clock?
(A) 30 min. past 3 **(B)** $30\frac{8}{11}$ min. past 3
(C) 32 min. past 3 **(D)** $32\frac{8}{11}$ min. past 3

Q.8. At what time, will the minute and the hour hand be just opposite to each other before 4 O'clock?
(A) 45 min. past 3 **(B)** $45\frac{1}{11}$ min. past 3
(C) 49 min. past 3 **(D)** $49\frac{1}{11}$ min. past 3

Q.9. At what time, will a right angle be formed by the both hands in a clock before 4 O'clock?
(A) Data inadequate **(B)** Will not be formed
(C) 3:00 **(D)** None of these

Q.10. At what time, will the minute and the hour hand coincide before 4 O'clock?
(A) $16\frac{4}{11}$ min past 3 **(B)** 15 min. past 3
(C) 16 min. past 3 **(D)** $15\frac{4}{11}$ min past 3

Q.11. In between 4 O'clock and 5 O'clock' at what time both the hands of a clock will be 4 minutes apart?
(A) 10 min past 4 **(B)** 11 min. past 4
(C) 12 min. past 4 **(D)** None of these

Q.12. In between 4 O'clock and 5 O'clock' at what time minute hand and hour hand will be at equal distance from the digit '5' in the clock?
(A) 20 min past 4 **(B)** $27\frac{9}{13}$ min. past 4
(C) 30 min. past 4 **(D)** 32 min. past 4

Q.13. A correct clock is showing time as 35 min. past 1, what angle is there between the two hands?
(A) 192.5° **(B)** 216° **(C)** 162.5° **(D)** 167.5°

Q.14. What is the angle between the minute hand and the hour hand at 25 minute past 9?
(A) 150° **(B)** 120° **(C)** 132.5° **(D)** 217.5°

Q.15. A clock showing 8:20. After how much time, the minute hand and hour hand will be making angle of 90°?
(A) $3\frac{7}{10}$ **(B)** $11\frac{3}{7}$ **(C)** $8\frac{3}{7}$ **(D)** $7\frac{3}{11}$

Q.16. A clock is showing 35 min past 3. What time will be shown by the same clock in its mirror image?
(A) 7:25 **(B)** 7:35 **(C)** 8:25 **(D)** 8:35

Q.17. It is 35 min past 8 by a clock, what time will be shown by the same clock in its water image?
(A) 3:45 **(B)** 3:25 **(C)** 8:55 **(D)** 9:55

Q.18. What will be the angle between minute and hour hand when it is 15 past 5 in that clock?
(A) 77.5° **(B)** 67.5° **(C)** 69.5° **(D)** 68.5°

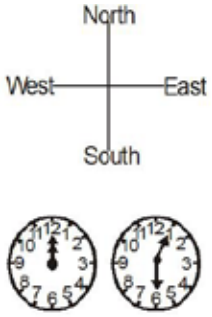
Q.19-20. Read the information given below and answer the following questions.
It is 15 past seven by a clock

Q.19. Find out after how much time both the hand would form 90° angle for the first time?
(A) $9\frac{6}{11}$ min **(B)** $6\frac{9}{11}$ min
(C) $11\frac{6}{9}$ min **(D)** None of these

Q.20. After how much time, both the hands would form right angle for the second time?(minute)
(A) $39\frac{6}{11}$ **(B)** 40 **(C)** $38\frac{8}{11}$ **(D)** $36\frac{8}{11}$

EXPLANATION

Q.1.(B)



As shown, the hour hand at 1 : 30 P.M. Point towards the East.

Q.2.(B) Watch gains 3 minute in 48 hours therefore it would gain 1 minute in = 48/3 = 16 hours

1.00 pm. on Tuesday + 16 hours

= 5.00 am. on Wednesday

Q.3.(A) **Q.4.(B)** **Q.5.(C)** **Q.6.(D)** **Q.7.(D)**

Q.8.(D) **Q.9.(B)** **Q.10.(A)**

Q.11.(D)

I. $4:16 = 4:16\times\frac{12}{11} = 4:\frac{192}{11} = 4:17\frac{5}{11}$

II. $4:24 = 4:24\times\frac{12}{11} = 4:\frac{288}{11} = 4:26\frac{2}{11}$

Q.12.(B) Equal Distance = $\frac{60(D+1)}{13} = \frac{60(5+1)}{13} = \frac{360}{13}$

$27\frac{9}{13}$ min.

Q.13.(C) **Q.14.(C)** **Q.15.(D)** **Q.16.(C)** **Q.17.(D)**

Q.18.(B) **Q.19.(B)** **Q.20.(A)**

NOTES

CHAPTER-17
CALENDAR

Scan the QR code to get video of this chapter.

INTRODUCTION

ODD DAYS

We are supposed to find the day of the week on a given date.

For this, we use the concept of 'odd days'.

In a given period, the number of days more than the complete weeks are called odd days.

LEAP YEAR

i. Every year divisible by 4 is a leap year, if it is not a century year.

ii. Every 4th century is a leap year and no other century is a leap year.

iii. Every year which is divisible by 400 is called leap century year.

Note: A leap year has 366 days.

EXAMPLES

i. Each of the years 1948, 2004, 1676 etc. is a leap year.

ii. Each of the century years 400, 800, 1200, 1600, 2000 etc. is a leap year.

iii. None of the years 2001, 2002, 2003, 2005, 1800, 2100 is a leap year.

ORDINARY YEAR

The year which is not a leap year is called an ordinary years. An ordinary year has 365 days.

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 × 1 + 24 × 2) odd days = 124 odd days.

= (17 weeks + 5 days) ⇒5 odd days.

Number of odd days in 100 years = 5.

Number of odd days in 200 years = (5 × 2) = 10 days

= 1 week + 3 days ⇒ 3 odd days.

Number of odd days in 300 years = (5 × 3) = 15 days = 2 weeks + 1 day ⇒ 1 odd day.

Number of odd days in 400 years = (5 x 4 + 1) = 21 days = 3 weeks + 0 days ⇒ 0 odd day.

Similarly, each one of 800 years, 1200 years, 1600 years, 2000 years etc. has 0 odd days.

Day of the Week Related to Odd Days:

odd days No.:	0	1	2	3	4	5	6
Day:	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.

EXAMPLES

Ex.1. If January 1, 2008 is Tuesday then What day of the week lies on Jan 1, 2009?

(A) Monday **(B)** Wednesday

(C) Thursday **(D)** Sunday

Sol.(C) The year 2008 is a leap year. So, it has 2 odd days.

1st day of the year 2008 is Tuesday (Given)

So, 1st day of the year 2009 is 2 days beyond Tuesday.

Hence, it will be Thursday.

Ex.2. If January 1, 2007 was Monday then What day of the week lies on Jan. 1, 2008?

(A) Monday **(B)** Tuesday

(C) Wednesday **(D)** Sunday

Sol.(B) The year 2007 is an ordinary year. So, it has 1 odd day.

1st day of the year 2007 was Monday.

1st day of the year 2008 will be 1 day beyond Monday.

Hence, it will be Tuesday.

Ex.3. If 6th March, 2005 is Monday then what was the day of the week on 6th March, 2004?

(A) Sunday **(B)** Saturday

(C) Tuesday **(D)** Wednesday

Sol.(A) The year 2004 is a leap year. So, it has 2 odd days.

But, Feb 2004 not included because we are calculating from March 2004 to March 2005. So it has 1 odd day only.

The day on 6th March, 2005 will be 1 day beyond the day on 6th March, 2004.

Given that, 6th March, 2005 is Monday.

6th March, 2004 is Sunday (1 day before to 6th March, 2005).

Ex.4. If it was Sunday on Jan 1, 2006 then What was the day of the week Jan 1, 2010?

(A) Sunday **(B)** Saturday

(C) Friday **(D)** Wednesday

Sol.(C) Number of odd days from the year 2006 to the year 2010 = (1+1+ 2+1) = 5 days.

Thus, on 1st Jan, 2010 it is Friday.

Ex.5. On 8th Dec, 2007 Saturday falls. What day of the week was it on 8th Dec, 2006?

(A) Sunday **(B)** Thursday

(C) Tuesday **(D)** Friday

Sol.(D) The year 2006 is an ordinary year. So, it has 1 odd day.

So, the day on 8th Dec, 2007 will be 1 day beyond the day on 8th Dec, 2006.

Since, 8th Dec, 2007 is Saturday.

So, 8th Dec, 2006 is Friday.

Ex.6. If 8th Feb, 2005 it was Tuesday then What was the day of the week on 8th Feb, 2004?

(A) Tuesday **(B)** Monday

(C) Sunday **(D)** Wednesday

Sol.(C) The year 2004 is a leap year. It has 2 odd days.

The day on 8th Feb, 2004 is 2 days before the day on 8th Feb, 2005.

Hence, this day is Sunday.

Ex.7. What will be the day of the week 15th August, 2010?

(A) Sunday **(B)** Monday

(C) Tuesday **(D)** Friday

Sol.(A) 15th August, 2010 = (2009 years + Period 1.1.2010 to 15.8.2010)

Odd days in 1600 years = 0

Odd days in 400 years = 0

9 years = (2 leap years + 7 ordinary years)

= (2 x 2 + 7 x 1) = 11 odd days $\Rightarrow$ 4 odd days.

Jan. Feb. March April May June July Aug.

(31+28+31+30+31+30+31+15) = 227 days

227 days = (32 weeks + 3 days)

$\Rightarrow$ 3 odd days.

Total number of odd days

= (0 + 0 + 4 + 3) = 7 $\Rightarrow$ 0 odd days.

Given day is Sunday.

Ex.8. What was the day of the week on 28th May, 2006?

(A) Thursday **(B)** Friday

(C) Saturday **(D)** Sunday

Sol.(D) 28 May, 2006 = (2005 years + Period from 1.1.2006 to 28.5.2006)

Odd days in 1600 years = 0

Odd days in 400 years = 0

5 years = (4 ordinary years + 1 leap year)

= (4 x 1 + 1 x 2) $\Rightarrow$ 6 odd days

Jan. Feb. March April May

(31+28+31+30+28) = 148 days

148 days = (21 weeks+1 day) 1 odd day.

Total number of odd days = (0+0+6+1)

= 7 $\Rightarrow$ 0 odd day.

Given day is Sunday.

Ex.9. What was the day of the week on 17th June, 1998?

(A) Monday **(B)** Tuesday

(C) Wednesday **(D)** Thursday

Sol.(C) 17th June, 1998 = (1997 years + Period from 1.1.1998 to 17.6.1998)

Odd days in 1600 years = 0

Odd days in 300 years = (5 x 3) =15 $\Rightarrow$ 1

97 years has 24 leap years + 73 ordinary years.

Number of odd days in 97 years

= (24 x 2 + 73) = 121 = 2 odd days.

Jan. Feb. March April May June

(31+28+31+30+31+17)

= 168 days

168 days = 24 weeks = 0 odd day.

Total number of odd days = (0+1+2+0) = 3.

Given day is Wednesday.

Ex.10. On what dates of April, 2001 did Wednesday fall?

(A) 1st, 8th, 15th, 22nd, 29th

(B) 2nd, 9th, 16th, 23rd, 30th

(C) 3rd, 10th, 17th, 24th

(D) 4th, 11th, 18th, 25th

Sol.(D) We shall find the day on 1st April, 2001.

1st April, 2001 = (2000 years + Period from 1.1.2001 to 1.4.2001)

Odd days in 1600 years = 0

Odd days in 400 years = 0

Jan. Feb. March April

(31 + 28 + 31 + 1)= 91 days 0 odd days.

Total number of odd days = (0+0+0) = 0

On 1st April, 2001 it was Sunday.

In April, 2001 Wednesday falls on 4th, 11th, 18th and 25th.

Ex.11. Which of the following is not a leap year?

(A) 700^{th} **(B)** 800^{th}

(C) 1200^{th} **(D)** 2000^{th}

Sol.(A) The century divisible by 400 is a leap year.

Hence: The year 700 is not a leap year.

Ex.12. Today is Monday. After 61 days, it will be:

(A) Wednesday **(B)** Saturday

(C) Tuesday **(D)** Thursday

Sol.(B) Each day of the week is repeated after 7 days.

So, after 63 days, it will be Monday.

After 61 days, it will be Saturday.

Ex.13. The calendar for the year 2007 will be the same for the year:

(A) 2014 **(B)** 2016

(C) 2017 **(D)** 2018

Sol.(D) Count the number of odd days from the year 2007 onwards to get the sum equal to 0 odd day.

Year: 2007 2008 2009 2010 2011 2012

Odd day : +1 +2 +1 +1 +1 + 2

Year: 2013 2014 2015 2016 2017 2018

Odd day : +1 +1 +1 +2 +1

Sum = 14 odd days 0 odd days.

Calendar for the year 2018 will be the same as for the year 2007.

Ex.14. The last day of a century cannot be

(A) Monday **(B)** Wednesday

(C) Tuesday **(D)** Friday

Sol.(C) 100 years contain 5 odd days.

Last day of 1st century is Friday.

200 years contain $(5 \times 2) \Rightarrow$ 3 odd days.

Last day of 2nd century is Wednesday.

300 years contain $(5 \times 3) = 15 \Rightarrow$ 1 odd day.

Last day of 3rd century is Monday.

400 years contain 0 odd day.

Last day of 4th century is Sunday.

This cycle is repeated.

Last day of a century cannot be Tuesday or Thursday or Saturday.

Ex.15. How many days are there in x weeks x days?

(A) 7x2 **(B)** 8x

(C)14x **(D)** 7

Sol.(B) x weeks x days = (7x + x) days

= 8x days.

Ex.16. Mohini went to movies nine days ago. She goes to the movies only on Thursday. What day of the week is today?

(A) Saturday **(B)** Thursday

(C) Sunday **(D)** Tuesday

Sol.(A) Thursday + 2 = Saturday.

Ex.17. Anil reached a place on Friday. He came to know that he was three days earlier than the scheduled day. If he had reached there on the following Sunday, how many days late/early he would have been?

(A) One day earlier **(B)** One day late

(C) Two days late **(D)** Two days earlier

Sol.(A) Anil reached the place on Friday and he was three days earlier than the schedule day. Therefore, the scheduled day = Friday + 3 days

= Monday. If he had reached on Sunday then he would have earlier than one day.

Ex.18. 5th of a month falls two days after Monday. What day of the month will be preceded 19th of the same month?

(A) Wednesday **(B)** Thursday

(C) Tuesday **(D)** Monday

Sol.(C) Two days after Monday means Wednesday.

5 $\rightarrow$ Wednesday

12 $\rightarrow$ Wednesday

19 $\rightarrow$ Wednesday

Therefore, Tuesday will be preceded 19th of that month.

Ex.19. Hari remembers that his father's birthday is between 13th and 16th of June, whereas his sister remembers that her father's birthday is between 14th and 18th of June. On which day is their father's birthday?

(A) 14th June **(B)** 15th June

(C) 16th June **(D)** 17th June

Sol.(B) According to Hari, his father's birthday may be on 14th or 15th June.

According to Hari's sister, their father's birthday may be on 15th, 16th or 17th June.

Common date = 15th June.

Ex.20. Suresh was born on 4th October 1999. Shashikanth was born 6 days before Suresh. The Independence Day of that year fell on Sunday. Which day was Shashikanth born?

(A) Tuesday **(B)** Wednesday

(C) Monday **(D)** Sunday

Sol.(B) Shashikant was born on 29th September 1999.

15th August, 1999 was Sunday. Days upto 29th September from 15th August.

16 + 29 = 45 days = 6 weeks 3 old days

Sunday + 3 = Wednesday.

Ex.21. Anu is 300 days older than Varun and Sandeep is 50 weeks older than Anu. If Sandeep was born on Tuesday, on which day was Varun born?

(A) Monday **(B)** Thursday

(C) Tuesday **(D)** Friday

Sol.(A) 50 weeks = 50 × 7 = 350 days

Anu is 300 days older than Varun

Sandeep is 350 days older than Anu.

Sandeep is (350+300) days older than Varun.

Sandeep was born on Tuesday.

650 days = $\frac{650}{7}$ = 92 weeks 6 days

Number of odd days = 6

So, Varun was born 6 days after Tuesday, i.e., Monday.

Ex.22. Mrs. Susheela celebrated her wedding anniversary on Tuesday. 30th September 1997. When will she celebrate her next wedding anniversary on the same day?

(A) 30 September 2003 **(B)** 30 September 2004

(C) 30 September 2002 **(D)** 30 October 2003

Sol.(A) 30th September 1998 = Wednesday

30th September 1999 = Thursday

30th September 2000 = Saturday

Because 2000 is a Leap Year and there is one extra day in the month of February.

30th September 2001 = Sunday

30th September 2002 = Monday

30th September 2003 = Tuesday

An ordinary year has one odd day.

Ex.23. If day after tomorrow is Saturday what day was three days before yesterday?

(A) Thursday **(B)** Monday

(C) Saturday **(D)** Sunday

Sol.(D) Today is Saturday -2 = Thursday

Yesterday = Wednesday

Wednesday -3 = Sunday

Ex.24. If three days after today will be Tuesday, what day was four days before yesterday?

(A) Tuesday **(B)** Sunday

(C) Monday **(D)** Wednesday

Sol.(C) Today + 3 = Tuesday

$\therefore$ Today = Tuesday - 3 = Saturday.

Yesterday = Saturday-1= Friday

Friday - 4 = Monday

Ex.25. Day after tomorrow is Kiran's birthday. On the same day next week falls 'Shivratri'. Today is Monday. What will be the day after 'Shivratri'?

(A) Wednesday **(B)** Thursday

(C) Friday **(D)** Saturday

Sol.(B) Birthday of Kiran=Monday+2

= Wednesday

Shivratri = Wednesday

The day after Shivratri = Wednesday + 1

= Thursday

EXERCISE

Q.1. Which of the following cannot be first day of a century year?
(A) Monday **(B)** Tuesday
(C) Wednesday **(D)** Thursday

Q.2. If it was Tuesday on day before yesterday, then which day will be fallen the day after tomorrow?
(A) Friday **(B)** Saturday
(C) Sunday **(D)** Monday

Q.3. If the day before yesterday was Wednesday then the upcoming Saturday is how many days from today?
(A) After 2 days **(B)** After 3 days
(C) Next day **(D)** After 6 days

Q.4. If it was Friday on two days before yesterday then the day will be on third day from today?
(A) Wednesday **(B)** Thursday
(C) Friday **(D)** Saturday

Q.5. If the second day after tomorrow will be Wednesday. What will be the day on the previous day before the day before yesterday?
(A) Wednesday **(B)** Thursday
(C) Friday **(D)** Saturday

Q.6. If it was Tuesday on previous day before the day before yesterday. After how many days, it will be Thursday from today?
(A) After 4 days **(B)** After 6 days
(C) After 5 days **(D)** None of these

Q.7. If it is Tuesday today. What will be day after 112 days?
(A) Monday **(B)** Tuesday
(C) Wednesday **(D)** Thursday

Q.8. If it is Thursday on 28th of a month. On which date it will be third Monday in the same month?
(A) 16 **(B)** 17 **(C)** 18 **(D)** 19

Q.9. If children's day of a year was celebrated on Sunday then on which day of week, Teacher's day of the same year was celebrated ?
(A) Monday **(B)** Sunday
(C) Wednesday **(D)** Thursday

Q.10. If republic day in any leap year was celebrated on Friday. On which day of week will the Independence day of same year be celebrated ?
(A) Tuesday **(B)** Wednesday
(C) Thursday **(D)** Friday

Q.11. Calendar of year 2001 was same as which of the following year?
(A) 1992 **(B)** 1994
(C) 1996 **(D)** 2007

Q.12. What day was on 26 of January 1950?
(A) Tuesday **(B)** Wednesday
(C) Thursday **(D)** Friday

Q.13. If July 23, 1974 was Wednesday, which day will be on 23 July 1982?
(A) Saturday **(B)** Sunday
(C) Friday **(D)** Thursday

Q.14. If 9 August 1981 - (Saturday) then 9 August 1991 – (?)
(A) Wednesday **(B)** Thursday
(C) Friday **(D)** Sunday

Q.15. If 15 September was Tuesday, then how many Tuesday and Friday are there in this month?
(A) 5 Tuesday and 5 Friday
(B) 4 Tuesday and 4 Friday
(C) 5 Tuesday and 4 Friday
(D) 4 Tuesday and 5 Friday

Q.16. Ravi remembers correctly that Somnath was born after 17th September and before 21st September. Lokpal definitely remembers that Somnath was born after 19th September and before 23rd September. On what date was Somnath born?
(A) Data inadequate
(B) 20th September or 21st September
(C) 20th September
(D) 19th September

Q.17. If 2nd May 2006 was Monday then what was the day on 31st July of the same year?
(A) Sunday **(B)** Friday
(C) Monday **(D)** Saturday

Q.18. If the day before yesterday was Thursday, when will Sunday be?
(A) Today **(B)** Yesterday
(C) Tomorrow **(D)** Day after tomorrow

Q.19. Shyam was born on March 6, 1993. The same year Independence Day was celebrated on Friday. Find out the birth day of Shyam.
(A) Tuesday **(B)** Wednesday
(C) Monday **(D)** Saturday

Q.20. If first January is Tuesday in 2014 then what will be the day on first January 2019?
(A) Wednesday **(B)** Sunday
(C) Monday **(D)** Saturday

EXPLANATION

Q.1.(C) **Q.2.(B)** **Q.3.(C)** **Q.4.(B)**

Q.5.(B) **Q.6.(B)** **Q.7.(B)** **Q.8.(C)**

Q.9.(B) **Q.10.(C)** **Q.11.(D)** **Q.12.(C)**

Q.13.(A) **Q.14.(B)**

Q.15.(C) In the September Month ⇒

Tuesday will be lied on September

1st	8th	15th	21st	28th
Tuesday	Tuesday	Tuesday	Tuesday	Tuesday

Friday will be lied on September-

4th	11th	18th	25th
Friday	Friday	Friday	Friday

Q.16.(C)

Q.17.(A) Odd Days $= \frac{90}{7} = 6$

Monday + 6 = Sunday

Q.18.(C) If the day before yesterday was Thursday, then today is Saturday and tomorrow will be Sunday.

Q.19.(B)

Q.20.(C) 1 January 2014 was Tuesday then 1 January 2019 will be Monday.

5 years = 1 LP × 2 + 4 NY × 1 = 6

Tuesday + 6 = Monday

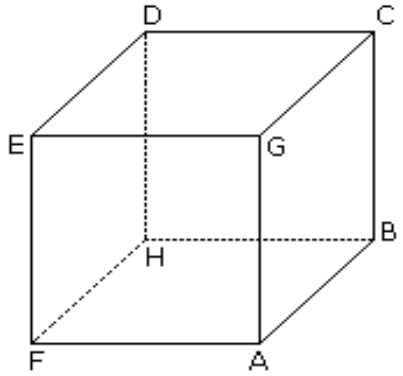
NOTES

CHAPTER-18
DICE, CUBE AND CUBOID

Scan the QR code to get video of this chapter.

DICE

Dice is a three dimensional figure in which their are six surface. Some important points are given below:



1. There are 6 faces in the dice - ABCG, GCDE, DEFH, EGAF, BCDH and ABHF.

2. Always four faces are adjacent to one face.

3. Opposite of ABCG is DEFH and so on.

4. CDEG is the upper face of the dice.

5. ABHF is the bottom of the dice.

There are certain rules with the help of these rules question on dice can easily determined.

DICE IS CATEGORIZED INTO TWO TYPES

STANDARD DICE

Dice in which sum of digits on opposite faces is always '7'

1+6 $\Rightarrow$ 7

2+5 $\Rightarrow$ 7

3+4 $\Rightarrow$ 7

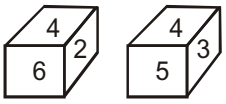
NON-STANDARD DICE

Dice which does not follow the rule of standard Dice.

RULE NO. 1

Two opposite faces cannot be adjacent to one another.

Ex. Two different positions of a dice are shown below. Which number will appear on the face opposite to the face with number 4 ?



Sol. Faces with four numbers 6, 2, 5 and 3 are adjacent of to the face with No. 4.

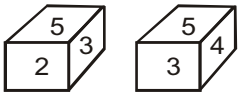
Hence the faces with no. 6, 2, 5 and 3 cannot be opposite to the face with no. 4.

Therefore the remaining face with no.1 will be the opposite of the face with no. 4.

RULE NO. 2

If two different positions of a dice are shown and one of the two common faces is in the same position then of the remaining faces will be opposite to each other.

Ex. Two different positions of a dice are shown below.



Sol. Here in both shown positions two faces 5 and 3 are common.

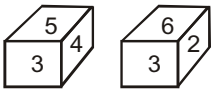
The remaining faces are 2 and 4.

Hence the number on the face opposite to the face with number 2 is 4.

RULE NO. 3

If in two different positions of dice, the position of a common face be the same, then each of the opposite faces of the remaining faces will be in the same position.

Ex.



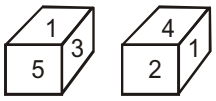
Sol. Here in both dice position of three is same.

Therefore, opposite of 5 is 6 and opposite of 4 is 2.

RULE NO. 4

If in two different positions of a dice, the position of the common face be not the same, then opposite face of the common face will be that which is not shown on any face in these two positions. Besides, the opposite faces of the remaining faces will not be the same.

Ex.



Sol. Here in two positions of a dice the face with number 1 is not in the same position.

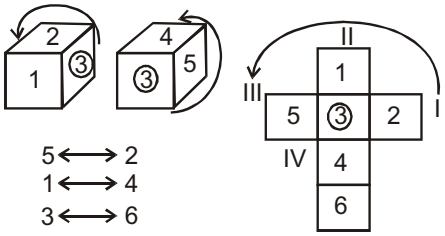
The face with number 6 is not shown.

Hence the face opposite to the face with number 1 is 6.

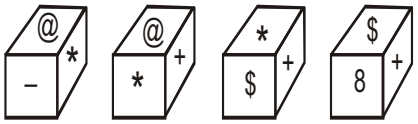
Besides the opposite face of 3 will be the face with number 2 and opposite face to face 5 will be the face with number 4.

RULE NO. 5

If two dice have only one symbol or sign common but on different faces then remaining faces will be opposite by the use of open dice.



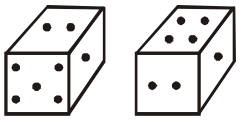
Ex.1. Which symbol will be on the face opposite to the face with symbol * ?



(A) @ **(B)** $ **(C)** 8 **(D)** +

Sol.(C) The symbols of the adjacent faces to the face with symbol * are @, -, + and $. Hence the required symbol is 8.

Ex.2. Two positions are dice are shown below. How many points will appear on the opposite to the face containing 5 points?

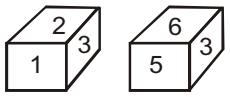


(A) 3 **(B)** 1 **(C)** 2 **(D)** 4

Sol.(D) In these two positions one of the common face having 1 point is in the same position. Therefore according to rule (2). There will be 4 points on the required face.

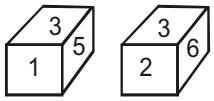
Ex.3. Which digit will appear on the face opposite to the face with number 4?

(A) 3 **(B)** 5 **(C)** 6 **(D)** 2/3



Sol.(A) Here the common faces with number 3, are in same positions. Hence 6 is opposite to 2 and 5 is opposite to 1. Therefore 4 is opposite to 3.

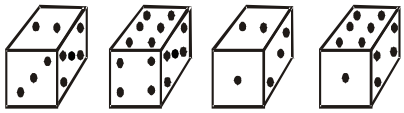
Ex.4. Two positions of a dice are shown below. Which number will appear on the face opposite to the face with the number 5?



(A) 2/6 **(B)** 2 **(C)** 6 **(D)** 4

Sol.(C) According to the rule no. (3), common faces with number 3, are in same positions. Hence the number of the opposite face to face with number 5 will be 6.

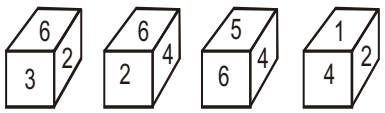
Ex.5. How many points will be on the face opposite to in face which contains 2 points?



(A) 1 **(B)** 5 **(C)** 4 **(D)** 6

Sol.(D) In first two positions of dice one common face containing 5 is same. Therefore according to rule no. (3) the face opposite to the face which contains 2 point, will contains 6 points.

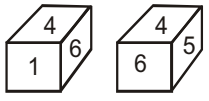
Ex.6. Which number is on the face opposite to 6 ?



(A) 4 **(B)** 1 **(C)** 2 **(D)** 3

Sol.(B) As the numbers 2, 3, 4 and 5 are adjacent to 6. Hence the number on the face opposite to 6 is 1.

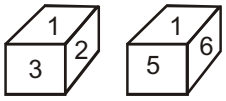
Ex.7. Two positions of a dice are shown below. When number '1' is on the top. What number will be at the bottom?



(A) 3 **(B)** 5 **(C)** 2 **(D)** 6

Sol.(B) According to the rule (2) when 'one' is at the top, then 5 will be at the bottom.

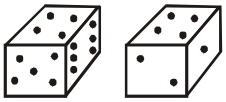
Ex.8. Two positions of a cube with its surfaces numbered are shown below. When the surface 4 touch the bottom, what surface will be on the top?



(A) 1 **(B)** 2 **(C)** 5 **(D)** 6

Sol.(A) In these 2 positions one common face with number 1 is in the same position. Hence according to the rule number (3), 2 is opposite 6 and 3 is opposite to 5. Therefore opposite to 4 is 1.

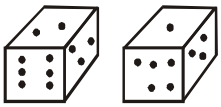
Ex.9. Here two positions of dice are shown. If there are two dots in the bottom, then how many dots will be on the top?



(A) 2 **(B)** 3 **(C)** 5 **(D)** 6

Sol.(C) Here the common faces with 4 dots are in same positions. Hence 2 will be opposite to 5.

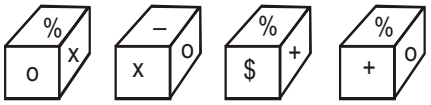
Ex.10. Two positions of dice are shown below. How many points will be on the top when 2 points are at the bottom?



(A) 6 **(B)** 5 **(C)** 4 **(D)** 1

Sol.(D) In these 2 positions of a dice, one common face having points 3 is in the same position. Hence according to rule (3), there will be 1 points on the required face.

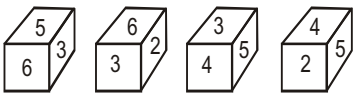
Ex.11. Here 4 positions of a cube are shown. Which sign will be opposite to '+' ?



(A) % **(B)** - **(C)** x **(D)** $

Sol.(C) From position I and III common face with % is in the same position. Hence according to rule (3) opposite is X.

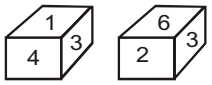
Ex.12. Four positions of a dice are shown below. Which number of the face will be opposite to the face with number 3?



(A) 1 **(B)** 2 **(C)** 4 **(D)** 5

Sol.(A) The numbers of the adjacent faces to the face with number 3 are 5, 6, 2 and 4. Hence the face with number (1) will be opposite to the face with number (3).

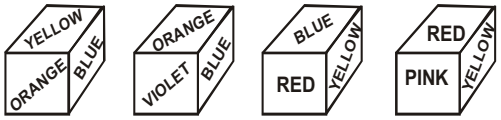
Ex.13. Two positions of a cubical block are shown. When 5 is at the top which number will be at bottom?



(A) 1 **(B)** 2 **(C)** 3 **(D)** 4

Sol.(C) In these 2 positions one common face with number 3, is in same position. Hence according to rule (3), 1 is opposite to 6 and 4 is opposite to 2. Therefore 5 is opposite to 3.

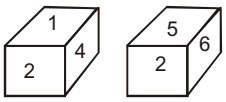
Ex.14. From the four positions of a dice given below, find the color which is opposite to yellow ?



(A) Violet **(B)** Red **(C)** Pink **(D)** Blue

Sol.(A) The colours adjacent to yellow are orange, blue, red and pink. Hence violet will be opposite to yellow.

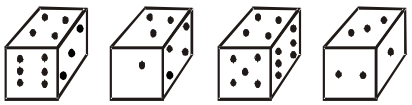
Ex.15. When the digit 5 is on the bottom then which number will be on its upper surface?



(A) 1 **(B)** 3 **(C)** 4 **(D)** 6

Sol.(A) According to the rule no. (3), common faces with number 2 are in same positions. Hence when the digit 5 is on the bottom then 1 will on the upper surface.

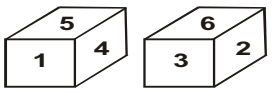
Ex.16. How many points will be on the face which is opposite to the face which contains 3 points?



(A) 2 **(B)** 4 **(C)** 5 **(D)** 6

Sol.(C) The adjacent faces to the face which 3 points have 2, 1, 4 and 6 points. Hence on the face which is opposite to the face which contains 3 points, there will be 5 points.

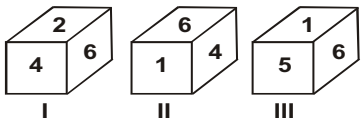
Ex.17. Which number will be on the face which is opposite to the face which contains number 5 ?



(A) 6 **(B)** 3 **(C)** 2 **(D)** 4

Sol.(C) As the sum of the any two adjacent numbers is not 7. In this case we can assume this dice as a standard dice. Hence, 1 is opposite to 6, 5 is opposite to 2 and 3 is opposite to 4.

Ex.18. Which number will be on the face which is opposite to the face which contains 4 number?

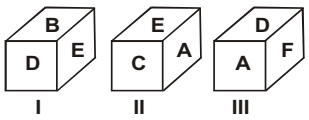


(A) 6 **(B)** 5 **(C)** 2 **(D)** 1

Sol.(B) In dice Ist and IInd two numbers are common i.e., 6 and 4, therefore, 2 is opposite to 1.

Similarly in dice II and III, two numbers are common i.e., 1 and 6 therefore, 4 is opposite to 5.

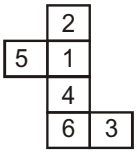
Ex.19. Which letter will be on the face which is opposite to the face which contains F letter?



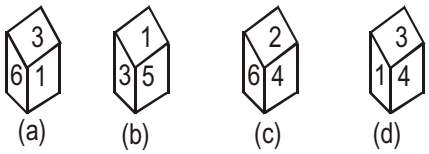
(A) A **(B)** D **(C)** B **(D)** E

Sol.(D) In dice Ist and IInd D,B,C,A are the neighbour of E, therefore, these cannot be opposite to E. Hence, F is opposite to E.

Ex.20. Select from the alternatives, the box that can be formed by folding the sheet shown in figure (X)



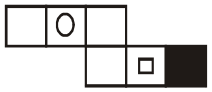
(X)



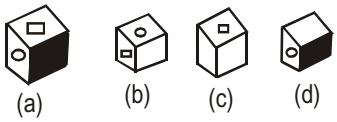
Sol.(D) The number 2 will lie opposite the number 4, the number 1 will lie opposite the number 6 and the number 5 will lie opposite the number 3. Fig. (a) has the numbers 1 and 6 on adjacent faces, fig. (b) has numbers 3 and 5 on adjacent faces and fig. (c) has the numbers 2 and 4 on the adjacent faces. So, these three alternatives are not possible. Since, the numbers 1,3 and 4 can appear on adjacent faces, so fig (d) is possible

Ex.21-35. Select from the alternatives, which dice can be formed by folding the sheet fold in figure (X).

Ex.21.



(X)

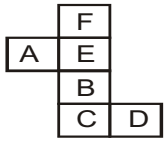


(A) a and b only **(B)** b, c and d only

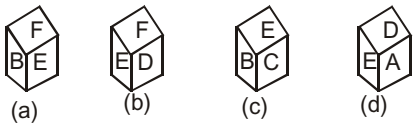
(C) d only **(D)** c and d only

Sol.(D) only c and d fig. can be formed

Ex.22.



(X)

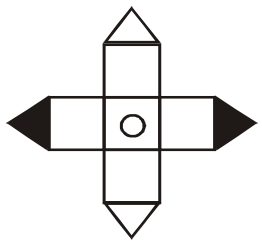


(A) a only **(B)** b only

(C) a and c only **(D)** a, b, c and d

Sol.(B) when the sheet in fig (X)is folded to form a dice. Then 'F' appears opposite 'B',E appears opposite C and A appears opposite 'D'

Ex.23.

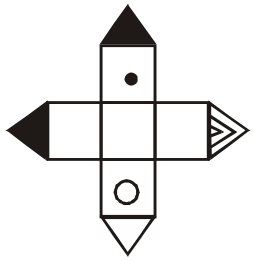


(X)

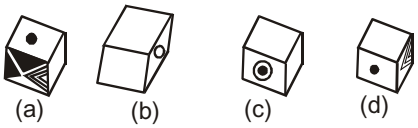
(A) **(B)** **(C)** **(D)**

Sol.(D)

Ex.24.



(X)

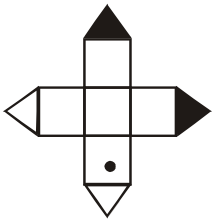


(A) a and b only **(B)** b, c and d only

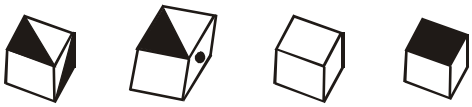
(C) d only **(D)** c and d only

Sol.(A)

Ex.25.



(X)



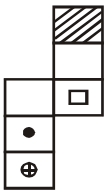
(a) (b) (c) (d)

(A) a and b only **(B)** b and d only

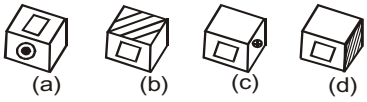
(C) only c **(D)** a and d only

Sol.(C)

Ex.26.



(X)

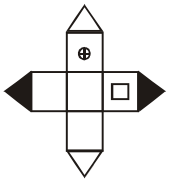


(A) a only **(B)** b and c only

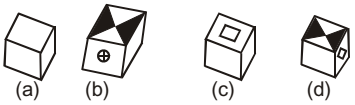
(C) only c **(D)** a,b and d only

Sol.(C)

Ex.27.



(X)

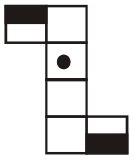


(A) a and b only **(B)** b and c only

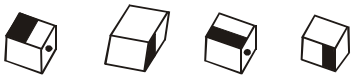
(C) a and d only **(D)** a,b,c and d only

Sol.(D)

Ex.28.



(X)



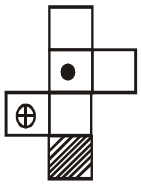
(a) (b) (c) (d)

(A) a and b only **(B)** b and c only

(C) b and d only **(D)** a, b, c and d only

Sol.(D)

Ex.29.



(X)

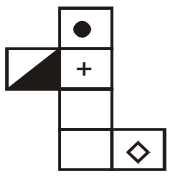
(a) (b) (c) (d)

(A) a only **(B)** a and c only

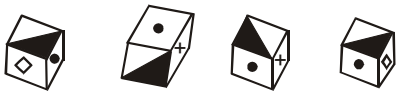
(C) a,c and d only **(D)** a,b,c and d

Sol.(A)

Ex.30.



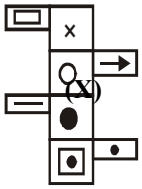
(X)



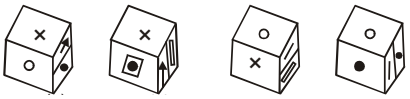
(A) (B) (C) (D)

Sol.(B)

Ex.31.



(X)



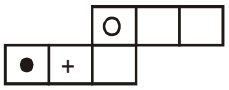
(a) **(b)** **(c)** **(d)**

(A) a and b only **(B)** a and c only

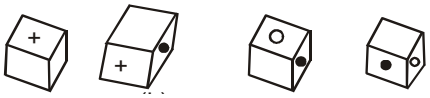
(C) c and d only **(D)** a, b, c and d

Sol.(B)

Ex.32.



(X)



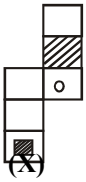
(a) **(b)** **(c)** **(d)**

(A) a only **(B)** a, b and c only

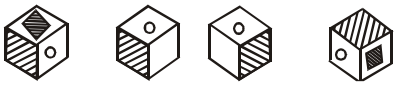
(C) b and c only **(D)** a, b, c and d

Sol.(D)

Ex.33.



(X)



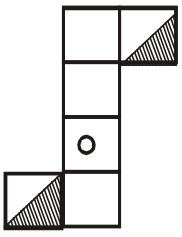
(a) **(b)** **(c)** **(d)**

(A) a and b only **(B)** All a,b, c and d

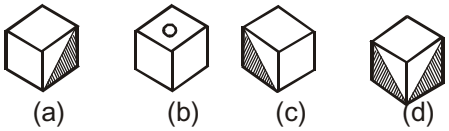
(C) a and d only **(D)** a,b and c only

Sol.(B)

Ex.34.



(X)



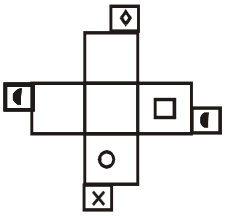
(a) (b) (c) (d)

(A) a and c only **(B)** a and b only

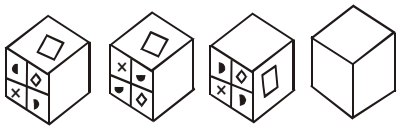
(C) b and d only **(D)** c and d only

Sol.(A)

Ex.35.



(X)



(a) **(b)** **(c)** **(d)**

(A) a,b and c only **(B)** b and c only

(C) a,c and d only **(D)** b,c and d only

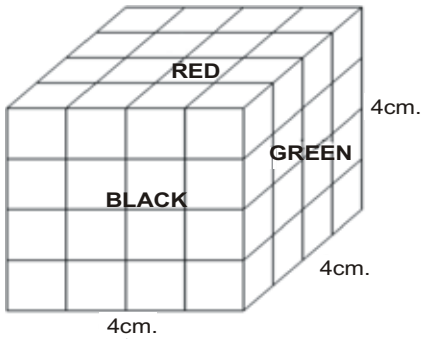
Sol.(D)

CUBE AND CUBOID

- Cube or a Cuboid is a three dimensional figure which has six faces.
- In a cube length, breadth and height are same while in cuboid these are different.
- In a cube the number of unit cubes
- $(X)^3$ where x = (side of larger cube/side of smaller cube)
- In cuboid the number of unit cube = (l x b x h).

EXAMPLES OF CUBE

A cube of each side 4 cm, has been painted black, red and green on parts of opposite faces. It is then cut into small cubes of each side 1 cm.



The following questions and answers are based on the information give above:

1. How many small cubes will be there ?

Total no. of cubes = $(X)^3 = (4)^3 = 64$

2. How many small cubes will have three faces painted ?

From the figure it is clear that the small cube having three faces coloured are situated at the corners of the

big cube because at these corners only three faces of the big cube meet.

Therefore the required number of such cubes is always 8, because there are 8 corners.

3. How many small cubes will have only two faces painted ?

From the figure it is clear that to each edge of the big cube 4 small cubes are connected and two out of them are situated at the corners of the big cube which have all three faces painted.

Thus, to edge two small cubes are left which have two faces painted. As the total no. of edges in a cube are 12.

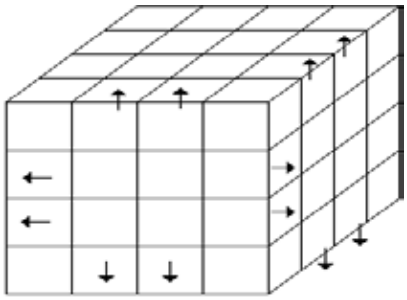
Hence the no. of small cubes with two faces coloured

= 12 x 2 = 24

(or)

No. of small cubes with two faces coloured = (X - 2) x No. of edges

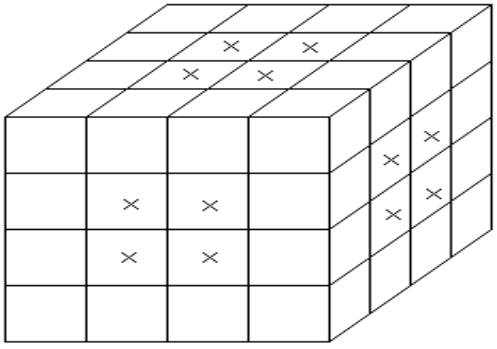
where X = (side of big cube / side of small cube)



4. How many small cubes will have only one face painted ?

The cubes which are painted on one face only are the cubes at the centre of each face of the big cube.

Since there are 6 faces in the big cube and each of the face of big cube there will be four small cubes.



Hence, in all there will be $6 \times 4 = 24$ such small cubes (or) $(X- 2)^2 \times 6$.

5. How many small cubes will have no faces painted ?

No. of small cubes will have no faces painted = No. of such small cubes

$= (X - 2)^3$ [Here $X = (4/1) = 4$]

$= (4 - 2)^3 = 8$.

6. How many small cubes will have only two faces painted in black and green and all other faces unpainted ?

There are 4 small cubes in layer II and 4 small cubes in layer III which have two faces painted green and black.

Required no. of such small cubes = 4 + 4 = 8.

7. How many small cubes will have only two faces painted green and red ?

No. of small cubes having two faces painted green and red = 4 + 4 = 8.

8. How many small cubes will have only two faces painted black and red ?

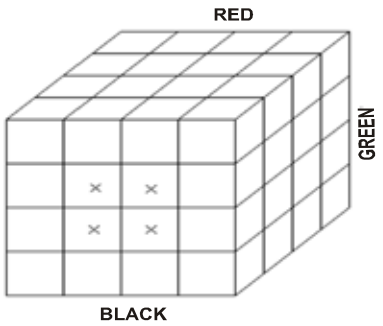
No. of small cubes having two faces painted black and red = 4 + 4 = 8.

9. How many small cubes will have only black painted ?

No. of small cubes having only black paint. There will be 8 small cubes which have only black paint. Four cubes will be form one side and 4 from the opposite side.

10. How many small cubes will be only red painted ?

No. of small cubes having only red paint = 4 + 4 = 8.



11. How many small cubes will be only green painted ?

No. of small cubes having only green paint = 4 + 4 = 8.

12. How many small cubes will have at least one face painted ?

No. of small cubes having at least one face painted = No. of small cubes having 1 face painted + 2 faces painted + 3 faces painted

= 24 + 24 + 8= 56.

13. How many small cubes will have at least two faces painted ?

No. of small cubes having at least two faces painted = No. of small cubes having two faces painted + 3 faces painted = 24 + 8

= 32.

EXAMPLES OF CUBOID

The following questions are based on the information given below:

1. A cuboid shaped wooden block has 6 cm length, 4 cm breadth and 1 cm height.

2. Two faces measuring 4 cm x 1 cm are coloured in black.

3. Two faces measuring 6 cm x 1 cm are coloured in red.

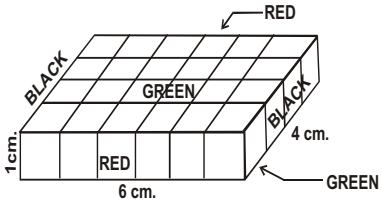
4. Two faces measuring 6 cm x 4 cm are coloured in green.

5. The block is divided into 6 equal cubes of side 1 cm (from 6 cm side), 4 equal cubes of side 1 cm(from 4 cm side).

Ex.1. How many cubes having red, green and black colours on at least one side of the cube will be formed ?

(A) 16 **(B)** 12 **(C)** 10 **(D)** 4

Sol.(D)



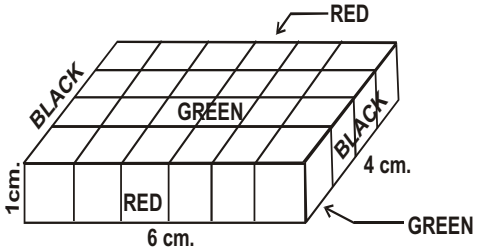
Such cubes are related to the corners of the cuboid. Since the number of corners of the cuboid is 4.

Hence, the number of such small cubes is 4.

Ex.2. How many small cubes will be formed ?

(A) 6 **(B)** 12 **(C)** 16 **(D)** 24

Sol.(D)

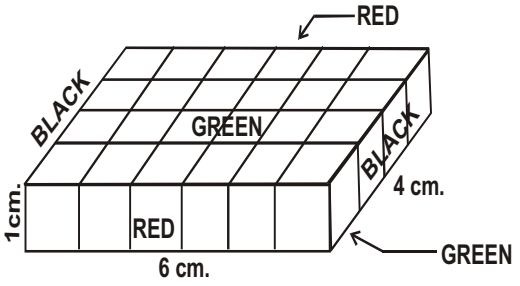


Number of small cubes = l x b x h = 6 x 4 x 1 = 24

Ex.3. How many cubes will have 4 coloured sides and two non-coloured sides ?

(A) 8 **(B)** 4 **(C)** 16 **(D)** 10

Sol.(B)

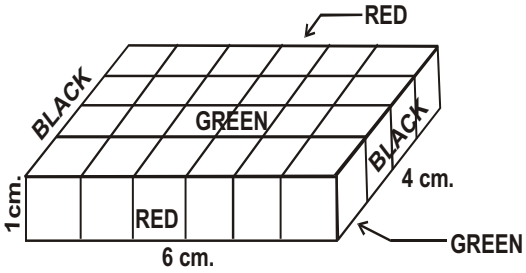


Only 4 cubes situated at the corners of the cuboid will have 4 coloured and 2 non-coloured sides.

Ex.4. How many cubes will have green colour on two sides and rest of the four sides having no colour ?

(A) 12 **(B)** 10 **(C)** 8 **(D)** 4

Sol.(C)



There are 16 small cubes attached to the outer walls of the cuboid.

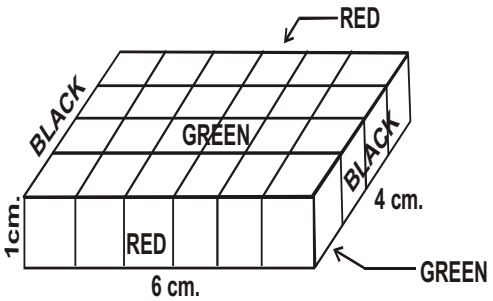
Therefore remaining inner small cubes will be the cubes having two sides green coloured.

So the required number = 24 - 16 = 8

Ex.5. How many cubes will remain if the cubes having black and green coloured are removed ?

(A) 4 **(B)**8 **(C)**12 **(D)**16

Sol.(D)



Number of small cubes which are Black and Green is 8 in all. Hence, the number of remaining cubes are = 24 - 8 = 16

Ex.6-9. The following questions are based on the information given below:

1. There is a cuboid whose dimensions are 4 x 3 x 3 cm.

2. The opposite faces of dimensions 4 x 3 are coloured yellow.

3. The opposite faces of other dimensions 4 x 3 are coloured red.

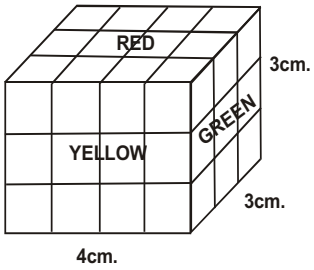
4. The opposite faces of dimensions 3 x 3 are coloured green.

5. Now the cuboid is cut into small cubes of side 1 cm.

Ex.6. How many small cubes will have only two faces coloured ?

(A) 12 **(B)** 24 **(C)** 16 **(D)** 12

Sol.(C)

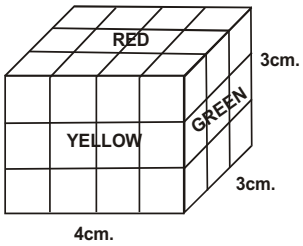


Number of small cubes having only two faces coloured = 6 from the front + 6 from the back + 2 from the left + 2 from the right = 16

Ex.7. How many small cubes have three faces coloured ?

(A) 24 **(B)** 20 **(C)** 16 **(D)** 8

Sol.(D)



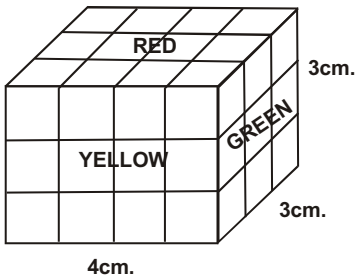
Such cubes are related to the corners of the cuboid and there are 8 corners.

Hence, the required number is 8.

Ex.8. How many small cubes will have no face coloured ?

(A) 1 **(B)** 2 **(C)** 4 **(D)** 8

Sol.(B)

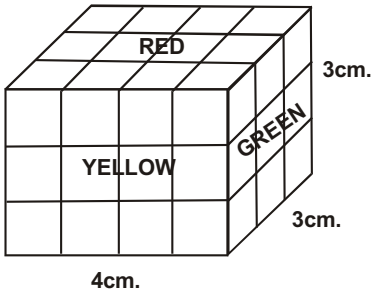


Number of small cubes have no face coloured = (4 - 2) x (3 - 2) = 2 x 1 = 2

Ex.9. How many small cubes will have only one face coloured ?

(A) 10 **(B)** 12 **(C)** 14 **(D)** 18

Sol.(A)



Number of small cubes having only one face coloured = 2 x 2 + 2 x 2 + 2 x 1

= 4 + 4 + 2 = 10

Ex.10-13. The following questions are based on the information given below:

1. A cuboid shaped wooden block has 4 cm length, 3 cm breadth and 5 cm height.

2. Two sides measuring 5 cm x 4 cm are coloured in red.

3. Two faces measuring 4 cm x 3 cm are coloured in blue.

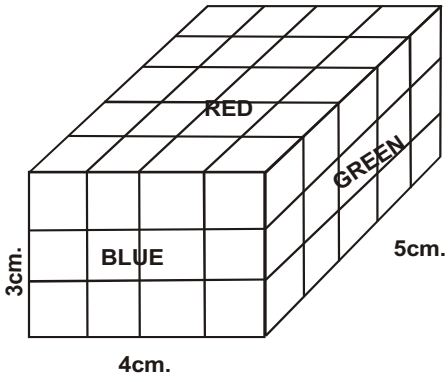
4. Two faces measuring 5 cm x 3 cm are coloured in green.

5. Now the block is divided into small cubes of side 1 cm each.

Ex.10. How many small cubes will have three faces coloured ?

(A) 14 **(B)** 8 **(C)** 10 **(D)** 12

Sol.(B)



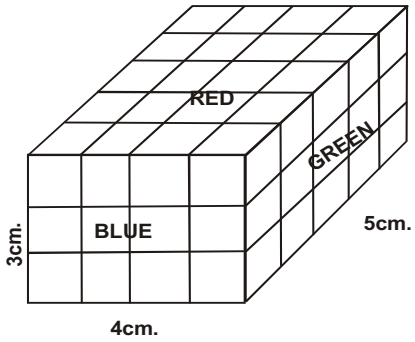
Such cubes are related to the corners of the cuboid and in the cuboid there are 8 corners.

Hence, the required number of small cubes is 8.

Ex.11. How many small cubes will have only one face coloured ?

(A) 12 **(B)** 28 **(C)** 22 **(D)** 16

Sol.(C)

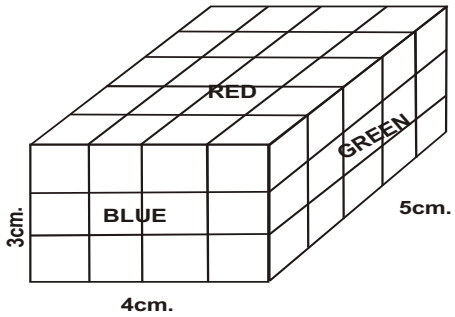


2 from the front + 2 from the back + 3 from the left + 3 from the right + 6 from the top + 6 from the bottom = 22

Ex.12. How many small cubes will have no faces coloured ?

(A) None **(B)** 2 **(C)** 4 **(D)** 6

Sol.(D)

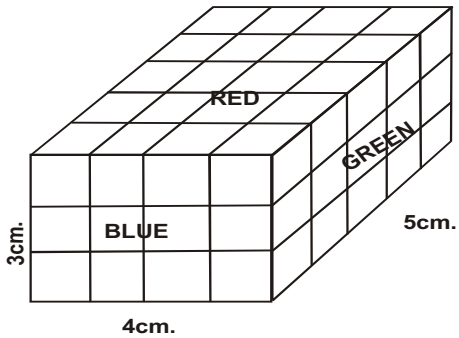


Required number of small cubes = (5 - 2) x (4 - 2) x (3 - 2)= 3 x 2 x 1 = 6

Ex.13. How many small cubes will have two faces coloured with red and green colours ?

(A)12 **(B)** 8 **(C)**16 **(D)** 20

Sol.(A)



Required number of small cubes = 6 from the top and 6 from the bottom = 12

Ex.14-17. The following questions are based on the information given below:

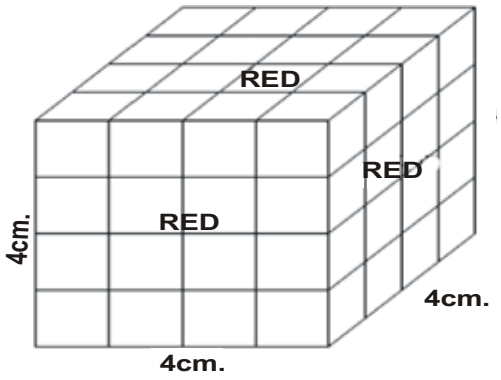
1. All the faces of cubes are painted with red colour.

2. The cubes is cut into 64 equal small cubes.

Ex.14. How many small cubes have only one face coloured ?

(A) 4 **(B)** 8 **(C)** 16 **(D)** 24

Sol.(D)



Total number of cube = 64

$\Rightarrow X^3 = 64 \Rightarrow X = \sqrt[3]{64} = 4$

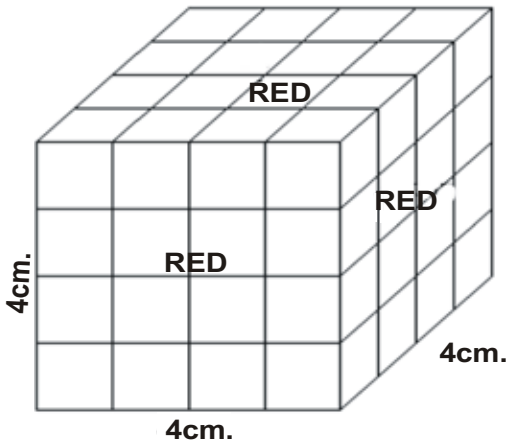
Number of small cubes having only one face coloured = $(X - 2)^2 \times$ No. of faces

$= (4 - 2)^2 \times 6 = 24$

Ex.15. How many small cubes have no faces coloured ?

(A) 24 **(B)** 8 **(C)** 16 **(D)** 0

Sol.(B)



Number of small cubes having only one faces coloured = $(x - 2)^3$

Here, x = side of big cube / side of small cube

x = 4 /1

x = 4

Required number

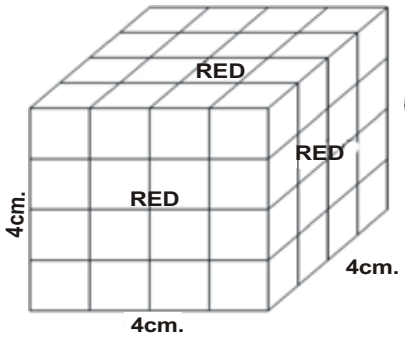
$= (4 -2)^3 = 8$

Ex.16. How many small cubes are there whose three faces are coloured?

(A) 4 **(B)** 8

(C) 16 **(D)** 24

Sol.(B)

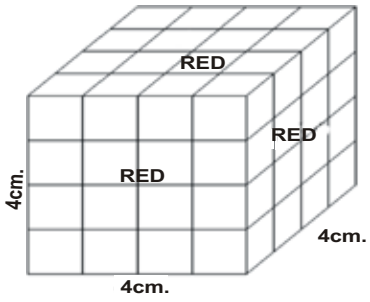


Number of small cubes having three faces coloured = No. of corners = 8

Ex.17. How many small cubes are there whose two adjacent faces are coloured red ?

(A) 0 **(B)** 8 **(C)** 16 **(D)** 24

Sol.(D)



Number of small cubes having two adjacent faces coloured red = (x - 2) x No. of edges

= (4 - 2) x 12 = 24

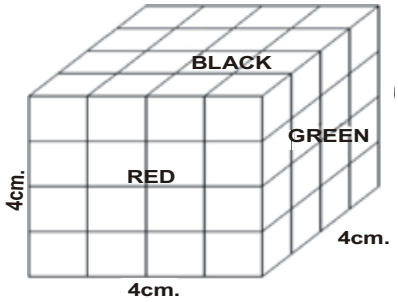
Ex.18-19. The following questions are based on the information given below:

All the opposite faces of a big cube are coloured with red, black and green colours. After that is cut into 64 small equal cubes.

Ex.18. How many small cubes are there where one face is green and other one is either black or red ?

(A) 28 **(B)** 8 **(C)** 16 **(D)** 24

Sol.(C)

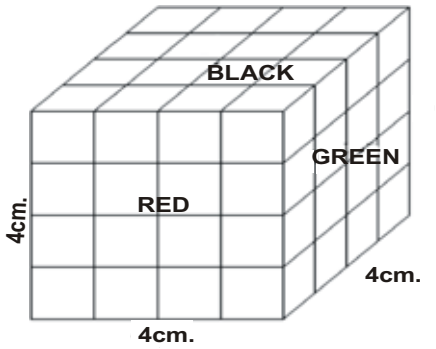


Number of small cube having one face green and the other one is either red or black = 8 x 2 = 16

Ex.19. How many small cubes are there whose no faces are coloured ?

(A) 0 **(B)** 4 **(C)** 8 **(D)** 16

Sol.(C)

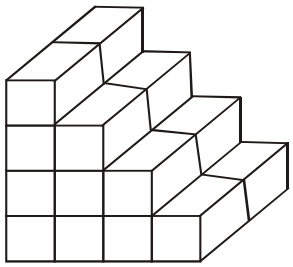


Number of small cubes having no face coloured = $(X - 2)^3$

= $(4 - 2)^3 = 8$

Ex.20- 21. The following questions are based on the information given below:

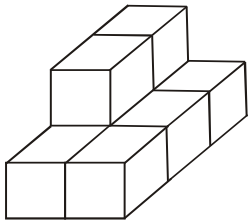
Ex.20. How many hidden cubes are there in the given figures.



(A) 20 **(B)** 8 **(C)** 10 **(D)** 4

Sol.(A)

Ex.21. How many cubes are there in the given figures.

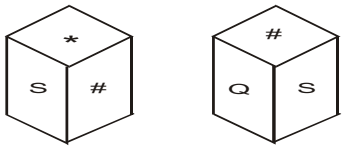


(A) 4 **(B)** 10 **(C)** 8 **(D)** 6

Sol.(C)

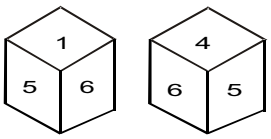
EXERCISE

Q.1. For the position of a dice given below, which symbol or letter will come on the opposite face of Q?



(A) S **(B)** # **(C)** * **(D)** J

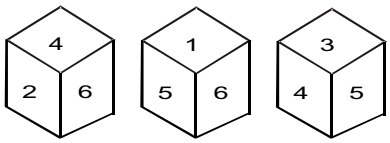
Q.2. The positions given below are of same dice, then, which number will be on opposite face of digit 6?



(A) 1 **(B)** 3

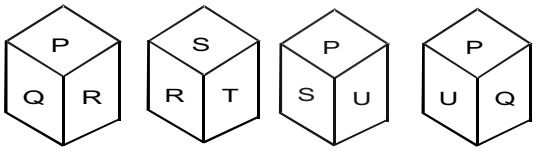
(C) 2 **(D)** Can't be determined

Q.3. From the following figures of a dice, which number will appear on the face opposite to 3?



(A) 2 **(B)** 6 **(C)** 4 **(D)** 1

Q.4-7. Different positions of dice are given below. Study them and answer the questions given below.



I **II** **III** **IV**

Q.4. Which letter will appear on the face opposite to U?

(A) P **(B)** R **(C)** S **(D)** Q

Q.5. Which letter is present on the opposite face of T?

(A) U **(B)** P **(C)** R **(D)** S

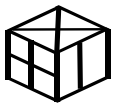
Q.6. If letter P appears on bottom face, then which letter will appear on top face?

(A) T **(B)** U **(C)** R **(D)** S

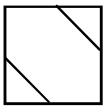
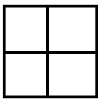
Q.7. If letter Q is present on top face, which letter will be on bottom face?

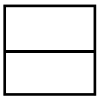
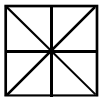
(A) T **(B)** P **(C)** S **(D)** U

Q.8. (I)  (II) 

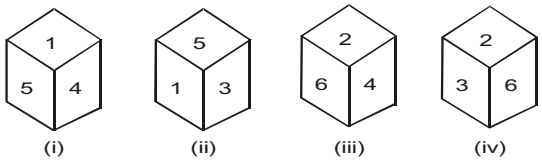
(III)  (IV) 

Different positions of a dice are given above. Study them to answer the question and find out which option will come in place of question mark?

(A)  **(B)** 

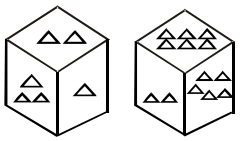
(C)  **(D)** 

Q.9. Four positions of a dice are shown below. Study the positions and then find out the opposite surface of 5.



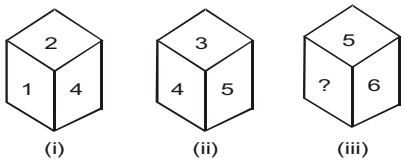
(A) 3 **(B)** 2 **(C)** 1 **(D)** 6

Q.10. As per the positions of a dice given below, if the bottom of face has five triangles, then how many triangles the top face will have?



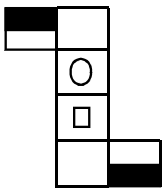
(A) 2 **(B)** 5 **(C)** 1 **(D)** 3

Q.11. Three positions of a dice are shown below. There is one surface with question mark. Which element will be placed on?



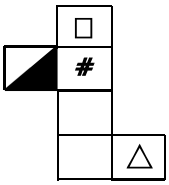
(A) 3 **(B)** 1 **(C)** 4 **(D)** 2

Q.12-17. Which answer figure can be made, if we change the shown figure into a cube or dice by folding it?

Q.12. 

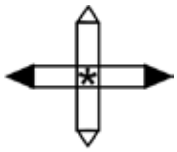
(A)  (B) 

(C)  (D) 

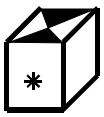
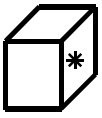
Q.13. 

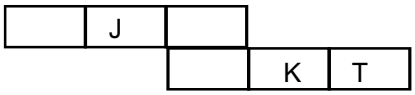
(A)  (B) 

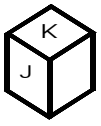
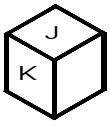
(C)  (D) 

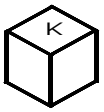
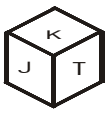
Q.14. 

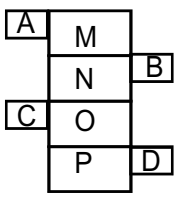
(A)  (B) 

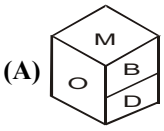
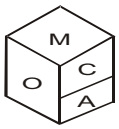
(C)  (D) 

Q.15. 

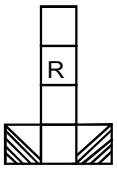
(A)  (B) 

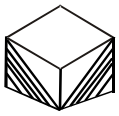
(C)  (D) 

Q.16. 

(A)  (B) 

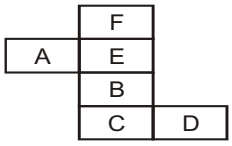
(C)  (D) 

Q.17. 

(A)  (B) 

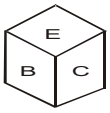
(C)  (D) 

Q.18. The sheet paper shown in the figure (X) is folded to form.

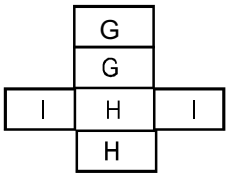


(X)

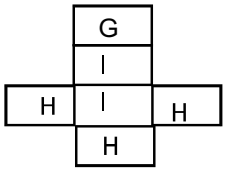
(A)  (B) 

(C)  (D) 

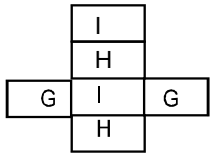
Q.19. In the dice given below, opposite faces have same letters, Tell, which choice will be correct if this dice is opened ?

(A) 

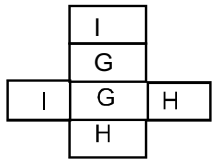
(B)



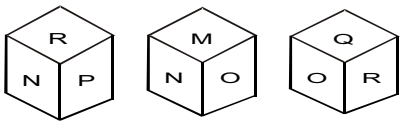
(C)



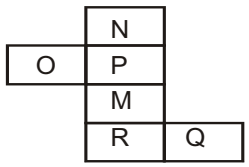
(D)



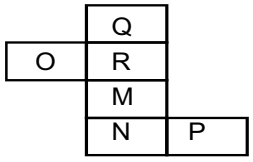
Q.20. Some positions of a dice are given below. Study them, and choose the option, which will be obtained after opening the dice?



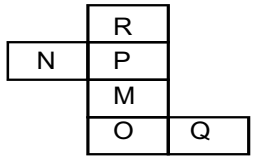
(A)



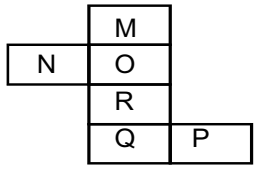
(B)



(C)



(D)



Q.21-25. Study the following information carefully and answer the questions given below.

A wooden cube with side 10 cm is divided into identical smaller cubes of side 2 cm. If before cutting it, the opposite faces are coloured with blue, yellow and green colours.

Q.21. How many such smaller cubes will be there, which will have only one face coloured but not yellow?

(A) 54 **(B)** 36 **(C)** 18 **(D)** 72

Q.22. How many such cubes will be there which will have only two coloured faces with atleast one face green?

(A) 48 **(B)** 12 **(C)** 8 **(D)** 24

Q.23. How many such cubes will be there, which will definitely have blue colour?

(A) 50 **(B)** 36 **(C)** 40 **(D)** 48

Q.24. What is the difference between colourless cubes and three side coloured cubes?

(A) 27 **(B)** 8 **(C)** 19 **(D)** 9

Q.25. What is the difference between total cubes and cubes having two coloured faces?

(A) 24 **(B)** 36 **(C)** 54 **(D)** 89

Q.26-30. Study the following information carefully and answer the questions given below.

A solid cuboid whose length, breadth and height is 15 cm, 12 cm and 9 cm respectively is divided into identical cubes of 3 cm each. If before dividing it, the two opposite faces of 15 cm × 12 cm, 15 cm × 9 cm and 12 cm × 9 cm are respectively coloured with pink, orange and brown colours.

Q.26. How many such smaller cubes will be there, which will have two faces coloured, but not brown?

(A) 16 **(B)** 8 **(C)** 12 **(D)** 24

Q.27. How many such small cubes will be there, which will have only one face coloured, but not with pink?

(A) 8 **(B)** 12 **(C)** 16 **(D)** 10

Q.28. What is the number of colourless cubes?

(A) 6 **(B)** 4 **(C)** 2 **(D)** 8

Q.29. What will be the difference between total cubes and cubes having two coloured faces?

(A) 48 **(B)** 36 **(C)** 38 **(D)** 24

Q.30. What will be the difference between all cubes and cubes with only one coloured face?

(A) 48 **(B)** 36 **(C)** 38 **(D)** 24

EXPLANATION

Q.1.(C)	**Q.2.(D)**	**Q.3.(B)**	**Q.4.(B)**	**Q.5.(B)**	**Q.16.(D)**	**Q.17.(C)**	**Q.18.(B)**	**Q.19.(C)**	**Q.20.(C)**
Q.6.(A)	**Q.7.(C)**	**Q.8.(B)**	**Q.9.(D)**	**Q.10.(D)**	**Q.21.(B)**	**Q.22.(D)**	**Q.23.(A)**	**Q.24.(C)**	**Q.25.(D)**
Q.11.(B)	**Q.12.(A)**	**Q.13.(B)**	**Q.14.(D)**	**Q.15.(C)**	**Q.26.(C)**	**Q.27.(D)**	**Q.28.(A)**	**Q.29.(B)**	**Q.30.(C)**

CHAPTER-19
STATEMENT AND ASSUMPTION

Scan the QR code to get video of this chapter.

An Assumption is something which is **assumed, supposed and taken for granted**. When somebody says some-thing he does not put everything and every aspect of his idea into that which he takes for grant, this may be defined as an assumption.

TYPES OF ASSUMPTION

Cases of assumption

Definitive Words	Conjunction	Connotive Phrase
Only, best, all	Before, so, even,	
Strongest, certainly	after, therefore, as	
definitely	a result of although,	
	despite of, inspite of	

DEFINITIVE WORDS

While evaluating an assumption you can always take a clue from some words that tend a definite meaning to the statement.

CONJUNCTION

When a statement consists of two clauses and clauses are connected by conjunction, the nature of conjunction used, goes a long way in detecting the assumption that the author must have made.

CONNOTIVE PHRASE

Some times the author says the things in indirect way and because of this we remain untouched with the meaning.

IMPORTANT FACTS RELATED TO INVALID ASSUMPTION

- Some times assumptions are contrary to the statement or not connected with the statement and can easily be rejected.
- An assumption is invalid if it is merely restated in different words of the statement.
- The given assumption is invalid if it is an inferrence derivable from given statement.
- An assumption is invalid if it makes too far-fetched assumption.

DIFFERENCE BETWEEN IMPLICATION AND ASSUMPTION

Sometimes implications are also treated as assumptions. It is slightly different from assumpiton.

Implication means the **hidden meaning** of statement while assumption is **something on which statement is based.**

MEMORABLE POINTS

- Statement is a part of our speech most of the ideas remain unexpressed.
- Assumption is that kind of thought, speeker assume something before delivering the statement.
- If statement and assumption are not co-related then it is not implicit validity.
- Assumption is always positive regarding the completion of the work favouring the executor.
- Request/Order/Advise is considered in the case of Assumption.

EXAMPLES

In each question below is given a statement followed by two assumptions numbered I and II. An assumption is something supposed or taken for granted. You have to consider the statement and the following assumptions and decide which of the assumptions is implicit in the statement.

Ex.1. Statement :

One should not sleep under a tree at night.

Assumptions :

I. The falling leaves may spoil our clothes.

II. Trees give out CO_2 at night which is injurious to health.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(B) Only II is implicit.

Ex.2. Statement :

Imprisonment for 27 years made, Nelson Mandela The president.

Assumptions :

I. One who will be imprisoned for 27 years will become The president.

II. To become The president imprisonment is a qualification.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(D) Neither I nor II is implicit.

Ex.3. Statement :

Population is the greatest pollutant.

Assumptions :

I. Increased population is the greatest resource.

II. Illiterate mass leads to dirt and degradation.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(D) Neither I nor II is implicit.

Ex.4. Statement :

If people are intelligent they should be creative.

Assumptions :

I. Creativity and intelligence are related.

II. Creative people are intelligent.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(A) Only I is implicit.

Ex.5. Statement :

'Do not enter - avoid the risk of getting infected with the ABC disease'- written outside the quarantine ward no. 2 (meant only for ABC disease) of a hospital'.

Assumptions :

I. Disease 'ABC' is contagious.

II. All the patients in ward no.2 suffer from disease ABC.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(C) ABC is a contagious disease and all patient of ward number 2 are suffering from ABC disease, on the behalf of these assumptions above statement is given.

Ex.6. Statement :

In city Z, people prefer to buy Car X instead of Car Y beacuse Car X has German technology which is very advance.

Assumptions :

I. Cars with German technology are perceived to be better than other cars in city Z.

II. Had German technology been present in Car Y also, its sales would have crossed car X's sales.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(A) It seams that German Technology is better than other technologies so it would increase the sale. So assumption I is implicit.

Ex.7. Statement :

Railway does not provide concession to any one for travelling to certain holiday destinations.

Assumptions :

I. Railway services are available for travelling to these holiday destinations.

II. Railways provides concession to certain persons for travelling to places other than these holiday destinations.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(C) Railway services are available for travelling holiday destination on the basis of this assumption above statement is given and other assumption is also implicit.

Ex.8. Statement :

"Travelers with a ticket for the second class if found travelling in the first class compartments would be penalized"- Notice in the compartments of a train.

Assumptions :

I. Travelers with a ticket for the first class are also not allowed to travel in the second class compartments.

II. Inspections are carried out in the train to check the tickets.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(B) First assumption is not related with statement. Inspections are carried out in the train to check the tickets.

Ex.9. Statement :

It is faster to travel by air to Delhi from Bengaluru.

Assumptions :

I. Bengaluru and Delhi are connected by air.

II. There are no other means of transport available to Delhi from Bengaluru.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(A) Only I is implicit.

Ex.10. Statement :

This year because of good rains and proper care farmers are expecting good crops.

Assumptions :

I. Good rain is the only factor.

II. Whether good rains or not, the farmers always take the utmost care to get good crops.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(D) Neither I nor II is implicit.

Ex.11. Statement :

Buy 'X', TV for better sound quality-An advertisement.

Assumptions :

I. 'X' TV is the costliest.

II. People generally ignore such advertisements.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(D) None of the assumption is implicit.

Ex.12. Statement :

It is the describe to put the child in school at the age of 5 or so.

Assumptions :

I. At that age the child reaches appropriate level of development and is ready to learn.

II. The schools do not admit children after 6 years of age.

(A) Only I is implicit.

(B) Only II is implicit.

(C) Both I and II are implicit.

(D) Neither I nor II is implicit.

Sol.(A) Only assumption I is implicit.

NOTES

EXERCISE

Q.1-5. In each question below is given a statement followed by two assumptions numbers I and II. An Assumption is something which is assumed, supposed or taken for granted. You have to consider statement and the following assumption and decide which of the assumptions is implicit in the statement.
Given Answer -
(A) If only I is implicit
(B) If only II is implicit.
(C) If neither I nor II is implicit.
(D) If both I and II are implicit.

Q.1. **Statement:** In a bid to trim its work force, the Union Cabinet approved a voluntary retirement scheme for its "Surplus" employees with a threat of retrenchment for those not opting for it at the end of re-training period. VRS opted will be offered an ex-gratia amount.
Assumptions:
I. At present, Govt. is lacking of funds to pay salaries of employees and VRS would give a sign of relief to Govt.
II. Less number of employees would be able to do same amount of work-easily.

Q.2. **Statement:** Govt. decided to sell 25% of telecom giant VSNL to TATAs.
Assumptions:
I. Both the companies provide similar services.
II. VSNL incurred heavy losses in current year.

Q.3. **Statement:** Read the notice before entering the club.
Assumptions:
I. People are literate.
II. Club is not for blind persons.

Q.4. **Statement:** "You can spend your time in earning only, for banking we are in the city to serve you." - A bank in its ad.
Assumptions:
I. Earning is a tougher job than performing banking operations thus needs more time.
II. People like a bank which values the time of its customers.

Q.5. **Statement:** The hike in kerosene and LPG prices has mitigated the increase in the oil pool deficit.
Assumptions:
I. Subsidy on petroleum products adds to the oil pool deficit.
II. The consumption of kerosene and LPG is expected to decrease.

Q.6-7. In each question below is given a statement followed by three assumptions numbers I, II and III. An Assumption is something which is assumed, supposed or taken for granted. You have to consider statement and the following assumption and decide which of the assumptions is implicit in the statement.

Q.6. **Statement:** The Central Government has directed the State Governments to reduce government expenditure in view of the serious resource crunch and it may not be able to sanction any additional grant to the states for the next six months.
Assumptions:
I. The State Governments are totally dependent on Central Government for its expenditure.
II. The Central Government has reviewed the expenditure account of the State Governments.
III. The State Governments will abide by the directive.
(A) Only I and II **(B)** Only II and III
(C) All are implicit **(D)** Only III

Q.7. **Statement:** "To make the company commercially viable there is an urgent need to prime the staff strength and borrow money from the financial institutions" - opinion of a consultant.
Assumptions:
I. The financial institutions lend money for such proposals.
II. The product of the company has a potential market.
III. The employees of the company are inefficient.
(A) Only II and III **(B)** All are implicit
(C) None **(D)** Only I and II

Q.8-10. In each question below is given a statement followed by two assumptions numbers I and II. An Assumption is something which is assumed, supposed or taken for granted. You have to consider statement and the following assumption and decide which of the assumptions is implicit in the statement.

Q.8. **Statement:** The pen is mightier than the sword.
Assumptions:
I. The pen is made of stronger metal than the sword.
II. The power of the mind is much stronger than brute physical power.
(A) Only II **(B)** Only I
(C) Both I and II **(D)** None

Q.9. **Statement:** One of the opposition leaders said that the time had come for like-minded opposition parties to unite and dislodge the corrupt government.
Assumptions:
I. Like minded opposition parties should unite only when they have to dislodge a corrupt government.
II. Opposition parties are not corrupted.
(A) Only II **(B)** Only I
(C) Either I or II **(D)** Both I and II

Q.10. **Statement:** The Finance Minister called upon the officers of the LIC, their field staff and insurance agents to make insurance business popular, particularly in rural and semi-urban areas.

Assumptions:

I. In general the insurance business is not popular in the public.

II. People in rural and semi-urban areas are against insurance.

(A) Only II **(B)** Only I

(C) Both I and II **(D)** None

Q.11-15. In each questions below is given a statement followed by some assumptions. An assumption is something which is assumed, supposed or taken for granted. You have to consider the statement and assumptions and decide which of the assumptions is implicit in the statements, then decide which of the answer is correct. Give Answer -

(A) If only assumption I is implicit.

(B) If only assumption II is implicit.

(C) If neither I nor II is implicit.

(D) If both I and II are implicit.

Q.11. **Statement:** Why don't you invite Ashish for the Diwali party this year?

Assumptions:

I. Ashish is not from the same city.

II. Unless invited Ashish will not attend the party.

Q.12. **Statement:** We need to appoint more teachers. Principal informs the school staff.

Assumptions:

I. Teachers are available

II. Present teachers are not good.

Q.13. **Statement:** In case of any difficulty about - this case you may contact our company's lawyer.

Assumptions:

I. Each company has a lawyer of his own.

II. The company's lawyer is thoroughly briefed about this case.

Q.14. **Statement:** A sentence in the letter to the candidates called for written exams- "you have to bear your expenses on travel etc."

Assumptions:

I. If not clarified, all the candidates may claim reimbursement of expenses.

II. Many organisations reimburse expenses on travel to candidates called for written examination.

Q.15. **Statement:** Read this book to get detailed and most comprehensive information on this issue.

Assumptions:

I. The person who wants this information can read.

II. There are other books available on this issue.

Q.16-20. In each question below is given a statement followed by two assumptions numbers I and II. An Assumption is something which is assumed, supposed or taken for granted. You have to consider statement and the following assumption and decide which of the assumptions is implicit in the statement.

(A) Only I **(B)** Only II

(C) Neither I nor II **(D)** Both I and II

Q.16. **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.

Q.17. **Statement:** Salary cannot be the only criteria for deciding a person's potential.

Assumptions:

I. Persons with equal potential are not necessarily paid equally.

II. Salary of a person is not linked only with the potential.

Q.18. **Statement:** "Everyone desires to buy a personal computer." Statement of a college student.

Assumptions:

I. Personal computers are not a need but a luxury.

II. Use of personal computer improves quality of skill.

Q.19. **Statement:** "The city's top rank students for S.S.C. examination this year will be definitely from our school." Principal of a School 'X'.

Assumptions:

I. The teachers of the school have prepared their students thoroughly.

II. Most of intelligent students in the city are studying in School 'X'.

Q.20. **Statement:** "It has become a necessity to computerise all the functions of our Institute to maintain the present position," statement of the Director of XYZ Institute.

Assumptions:

I. Unless computerised, the institute will fall behind in the race.

II. The functions of the institute are too complex to be handled manually.

EXPLANATION

Q.1.(B)	**Q.2.(A)**	**Q.3.(D)**	**Q.4.(B)**	**Q.5.(A)**	**Q.11.(B)**	**Q.12.(A)**	**Q.13.(D)**	**Q.14.(D)**	**Q.15.(D)**
Q.6.(B)	**Q.7.(D)**	**Q.8.(A)**	**Q.9.(A)**	**Q.10.(D)**	**Q.16.(A)**	**Q.17.(A)**	**Q.18.(B)**	**Q.19.(D)**	**Q.20.(C)**

CHAPTER-20
STATEMENT AND CONCLUSION

Scan the QR code to get video of this chapter.

Conclusion means a fact that can be truly inferred from the contents of a given sentence or passage. The questions in this section thus consist of a statement or a set of statements, followed by certain inferences based on the facts contained in the given statements. The candidate is required to analyse the given statements, understand their direct/indirect implications and then decide which of the given conclusions follows logically and for sure, from the given statements.

KEY POINTS TO REMEMBER

- If statement is formed with two or more statements then there should not be mutual contradiction in sentence.
- Read carefully and try to find key words.
- Conclusion should not go against establish fact and prevalling notions of truth
- If definite words like all, always, at least, only, exactly and etc. are used then conclusion will be invalid
- If conclusion is provided with the stated example then conclusion will be invalid.

EXAMPLES

Ex.1-10. Statement are given followed by two conclusions I and II. You have to consider the statement 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. Indicate your answer.

Ex.1. **Statement:** Philanthropes with their human compassion and zeal to help the needy have contributed to human welfare in every society.

Conclusions:

I. Rich persons are philanthropes.

II. Poor people cannot act as philanthropes.

(A) Only conclusion I follows.

(B) Both conclusions I and II follow.

(C) Neither conclusion I nor II follows.

(D) Only conclusion II follows.

Sol.(C) Neither conclusion I nor II follows because any person can be philanthrope whether he is rich or poor.

Ex.2. **Statement:** The most polluting units are those engaged in electroplating of metals. These units generate highly toxic substances. Such industries are concentrated in the walled city.

Conclusions:

I. Electroplating industries must be shut down.

II. In the walled city there is greater pollution.

(A) Only I follows.

(B) Only II follows.

(C) Both I and II follow.

(D) Neither I nor II follows.

Sol.(B) Only conclusion II follows. Electroplating industries are polluting and these are concentrated in the walled city. Therefore, there is greater pollution in the walled city.

Ex.3. **Statement:** This course is so designed that only few children can learn the topics by themselves.

Conclusions:

I. Learning the topics of this course by all the children is desirable.

II. Some learners find it difficult to learn the topics of this course in the absence of a teacher.

(A) Only I follows.

(B) Only II follows.

(C) Both I and II follow.

(D) Neither I nor II follows.

Sol.(B) The use of term "all" in first conclusion makes it invalid. Clearly, the second conclusion follows.

Ex.4. **Statement:** A car had driven off the road and hit a tree. The driver was efficient enough. The road was not good. The driver drove the car for last fifteen years.

Conclusions:

I. The accident occurred due to bad condition of road.

II. There was a mechanical fault in the car.

(A) Only conclusion II follows.

(B) Both the conclusions follow.

(C) None follows.

(D) Only conclusion I follows.

Sol.(A) It is clearly mentioned that road was not good that's why I does not follow and the driver drove the car off the road even if he was efficient. So, there may be some mechanical fault in the car.

Ex.5. **Statement:** Physical exercise is necessary for good health.

Conclusions:

I. John plays Tennis at age of seventy.

II. Men with irregular habits have to go hospital.

(A) Only I follows.

(B) Only II follows.

(C) Neither I nor II follows.

(D) Both I and II follow.

Sol.(A)

Ex.6. **Statement:** A friend in need is a friend indeed.

Conclusions:

I. All are friends in good times.

II. Enemies in bad times are not friends.

(A) Neither I nor II follows.

(B) Only I follows.

(C) Only II follows.

(D) Both I and II follow.

Sol.(A) A friend who offers help in time of need is a true friend. The use of term "All" in conclusion I makes it invalid and II does not express the inherent meaning of the statement. Therefore, neither conclusion I nor II follows.

Ex.7. **Statement:** Most Indians are aware that they have a great heritage, but few would include science in it.

Conclusions:

I. Many Indians consider sciences have made Indian heritage great.

II. Many Indians are not aware that India has a great sciencetific heritage.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

(C) Both conclusions I and II follow.

(D) Neither conclusion I nor II follows.

Sol.(C) According to the statement both the conclusions will follow.

Ex.8. **Statement:** Tension is detrimental to physical and mental health.

Conclusions:

I. To be healthy one should be free from tension.

II. Mental health depends upon the tension on experiences.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

(C) Neither conclusion I nor II follows.

(D) Both conclusions I and II follow.

Sol.(D) According to the statement both the conclusions will follow.

Ex.9. **Statement:** Private firm workers are hard-working.

Conclusions:

I. Some hard-working persons are private firm workers.

II. Government employees are not hard working.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

(C) Neither conclusion I nor II follows.

(D) Both conclusions I and II follow.

Sol.(A) Only conclusion I follows. It has been said that private firm workers are hardworking. It does not mean that government employees are not hard-working.

Ex.10. **Statement:** The best evidence of India's glorious past is the growing popularity of Ayurvedic medicines in the west.

Conclusion:

I. Ayurvedic medicines are not popular in India.

II. Allopathic medicines are not popular in India.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

(C) Both conclusions I and II follow.

(D) Neither conclusion I nor II follows.

Sol.(D) It is mentioned in the statement that best evidence of India's glorious past is the growing popularity of Ayurvedic medicines in India. It implies that ayurvedic were originated in India and propagated to the other countries.

Ex.11-12. In each of the follwoing question two statement are given followed by two conclusions I and II. You have to consider the statement 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.

Ex.11. Statement:

I. Best performance in olympics fetches a gold medal.

II. Player X got gold medal but later was found to be using a prohibited drug.

Conclusions:

I. X should be allowed to keep the gold medal.

II. Gold medal should be with-drawn and given to the next person.

(A) Only conclusion II follows.

(B) Neither conclusion I nor II follows.

(C) Both conclusions I and II follow.

(D) Only conclusion I follows.

Sol.(A) If a player is found guilty of doping. his medal is confiscated and it is given to the runner up. Therefore, only conclusion II follows.

Ex.12. Statement:

I. The constitution assures the fundamental rights.

II. Parliament has right to amend the constitution.

Conclusions:

I. Parliament included fundamental right in the constitution.

II. Parliament did not assure the fundamental rights.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

(C) Both conclusions I and II follow.

(D) None of them

Sol.(D) Neither conclusion I nor II follows. The Fundamental Rights were included into the constitution by the Drafting committee headed by Dr. Br R Ambedkar.

Ex.13-14. In each of the following question some statement are given followed by conclusion. You have to consider the statement 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.

Ex.13. Statement:

I. Rabindranath Tagore wrote many poems.

II. Every poet has asethetic knowledge.

III. Aesthetic is a part of axiological study.

Conclusion:

I. Rabindranath Tagore did different axiological study.

II. He followed the base of logic and ethics.

(A) Only conclusion I follows.

(B) Both conclusions I and II follow.

(C) Only conclusion II follows.

(D) None of these

Sol.(B) Obviously both the conclusions follow. Rabindranath Tagore was a poet and every poet has aesthetic knowledge. Aesthetic is a part of axiological. study. So, Rabindranath Tagore did different axiological study. Any philosophy is related to logic and ethics. Therefore, conclusion II also follows.

Ex.14. Statement:

I. Water has no shape, has volume.

II. The knowledge is. like water, flowed from one side to other.

Conclusion:

I. The knowledge is interdisciplinary

II. The knowledge is bound within a specific area.

III. The knowledge influences the core of mental activity directly.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

(C) Both conclusions I and II follow.

(D) Both conclusions I and III follow.

Sol.(D) From the statements it is clear that knowledge is interdisciplinary. Mental activity is related to required knowledge. Thus, conclusions I and III follow.

EXERCISE

Q.1-5. In each question below given a statement and two conclusions. You have to assume everything in the statement to be true and consider both the conclusion together, then decide which of the two given conclusions logically follows beyond a reasonable doubt from the information given in the statement. Give answer -

(A) If only conclusion I follows.

(B) If only conclusion II follows

(C) If neither I nor II follows.

(D) If both I and II follow.

Q.1. **Statement:** About 50% of animal by products, hair, skin, horn etc. is edible protein. Indian chemists have developed a method of isolating 45% of this protein. They used an enzyme developed in Japan to break down soya protein.

Conclusions:

I. Indian have not been able to develop enzymes.

II. If an economically feasible process is developed there would be plenty of edible protein available.

Q.2. **Statement:** Since inequality is built in, wherever there is development there is little that can be done to arrest it except at the cost of development itself.

Conclusions:

I. To achieve development, inequality should be allowed to continue.

II. Equality and development do not go together.

Q.3. **Statement:** From all available cultural records, it is evident that even in ancient India, both the masters and disciples valued not the quantity but the quality of knowledge.

Conclusions:

I. Giving importance to quantity of knowledge is meaningless.

II. There was an identity of educational values between teachers and students in ancient India.

Q.4. **Statement:** Quality has a price tag. India is allocating lots of funds to education.

Conclusions:

I. Quality of education in India would improve soon.

II. Funding alone can enhance quality of education.

Q.5. **Statement:** Recent researches have shown that pimples have their root cause within the liver.

Conclusions:

I. The medication for pimples should be administered to the liver.

II. Creams requiring external application are of no use.

Q.6. **Statement:** Most of the Bihari Boys are attracted towards govt. services.

Conclusions:

I. In Bihar jobs in private sector are less.

II. There is no attraction towards govt. services in boys of other states.

Q.7. **Statement:** Price of each consumer product has increased at least by 8%.

Conclusions:

I. Prices of some commodities has not increased.

II. There is not a single commodity in consumer products whose price has not increased.

Q.8. **Statement:** Those hilly areas will be declared backward where forest area does not exist.

Conclusions:

I. Hilly forest areas are not backward.

II. In backward areas hills are without forest.

Q.9. **Statement:** By 2005 to achieve 70% literacy, a new scheme has been started on 2/5/20A.

Conclusions:

I. On 2/5/2001 literacy is less than 70%.

II. This new scheme would be completed by 2005.

Q.10. **Statement:** If you want to earn interest rate every second month then you can use our banking services.

Conclusions:

I. Banks have planned to give interest rates at different time periods.

II. Customers are given separate interest rates.

Q.11. **Statement:** The eligibility for admission to the course is minimum second class Master's degree.

However, the candidates who have appeared for the final year examination of Master's degree can also apply.

Conclusions:

I. All candidates who have yet to get their Master's degree will be there in the list of selected candidates.

II. All candidates having obtained second class

Master's degree will be there in the list of selected candidates.

Q.12. **Statement:** The government run company had asked its employees to declare their income and assets but it has been strongly resisted by employees union and no employee is going to declare his income.

Conclusions:

I. The employees of this company do not seem to have any additional undisclosed income besides their salary.

II. The employee's union wants all senior officers to declare their income first.

Q.13. **Statement:** The Official Secrets Act (O.S.A.) enacted by the XYZ government during the war seems to be the source of much corruption in the country 'P'.

Conclusions:

I. The Official Secrets Act has to be abolished, immediately to stop corruption in country 'P'.

II. The XYZ government wanted to encourage corruption in the government offices.

Q.14. **Statement:** After collision of two vessels in the sea all the crewmen and passengers are declared as missing - A news report.

Conclusions:

I. No one from the two vessels has survived after the collision.

II. A few persons from the two vessels may have survived and are missing.

Q.15. **Statement:** Good health is a luxury in country 'P' where rate of death is very high compared to other nations of that region.

Conclusions:

I. People in country 'P' cannot afford to have many luxuries of life.

II. Good health is a gift of the nature.

Q.16. **Statement:** On metro section of railways, the motormen are frequently required to do overtime during May and June though all vacancies are completely filled as per requirement of this section.

Conclusions:

I. Many motormen take leave of shorter or longer duration during this period.

II. Some motormen desire to earn overtime whenever possible.

Q.17. **Statement:** The President of X Y Z party indicated that 25 independent Members of Legislative Assembly (M.L.A.) are seriously considering various options of joining some political party. But in any case all of them collectively will join one party only.

Conclusions:

I. The 25 independent M.L.A's will join X Y Z party in a short period of time.

II. The 25 independent M.L.A's will join some other political party in a short period of time.

Q.18. **Statement:** Our approach of fund management is based on Science as much as on common sense and discipline because our goal is consistent performance in the long term- Advertisement of a mutual fund company.

Conclusions:

I. Only the approach of Science of investment can lead to high gains in short term investment.

II. It is not necessary to go for long term investment when low return short term investment is available.

Q.19. **Statement :** We follow some of the best and effective teaching learning practices used by leading institutes all over the world' - A statement of a Professor of M.N. Institute.

Conclusions:

I. The M.N. Institute is one of the leading Institutes of the world.

II. Whatever is being followed by world's leading institutes will definitely be good and useful.

Q.20. **Statement:** The Bank of England's move to auction 25 metric tons of gold drew plenty of bidders looking for a bargain, but was criticized by major gold producers worldwide.

Conclusions:

I. The Bank of England should not auction gold which it possesses to keep steady international prices of gold.

II. Bidders should quote higher gold prices to retain present value of gold in the international markets.

EXPLANATION

Q.1.(C)	**Q.2.(D)**	**Q.3.(A)**	**Q.4.(C)**	**Q.5.(A)**	**Q.11.(C)**	**Q.12.(A)**	**Q.13.(C)**	**Q.14.(B)**	**Q.15.(A)**
Q.6.(C)	**Q.7.(A)**	**Q.8.(D)**	**Q.9.(A)**	**Q.10.(A)**	**Q.16.(A)**	**Q.17.(D)**	**Q.18.(C)**	**Q.19.(C)**	**Q.20.(C)**

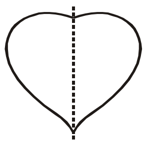
CHAPTER-21
MIRROR AND WATER IMAGE

Scan the QR code to get video of this chapter.

The figure obtained by putting a mirror in front of the real figure is known as **mirror image.** The reflection of object into the mirror is called its mirror image. **It is obtained by inverting an object laterally.** If we combine the original figure and mirror image together they form a symmetry. Now look at these figures:

(i) (ii)

If we combine both the figures, we get a new figure in shape of the heart.



Take a mirror and place it along the vertical dotted line running through the middle of this shape. You will see that the half figure on the left together with its image in the mirror gives the complete figure of the heart. So, this heart-shape is said to have a reflection symmetry and the reflection takes place along the vertical line of symmetry at the middle.

MIRROR IMAGE OF CAPITAL LETTERS

A	A	B	ᗺ	C	Ͻ	D	ᗡ	E	Ǝ	F	ꟻ
G	Ә	H	H	I	I	J	Ⴑ	K	ꓘ	L	⅃
M	M	N	И	O	O	P	ꟼ	Q	Ϙ	R	Я
S	Ꙅ	T	T	U	U	V	V	W	W	X	X
Y	Y	Z	ꙁ								

Note The letters which have the same mirror images are— A, H, I, M, O, T, U, V, W, X, Y.

MIRROR IMAGES OF SMALL LETTERS

a	ɒ	b	d	c	ɔ	d	b	e	ɘ	f	ʇ
g	ǫ	h	ᖺ	i	i	j	ᒑ	k	ʞ	l	l
m	m	n	n	o	o	p	q	q	p	r	ɿ
s	ƨ	t	ɟ	u	u	v	v	w	w	x	x
y	ʏ	z	ꙁ								

Note The letters which have the same mirror images are— i, l, o, v, w, x.

MIRROR IMAGES OF NUMBERS

1	2	3	4	5	6	7	8	9	0
Ɩ	ς	Ɛ	ᔭ	ट	∂	Ꮁ	8	ɘ	0

Note 0 and 8 numbers have the same mirror images.

DIFFERENT TYPES OF QUESTIONS BASED ON MIRROR IMAGES

There are two types of questions, which are asked, regarding mirror images :

LETTER/NUMBER IMAGES

Here, we are given a single letter combination of letters/words/ numbers. We have to find their mirror images out of given alternatives.

EXAMPLES

Ex.1-8. 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 alternative which most closely resembles the mirror image of the given combination.

Ex.1. **FUN**

(A) HUF **(B)** ИUꟻ

(C) NUF **(D)** NU7

Sol.(B) If we put a mirror in front of the word, we get the following image

FUN ⁞ ИUꟻ

Ex.2. **TRIUMPHS**

(A) SHPMUIRT **(B)** SPHMIURT

(C) STRIUMPH **(D)** ƧHꟼMUIЯT

Sol.(D) If we put a mirror in front of the word, we will get the image like

TRIUMPHS ƧHꟼMUIЯT

Ex.3. **PAMPER**

(A) ЯƎꟼMAꟼ **(B)** REPMAP

(C) REPAMP **(D)** RPAPME

Sol.(A) If we put a mirror in front of the word, we will get the image like

Ex.4. **DL9CG4728**

(A)  **(B)** 

(C)  **(D)** 

Sol.(C) If we put a mirror in front of the word, we will get the image.

Ex.5. **BR4AQ16HI**

(A)  **(B)** 

(C)  **(D)** 

Sol.(A) If we put a mirror in front of the word, we will get the image.

Ex.6. **qutubgarh**

(A)  **(B)** 

(C) h r a g b u t u q **(D)** 

Sol.(D) If we put a mirror in front of the word, we will get the image.

Ex.7. 2345

(A)  **(B)** 

(C)  **(D)** 

Sol.(C) If we put a mirror in front of the number, we will get the image like 

Ex.8. **MALAYALAM**

(A) MALAYALAM **(B)** 

(C)  **(D)** 

Sol.(B) 

GEOMETRICAL IMAGES

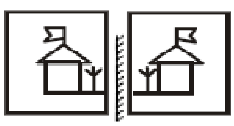
In these types of questions, we deal with figures taking defined geometrical shapes.

Ex.9-17. In each of the following questions, choose the correct mirror image from alternatives **(A)**, **(B)**, **(C)** and **(D)** of the figure **(X)**.

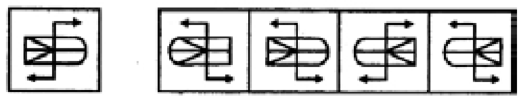
Ex.9.

(X) **(A)** **(B)** **(C)** **(D)**

Sol.(D) Here, mirror is taken vertically to right side. Hence, mirror image of figure **(X)** will be like.



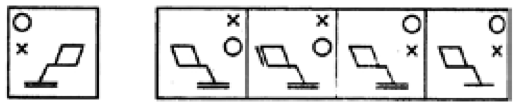
Ex.10.



(X) **(A)** **(B)** **(C)** **(D)**

Sol.(D) Here, mirror is taken vertically to right side.

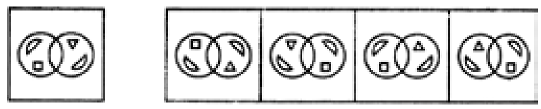
Ex.11.



(X) **(A)** **(B)** **(C)** **(D)**

Sol.(C) Here, mirror is taken vertically to right side.

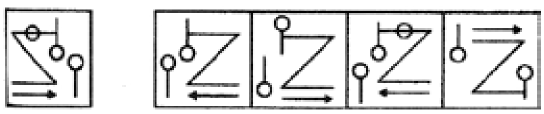
Ex.12.



(X) **(A)** **(B)** **(C)** **(D)**

Sol.(B) Here, mirror is taken vertically to right side.

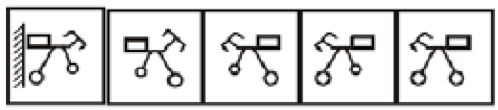
Ex.13.



(X) **(A)** **(B)** **(C)** **(D)**

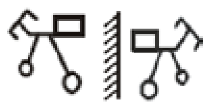
Sol.(C) Here, mirror is taken vertically to right side.

Ex.14.

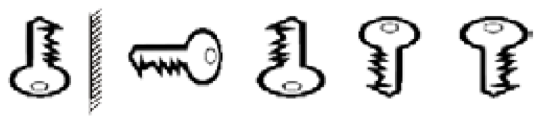


(X) **(A)** **(B)** **(C)** **(D)**

Sol.(B) Here, mirror is taken vertically to right side.

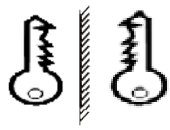


Ex.15.

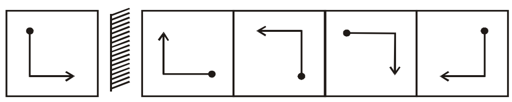


(X) **(A)** **(B)** **(C)** **(D)**

Sol.(B) Here, mirror is taken vertically to right side.

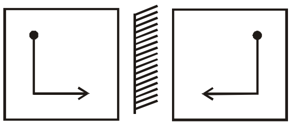


Ex.16.

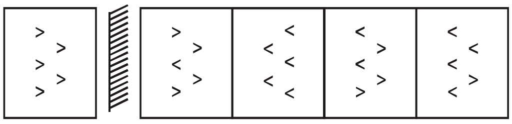


(X) **(A)** **(B)** **(C)** **(D)**

Sol.(D) Here, mirror is taken vertically to right side.

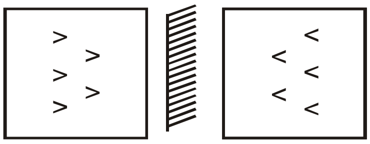


Ex.17.



(X) (A) (B) (C) (D)

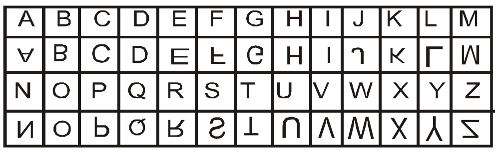
Sol.(B) Here, mirror is taken vertically to right side. Hence, mirror image of figure (X) will be like



WATER IMAGE

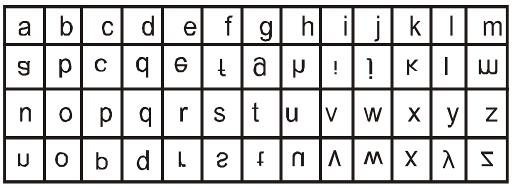
The reflection of an object into the water is called its water image. **It is obtained by inverting an** object **vertically.**

Water Images of Capital Letters



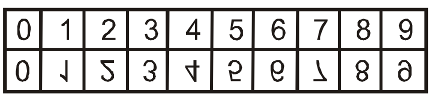
Note The letters which have the same water images are—C, D, E, H, I, K, O, X.

Water Images of Small Letters



Note The letters which have the same water images are— c, 1, o, x.

Water Images of Numbers



Note 0, 3 and 8 numbers have the same water images.

DIFFERENT TYPES OF QUESTIONS BASED ON WATER IMAGES

There are two types of questions based on water images, which can be asked in various competitive examinations :

LETTER/NUMBER IMAGES

Here we are given a combination of letters and have to find their water images.

Ex.18-24. In each of the following questions, you are given a combination of alphabets and/or number followed by four alternatives (A), (B), (C) and (D). Choose the correct water image out of given four alternatives in each case.

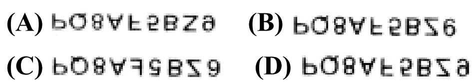
Ex.18. FROG

Sol.(A) The water image of given sequence will be

Ex.19. TOP

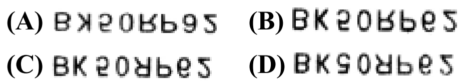
Sol.(A) The water image of given sequence will be

Ex.20. PQ8AF5BZ9



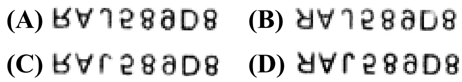
Sol.(D)

Ex.21. BK50RP62



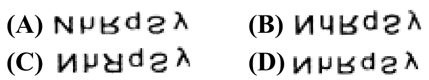
Sol.(B)

Ex.22. RAJ589D8



Sol.(A)

Ex.23. NhRqSy



Sol.(D)

Ex.24. 96FSH52

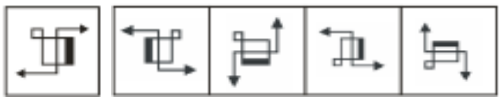
Sol.(C) The water image of the given sequence will be

GEOMETRICAL IMAGES

In this case, we are given some figures/shapes and we have to find corresponding water images.

Ex.25-31. In each of the following questions, choose the correct water image of the figure (X) from the given four alternatives (A), (B), (C) and (D).

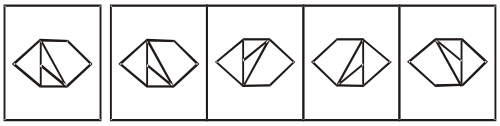
Ex.25.



(X) (A) (B) (C) (D)

Sol.(C)

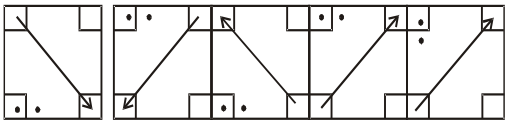
Ex.26.



(X) (A) (B) (C) (D)

Sol.(B).

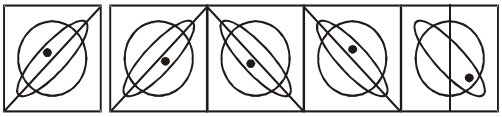
Ex.27.



(X) (A) (B) (C) (D)

Sol.(C).

Ex.28.



(X) (A) (B) (C) (D)

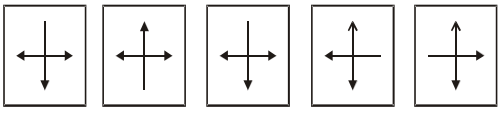
Sol.(B).

Ex.29.

(X) (A) (B) (C) (D)

Sol.(B).

Ex.30.



(X) (A) (B) (C) (D)

Sol.(A)

Ex.31.

(X) (A) (B) (C) (D)

Sol.(A)

MIRROR-IMAGES OF CLOCKS

Here are certain questions in which the positions of the hour - hand and the minute - hand of clock as seen in a mirror are given. On the basis of the time indicated by the mirror image of the clock we have to detect the actual time in the clock, In the solution of such questions we have the fact that if an object A is the mirror - image of another object B then B is the mirror Image of A. The method of solving such questions would be clear from the following questions.

Ex.32. Looking into a mirror, the clock shows 9 : 30 as the time. The actual time is

(A) 2 : 30 **(B)** 3 : 30

(C) 4 : 30 **(D)** 6 : 30

Sol.(A) In the mirror the clock appears as .

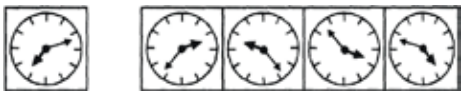
Time = 9 : 30

Fig. A This is the mirror image of the clock shown below :

Time = 2 : 30

(Fig. B is obtained by taking the mirror image of fig.(A) Clearly, this clock shows the time 2 : 30. Therefore, the actual time is 2 :30.

Ex.33.



(X) (A) (B) (C) (D)

Sol.(D). Image (D) is the mirror image of Image X. It is clear that option (D) which shows time of 4 : 48. So time is 7 : 12 .

EXERCISE

MIRROR IMAGE

Q.1-10. In each of the following questions four alternatives are given which follow a sword marked as questions (A), (B), (C) and (D) so on you have to select on alternative which exactly matches with the mirror image of the letter/number/word/figure in questions.

Q.1. **GEOGRAPHY**

(A) YHPAЯGOƎG (B) YHPARGOEG

(C) ⅄HPAЯGOƎG (D) YHꟼAЯGOƎG

Q.2. **INFORMATIONS**

(A) IИFOЯMA⊥IONS (B) IИꟻOЯMATIOИS

(C) ƧИOITAMЯOꟻИI (D) ƧИOITAWЯOꟻИI

Q.3. **REASONING**

(A) ꓤEVSONIИG (B) ӘИIИOSAƎЯ

(C) ЯƎASONIИG (D) ӘИIИOZAƎЯ

Q.4. **ANS43Q12**

(A) AИS4ƐQ1 2 (B) ANS43Q12 (inverted)

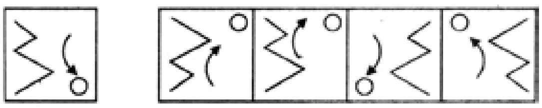
(C) ƧИAƐ4Q2 1 (D) SNA34Q21 (inverted)

Q.5. **DL9CG4728**

(A) DL9CG4728 (inverted) (B) 8274GC9LD (inverted)

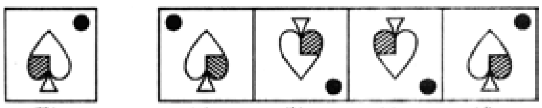
(C) 8274GC9LD (mirrored) (D) DL9CG4728 (mirrored)

Q.6.



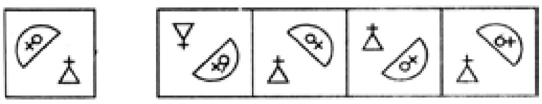
(X) (A) (B) (C) (D)

Q.7.



(X) (A) (B) (C) (D)

Q.8.

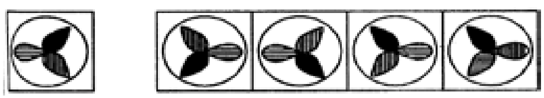


(X) (A) (B) (C) (D)

Q.9.

(X) (A) (B) (C) (D)

Q.10.



(X) (A) (B) (C) (D)

WATER IMAGE

Q.11-20. In each of the following questions four alternatives are given which follow a sword marked as questions (A), (B), (C) and (D) so on you have to select one alternative which exactly matches with the water image of the letter/number/word/figure in questions.

Q.11. **ACOUSTIC**

(A) VↃOUS⊥IC (B) VCOUS⊥ I C

(C) VCOUS⊥IC (D) VCOUST I C

Q.12. **NUCLEAR**

(A) ꓤVƎꞀCUИ (B) ИUCꞀEVꓤ

(C) ИUCꞀƎVꓤ (D) ИUCꞀ EVꓤ

Q.13. **QUARREL**

(A) ΟUVꓤꓤEꞀ (B) QUAЯЯƎꞀ

(C) ΟUVꓤꓤEꞀ (D) ΟUVЯЯƎꞀ

Q.14. **U4P15B7**

(A) ∩4b1SB7 (B) ∩4d1SB7

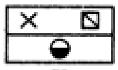
(C) ∩4b1SB7 (D) ∩4b1SB7

Q.15. **PQ8AF5BZ9**

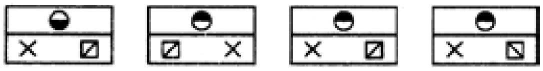
(A) bO8VꟻSBZ6 (B) bO8VꟻSBZ6

(C) bO8VꟻSBZ6 (D) bO8VꟻSBZ6

Q.16.

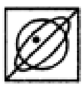


(X)

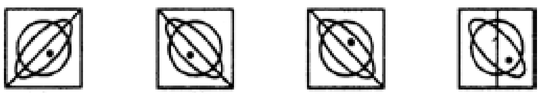


(A) (B) (C) (D)

Q.17.



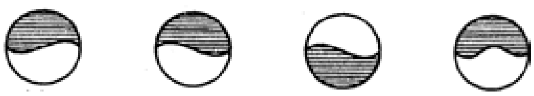
(X)



(A) (B) (C) (D)

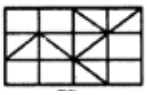
Q.18.

(X)

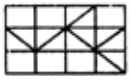


(A) (B) (C) (D)

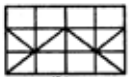
Q.19.



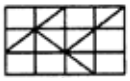
(X)



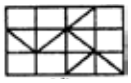
(A)



(B)



(C)



(D)

Q.20.

(X)

(A)

(B)

(C)

(D)

EXPLANATION

Q.1.(A)	Q.2.(C)	Q.3.(B)	Q.4.(B)	Q.5.(C)	Q.11.(B)	Q.12.(D)	Q.13.(A)	Q.14.(C)	Q.15.(D)
Q.6.(C)	Q.7.(A)	Q.8.(B)	Q.9.(D)	Q.10.(C)	Q.16.(C)	Q.17.(B)	Q.18.(B)	Q.19.(D)	Q.20.(A)

NOTES

CHAPTER-22
PAPER FOLDING AND CUTTING

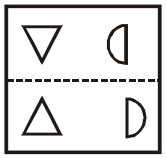
Scan the QR code to get video of this chapter.

In this chapter we will have to select a figure which would be the closest to the pattern that would be formed when a transparent sheet carrying designs on either side of a dotted line, is folded along the line. Here, a figure is obtained by folding a piece of paper containing same design along the dotted line. The resultant figure is to be selected out of a set of four figures given as alternative (A), (B), (C) and (D).

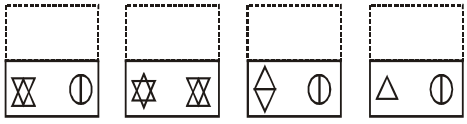
PAPER FOLDING

Ex.1-10. In each of the following problems, a square transparent sheet with a pattern is given. Figure out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.

Ex.1. **Transparent sheet**



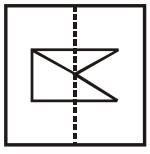
Answer Figure



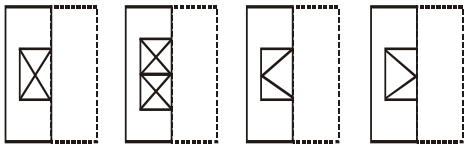
(A) **(B)** **(C)** **(D)**

Sol.(D) The upper half of the transparent sheet is folded along dotted line and placed on the lower half of the sheet. The figure thus obtained resembles the answer figure (D).

Ex.2. **Transparent sheet**



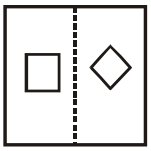
Answer Figure



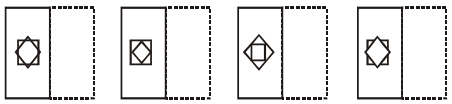
(A) **(B)** **(C)** **(D)**

Sol.(D) The right half of the transparent sheet is folded along dotted line and placed on the left half of the sheet. The figure thus obtained resembles the answer figure (D).

Ex.3. **Transparent sheet**



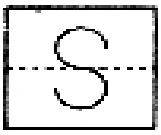
Answer Figure



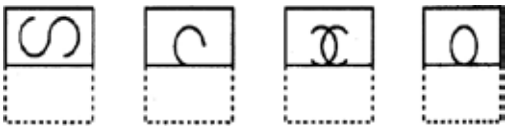
(A) **(B)** **(C)** **(D)**

Sol.(A) The right half of the transparent sheet is folded along dotted line and placed on the left half of the sheet. The figure thus obtained resembles the answer figure (A).

Ex.4. **Transparent sheet**



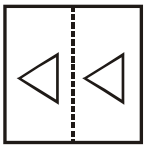
Answer Figure



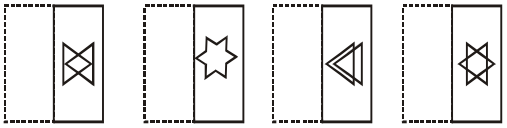
(A) **(B)** **(C)** **(D)**

Sol.(D) The lower half of the transparent sheet is folded along dotted line and placed on the upper half of the sheet. The figure thus obtained resembles the answer figure (D).

Ex.5. **Transparent sheet**



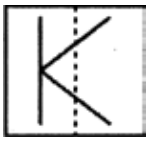
Answer Figure



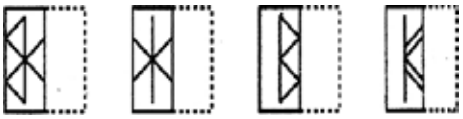
(A) (B) (C) (D)

Sol.(A) The left half of the transparent sheet is folded along dotted line and placed on the right half of the sheet. The figure thus obtained resembles the answer figure (A).

Ex.6. Transparent sheet



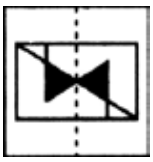
Answer Figure



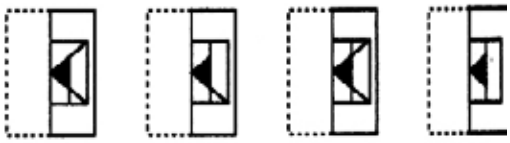
(A) (B) (C) (D)

Sol.(C) The right half of the transparent sheet is folded along dotted line and placed on the left half of the sheet. The figure thus obtained resembles the answer figure (C).

Ex.7. Transparent sheet



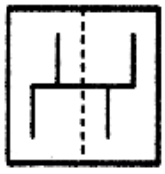
Answer Figure



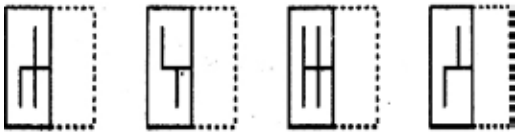
(A) (B) (C) (D)

Sol.(C) The left half of the transparent sheet is folded along dotted line and placed on the right half of the sheet. The figure thus obtained resembles the answer figure (C).

Ex.8. Transparent sheet



Answer Figure

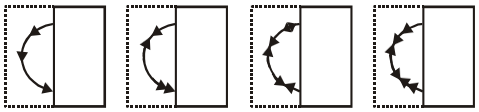


(A) (B) (C) (D)

Sol.(C) The right half of the transparent sheet is folded along dotted line and placed on the left half of the sheet. The figure thus obtained resembles the answer figure (C).

Ex.9. Transparent sheet

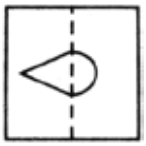
Answer Figures



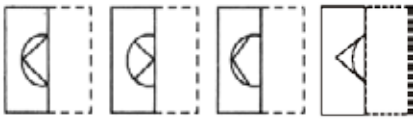
(A) (B) (C) (D)

Sol.(C) The right half of the transparent sheet is being folded along the dotted line and placed on the left half of the sheet. The figure thus obtained resembles the answer figure (C).

Ex.10. Transparent sheet



Answer Figures



(A) (B) (C) (D)

Sol.(D) The right half of the transparent sheet is folded along dotted line and placed on the left half of the sheet. The figure thus obtained resembles the answer figure (A).

PAPER CUTTING

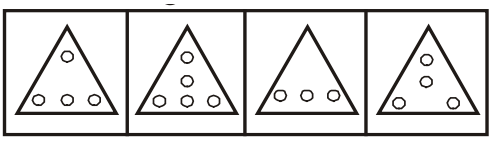
In the questions based on paper cutting few figures are given showing the way in which a piece of paper is to be folded and then cut from a particular section. The dotted line is the reference line along which the paper is to be folded and the arrow indicates the direction of the fold. Thus, these two figures indicate the sequence in which the paper is to be folded. The designs from the cut will appear on each one of the folds made on the paper.

Ex.11-18. In each of the following questions, a set of three figures (X), (Y) and (Z) have been given, showing a sequence in which paper is folded and finally cut from a particular section. Below these figures a set of answer figures marked (A), (B), (C) and (D) showing the design which the paper actually acquires when it is unfolded are also given. You need to select the answer figure which is closest to the unfolded piece of paper.

Ex.11. Transparent sheet

X Y Z

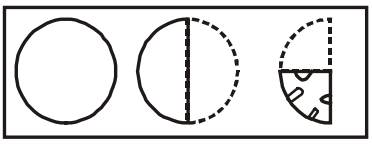
Answer Figures



(A) (B) (C) (D)

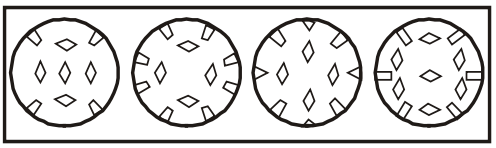
Sol.(D) In figure X upper part of triangle is holded with respect to dotted line towards lower part. In figure Y left part of the triangle is folded to the right about dotted line and finally right part of the triangle is folded towards left side about dotted line finally a circle has been cut.

Ex.12. Transparent sheet



X Y Z

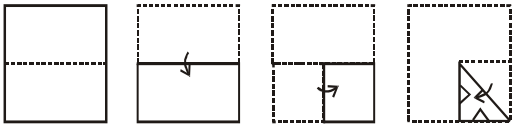
Answer Figures



(A) (B) (C) (D)

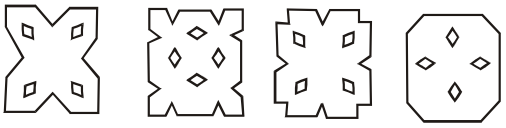
Sol.(B) In figure Y right part of the circle is folded along dotted line and placed on the left half part of the sheet and again one fourth portion is folded in Z figure.

Ex.13. Transparent Sheet



X Y Z

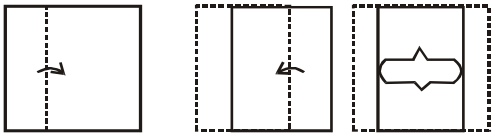
Answer Figure



(A) (B) (C) (D)

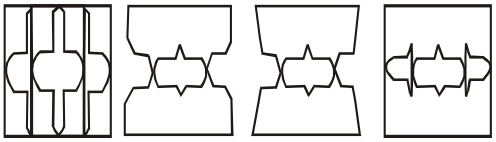
Sol.(B) A piece of paper is folded and cut as shown above in the question figure. From the given answer figures indicate how it will appear when opened.

Ex.14. Transparent Sheet



X Y Z

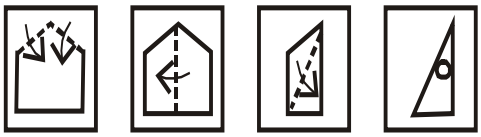
Answer Figure



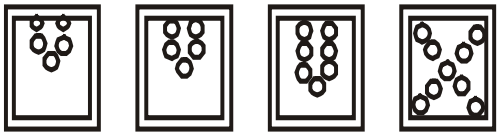
(A) (B) (C) (D)

Sol.(B) A rectangular piece of paper is folded and punched as shown above in the question figures. From the given answer figures, indicate how it will appear when opened.

Ex.15. Transparent Sheet



Answer Figure

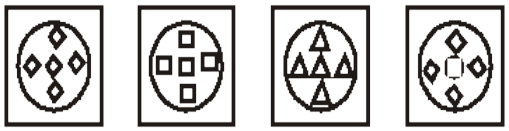


(A) (B) (C) (D)

Sol.(B) In first figure upper corners of squares is being folded along the dotted line in second figure right half part of the figure is being folded along vertically dotted line in figure 3 upper part of the figure folded along diagonal of the figure in last figure a circle is made in triangle part.

Ex.16. Transparent Sheet

Answer Figure

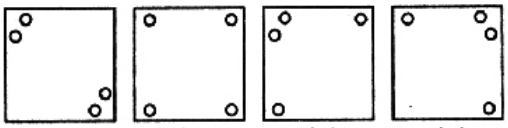


(A) (B) (C) (D)

Sol.(A) In second figure upper half part of the transparent sheet is being folded along the horizontal dotted line and place lower half of the sheet. In third diagram right part of half circle is being folded along vertical dotted line and place on the left half part of the sheet and finally three triangles are made in sheet.

Ex.17.

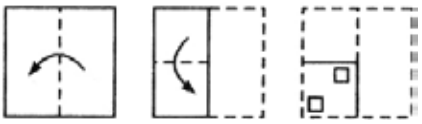
X Y Z



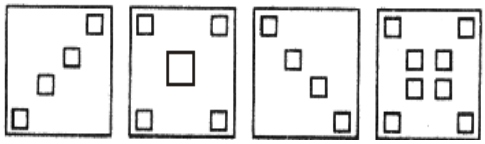
(A) (B) (C) (D)

Sol.(A) It is clear that in figure (X), the paper is being folded diagonally to divide it in to two equal parts. In figure (Y) rest part is folded by touching upper conrner. Now, but in given figure (Z). the cut is marked at the position which is occupied.

Ex.18.



X Y Z

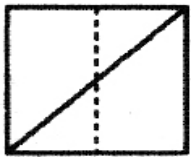


(A) (B) (C) (D)

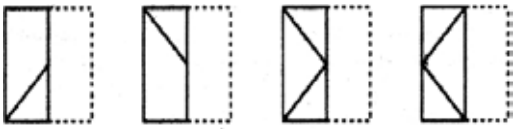
Sol.(D) In figure (X), the square sheet of paper is being folded along the vertical line of symmetry so that right half of the sheet overlaps the left half. In figure (Y), the sheet is folded further to a quarter. In figure (Z), two squares are punched in the folded sheet. Clearly, the punched squares will be created in each quarter, of the paper.

Ex.19-31. In each one of the following examples, find from amongst the four response figures, the one which resembles the pattern formed when the transparent sheet, carrying a design, is folded along the dotted line.

Ex.19. Transparent Sheet



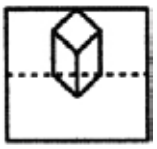
Answer Figure



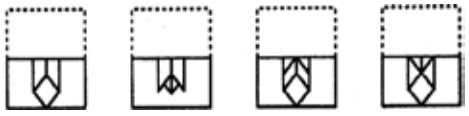
(A) (B) (C) (D)

Sol.(C) In each of the response figures, the right halves are dotted, which indicates that the right half of the transparent sheet has been folded and placed over the left half. Taking into consideration the design on the right half of the sheet, the design formed on the folded sheet will be a combination of the designs on the two halves. Note here that the mirror image of the design on the right half of the sheet will reach the left half.

Ex.20. Transparent Sheet



Answer Figure



(A) (B) (C) (D)

Sol.(D) Clearly, the upper half of the square sheet has been folded over the lower half. The combination of the design in the lower half and the water image of the design in the upper half will appear as the resultant design when the sheet is folded. Visualising this combination we get the design shown in fig. (D).

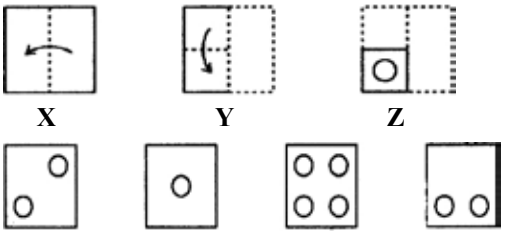
Ex.21. Transparent Sheet

Answer Figure

(A) (B) (C) (D)

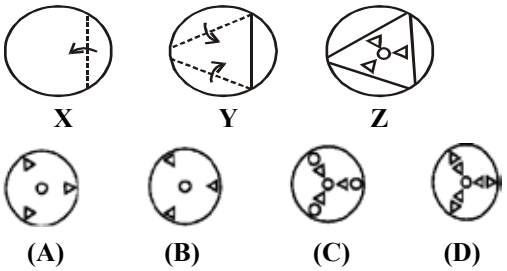
Sol.(C) The circular sheet of transparent paper has been folded among the dotted line such that left half overlaps the right half and consequently the smaller arrows will appear to penetrate inside the larger ones.

Ex.22. Consider the three figures, marked X, Y and Z showing one fold in X, another I in Y and cut in Z. From amongst the four alternative figures A, B, C and D, select the one showing the unfolded positipn of Z.



Sol.(C) In fig. (X), the square sheet of paper has been folded along the vertical line of symmetry so that the right half of the sheet overlaps the left half. In fig. (Y), the sheet is folded further to a quarter. In fig. (Z), a circle has been punched in the folded sheet. Clearly, the punched circle will be created in each quarter of the paper. Thus, when the paper is unfolded, four circles will appear symmetrically over it and the paper will then appear as shown in fig. (C).

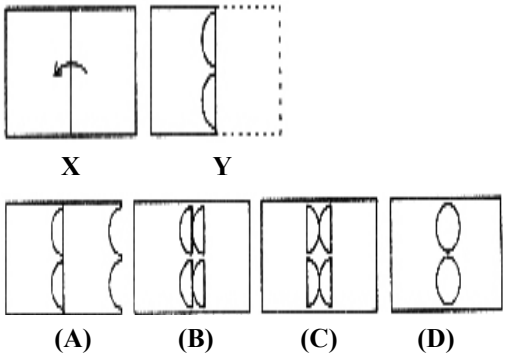
Ex.23. In the following question, three figures X, Y and Z showing a sequence of folding a circular sheet of paper are given. The third figure Z depicts the cuts made in the folded paper. Select a figure from amongs the four alternative figures marked A, B, C and D which would most closely resemble the paper in fig. (Z) when unfolded.



Sol.(D) In fig. (X), the circular sheet of paper has been folded along a chord. In fig. (Y), the sheet is folded along two similar chords.

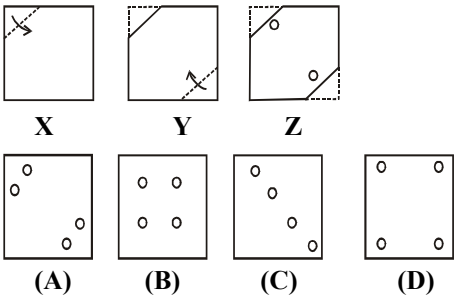
In fig. (Z), a small circle has been punched at the centre and three small triangles are also punched around the circle. Clearly, the punched circle will be created only in the centre of the circle and each of the triangles will be punched both in the major as well as in the minor segment of the circular sheet. Thus, when the paper is unfolded, it will appear as shown in fig(D).

Ex.24. Consider the figures X and Y showing a rectangular sheet of paper folded in fig. (X) and punched in fig. (Y). From amongst the answer figures A, B, C and D, select the figure, which will most closely resemble the unfolded position of fig. (Y).

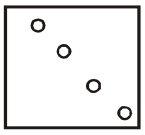


Sol.(D) In fig. (X), the rectangular sheet of paper has been folded along a line that divides the sheet into two equal halves. In fig. (Y), two semicircular holes are punched close to the edge of the folded sheet. Clearly, when the sheet is unfolded, we get two circles at the centre of the sheet as shown in fig. (D).

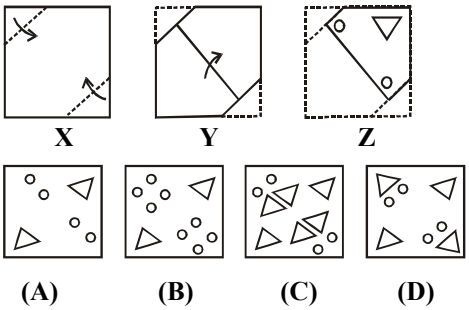
Ex.25. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



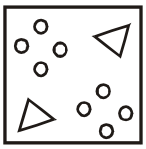
Sol.(C)



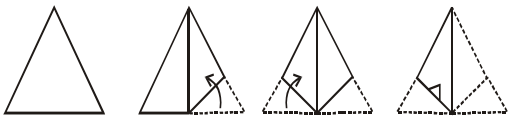
Ex.26. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



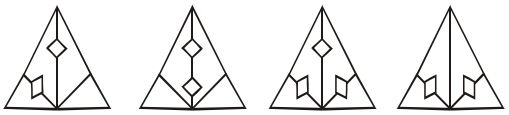
Sol.(B)



Ex.27. Choose a figure which would most closely resemble the unfolded form of Figure (Z).

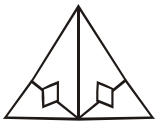


X Y Z

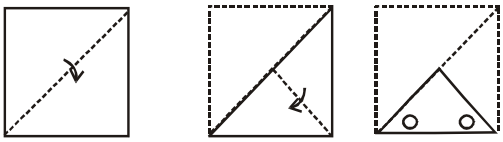


(A) (B) (C) (D)

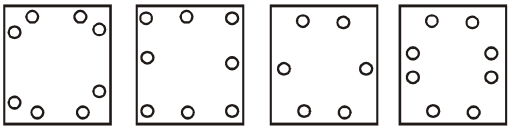
Sol.(D)



Ex.28. Choose a figure which would most closely resemble the unfolded form of Figure (Z).

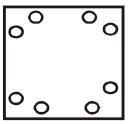


X Y Z

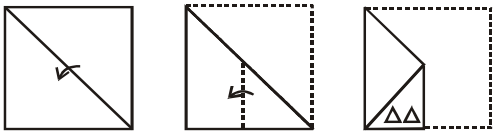


(A) (B) (C) (D)

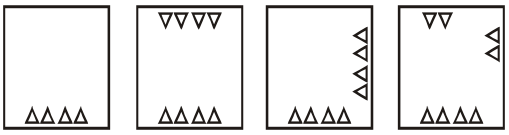
Sol.(A)



Ex.29. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



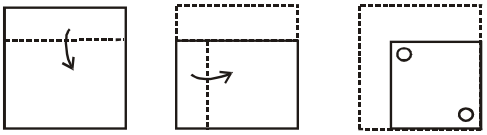
X Y Z



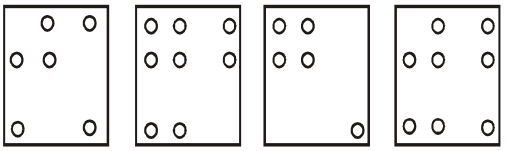
(A) (B) (C) (D)

Sol.(C)

Ex.30. Choose a figure which would most closely resemble the unfolded form of Figure (Z).

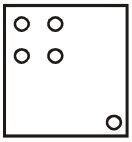


X Y Z

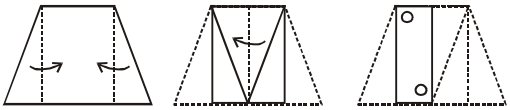


(A) (B) (C) (D)

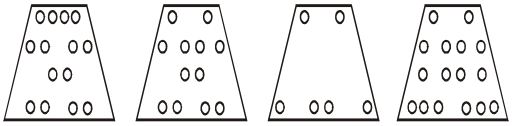
Sol.(C)



Ex.31. Choose a figure which would most closely resemble the unfolded form of Figure (Z).

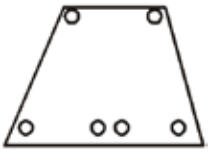


X Y Z



(A) (B) (C) (D)

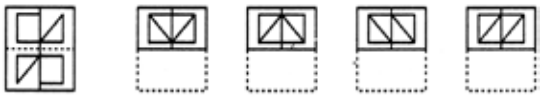
Sol.(C)



EXERCISE

Q.1-20. A piece of paper folded or folded and cut as shown below in the question figures from the given answer figures, indicate how it will appear when opened ?

Q.1.

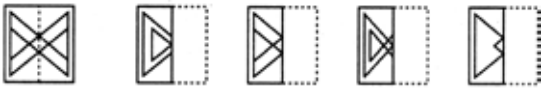


(A) (B) (C) (D)

Q.2.

(A) (B) (C) (D)

Q.3.

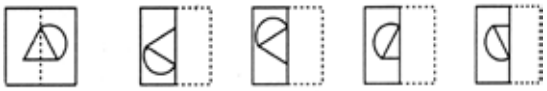


(A) (B) (C) (D)

Q.4.

(A) (B) (C) (D)

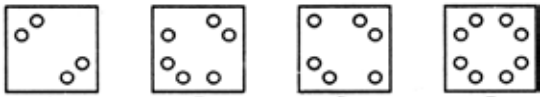
Q.5.



(A) (B) (C) (D)

Q.6.

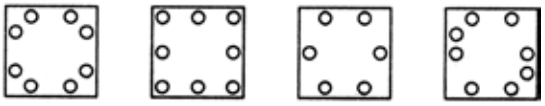
X Y Z



(A) (B) (C) (D)

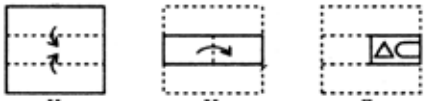
Q.7.

X Y Z



(A) (B) (C) (D)

Q.8.

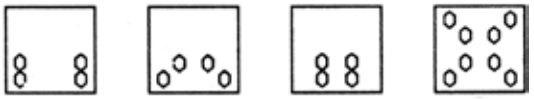


X Y Z

(A) (B) (C) (D)

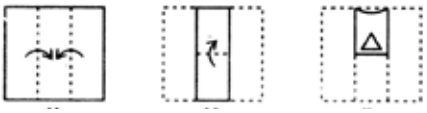
Q.9.

X Y Z



(A) (B) (C) (D)

Q.10.

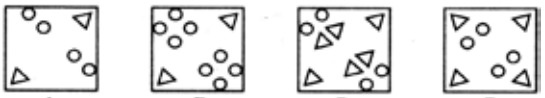


X Y Z

(A) (B) (C) (D)

Q.11.

X Y Z



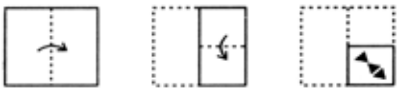
(A) (B) (C) (D)

Q.12.

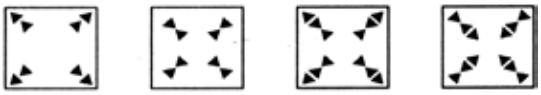
X Y Z

(A) (B) (C) (D)

Q.13.



X Y Z



(A) (B) (C) (D)

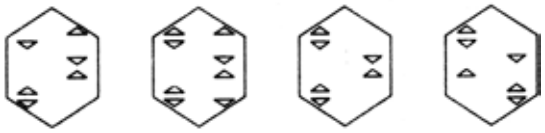
Q.14.

X Y Z

(A) (B) (C) (D)

Q.15.

X Y Z



(A) (B) (C) (D)

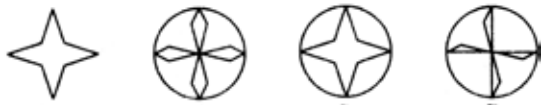
Q.16.

X Y Z

(A) (B) (C) (D)

Q.17.

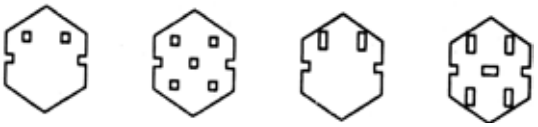
X Y Z



(A) (B) (C) (D)

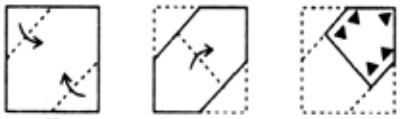
Q.18.

X Y Z

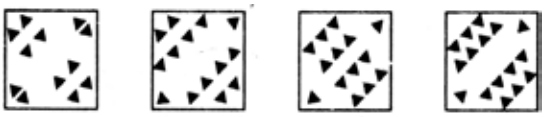


(A) (B) (C) (D)

Q.19.

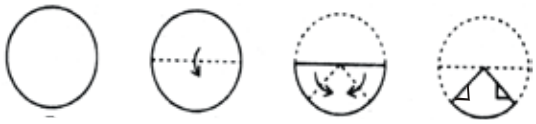


X Y Z



(A) (B) (C) (D)

Q.20.



P X Y Z

(A) (B) (C) (D)

EXPLANATION

Q.1.(A)	Q.2.(D)	Q.3.(D)	Q.4.(B)	Q.5.(C)	Q.11.(B)	Q.12.(C)	Q.13.(C)	Q.14.(B)	Q.15.(C)
Q.6.(D)	Q.7.(A)	Q.8.(B)	Q.9.(B)	Q.10.(C)	Q.16.(A)	Q.17.(B)	Q.18.(C)	Q.19.(B)	Q.20.(D)

CHAPTER-23
FIGURE COUNTING

Scan the QR code to get video of this chapter.

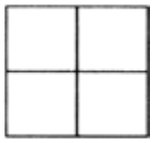
These types of non-verbal reasoning involve counting geometrical figures in a given figure, which is a mixture of two or more types of complex figures. Such type of questions are designed to test the analytical deposition of the candidates. These may be straight lines, triangles, rectangles and other geometrical figures/designs.

The chapter involves problems relating to counting of number of particular geometrical figures in a given complex geometrical figure.

The understanding of this chapter will help us in attempting 2 to 5 questions in the Examination.

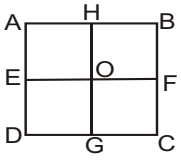
EXAMPLES

Ex.1. How many squares are there in the figure given below?



(A) 4 **(B)** 5 **(C)** 6 **(D)** 7

Sol.(B) Naming the figure



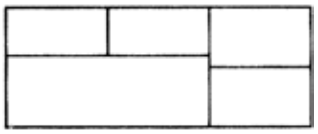
Clearly, there are five squares in the figure given as above. Namely, AEOH, HOFB, EDGO, OGCF & ADCB.

It is a symmetrical figure $\frac{n(2n+1)(n+1)}{6}$

Where **'n'** represents number of rows

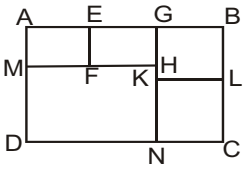
$n = 2, \frac{2(2\times 2+1)(2+1)}{6} \Rightarrow 5$

Ex.2. How many rectangles are there in the figure given below?



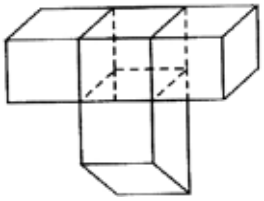
(A) 6 **(B)** 7 **(C)** 8 **(D)** 9

Sol.(D) The figure in the question has been labeled as under:



Clearly, there are eight rectangle in the figure given as above. Namely AEFM, EGHF, AGHM, AGND, GBLK, KLCN, GBCN, MHND, ABCD.

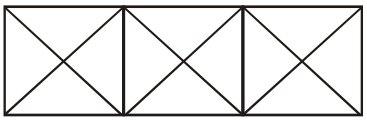
Ex.3. How many bricks are there in the following figure?



(A) 2 **(B)** 4 **(C)** 3 **(D)** 5

Sol.(B) Clearly, there are four bricks in the given figure.

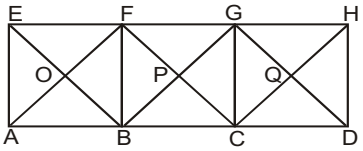
Ex.4. How many triangles are there in the given figure?



(A) 28 **(B)** 24 **(C)** 25 **(D)** 26

Sol.(A) The figure in the question has been labeled as under:

Naming the figure



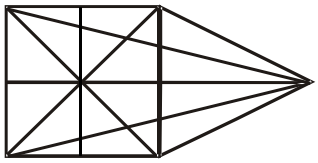
Clearly, there are 28 triangles in the given figure, they are :

EOF, AOE, AOB, BOF, ABF, BEF, ABE, AEF, BPF, FPG, CPG, BPC, BFG, BCG, CFG, BCF, GQC, CDQ, DQH, GQH, GDC, GDH, GHC, CDH, AFC, BCD, EBG, FCH.

ANALYTICAL REASONING

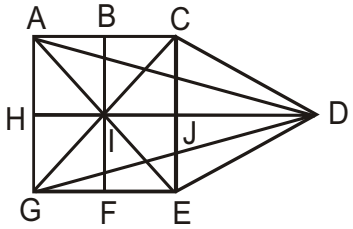
The chapter on Analytical Reasoning involves the problems relating to the geometrical figures in a given complex figure. The systematic method for the number of any particular type of figure by the analysis of the complex figure would from the examples that follow.

Ex.5. What is the number of straight lines in the following figure ?



(A) 10 **(B)** 12 **(C)** 13 **(D)** 17

Sol.(B) We shall label the figure as shown below:



Clearly, in this figure :

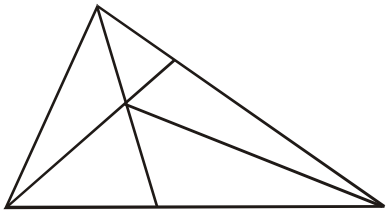
There are 3 horizontal lines namely AG, BF and CE.

There are 3 vertical lines namely AC, HD and GE.

There are 6 slanting lines namely AD, AE, GC, GD, CD and CE.

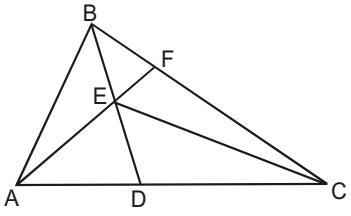
Thus, there are 3 + 3 + 6 = 12 straight lines in all.

Ex.6. How many triangles are there in the following figure ?



(A) 6 **(B)** 10 **(C)** 11 **(D)** 12

Sol.(D) The figure may be labelled as shown below :

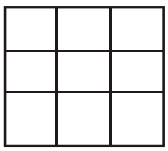


The simplest triangles are ABE, BEF, EFC, CDE and AED i.e. 5 in number.

The triangles composed of two components each are ABF, BCE, ACE and ABD i.e. 4 in number.

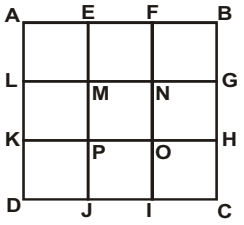
The triangles composed of three components each are AFC and BCD i.e. 2 in number. There is only one triangle ABC composed of five components. Thus, there are 5 + 4 + 2 + 1 = 12 triangles in the figure.

Ex.7. Count the number of squares in the following figure :



(A) 18 **(B)** 14 **(C)** 10 **(D)** 9

Sol.(B) We shall label the figure as shown below:



The simplest squares are AEML, EFNM, FBGN, NGHO, MNOP, LMPK, KPJD, POIJ and OHCI i.e. 9 in number.

The squares composed of four components each are AFOK, EBHP, LNID and MGCJ i.e. 4 in number.

There is only one square i.e. ABCD composed of nine components.

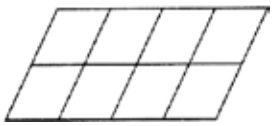
Thus, there are 9 + 4 + 1 = 14 squares in the figure.

QUICK TRICK :

n = 3

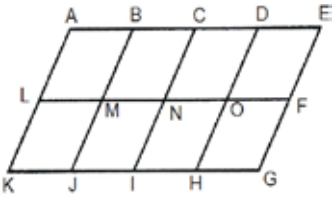
$$\frac{3(2\times 3+1)(3+1)}{6} \Rightarrow 14$$

Ex.8. How many parallelograms are there in the following figure ?



(A) 20 **(B)** 24 **(C)** 28 **(D)** 30

Sol.(D) We shall label the figure as shown below:



The simplest ||gms are ABML, BCNM, CDON, DEFO, OFGH, NOHI, MNIJ and LMJK i.e. 8 in number.

The ||gms composed of two components each are ACLN, BDOM, CEFN, LNIK, MOHJ, NFGI.'ABJK, CIJB , CIHD, DHGE and i.e. 10 in number.

The ||gms composed of three components each are ADOL, BEFM, LOHKandMFGJ i.e. 4 in number.

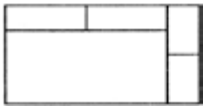
The ||gms composed of four components each are AEFL, LFGK, ACIK, BDHJ and CEGI i.e. 5 in number.

The ||gms composed of six components each are ADHK and BEGJ i.e. 2 in number. AEGK is. the only ||gm composed Of eight components. Total number of parallelograms in the figure

= 8+ 10+ 4 + 5 + 2 + 1 = 30.

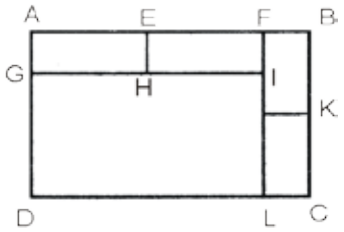
Hence, the answer is **(D)**.

Ex.9. What is the number of rectangles in the following figure ?



(A) 6 **(B)** 7 **(C)** 9 **(D)** 11

Sol.(C) The figure may be labelled as shown below :

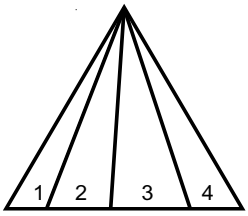


The simplest rectangles are AEHG, EFIH, FBKJ, JKCL and GILD i.e. 5 in number, The rectangles composed of two components each are AFIG and FBCL that is 2 in number.

Only one rectangle namely AFLD is composed of three components and only one rectangle namely ABCD is composed of five components.

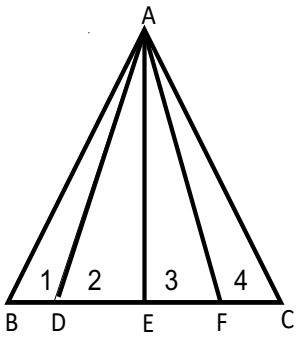
Thus, there are 5 + 2 + 1 + 1 = 9 rectangles in the given figure.

Ex.10. Find number of triangle in figure?



(A) 6 **(B)** 10 **(C)** 11 **(D)** 16

Sol.(B)



Manual Counting:

Triangle ABC = 1,

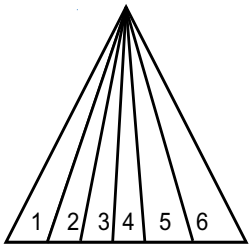
Triangles AEC and AEB = 2,

Triangles ADC, AFB and ADF = 3

Triangles ABD, ADE, AEF and AFC = 4

Total triangles = 1+2+3+4 = 10

Ex.11. Find number of triangle in figure?

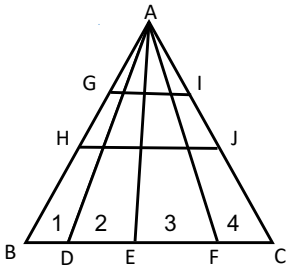


(A) 20 **(B)** 24 **(C)** 21 **(D)** 23

Sol.(C) Total Number of Triangles $= \frac{n(n+1)}{2}$

$= 6(6+1)/2 = 42/2 = 21$

Ex.12. Find number of triangle in figure?



(A) 30 **(B)** 40 **(C)** 28 **(D)** 25

Sol.(A) Manual Counting :

Triangle ABC = 1

Triangle AEC and AEB = 2

Triangle ADC, AFB and ADF = 3

Triangle ABD, ADE, AEF and AFC = 4

Total Triangle = (1+2+3+4)×3 = 10 × 3 = 30

QUICK TRICK

Total Number of Triangles= $\frac{n(n+1)\times h}{2}$

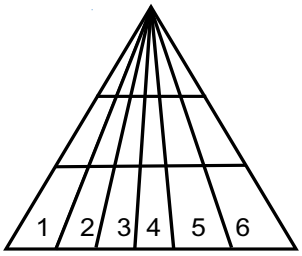
(where "n" is number of smallest triangles when a triangle has been divided into

symmetrical parts and "h" is number

of horizontal sections). This is only in the case of symmetry.

$= \frac{4(4+1)\times 3}{2} = \frac{20\times 3}{2} = \mathbf{30}$

Ex.13. Find number of triangle in figure?

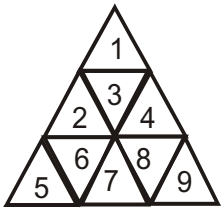


(A) 60 **(B)** 64 **(C)** 61 **(D)** 63

Sol.(D) Total Number of Triangles= $\frac{n(n+1)\times h}{2}$

$= \frac{6(6+1)\times 3}{2} = \frac{42\times 3}{2} = 63$

Ex.14. Find number of triangle in figure?



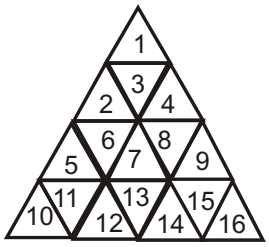
(A) 20 **(B)** 18 **(C)** 13 **(D)** 22

Sol.(C) Total Number of Triangles = (n×2)-5

= (9×2) - 5 = 13

This is only for symmetrical figure.

Ex.15. Find number of triangle in figure?



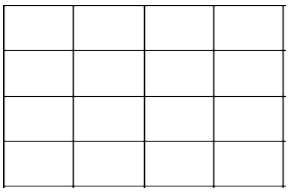
(A) 27 **(B)** 26 **(C)** 16 **(D)** 23

Sol.(A) Total Number of Triangles = (n×2)-5

= (16×2)-5 = 32-5 = 27

TYPE -1

(i) Number of smallest squares in the row and in the column is the same:



QUICK TRICK

Total Number of Squares

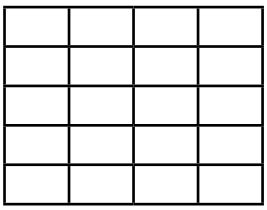
$= n^2 + (n-1)^2 + \ldots\ldots 1^2$

$= 4^2 + 3^2 + 2^2 + 1^2 = 16+9+4+1 = 30$

(where "n" is number of smallest

square in the row and column)

(ii) Number of smallest squares in the row, if Row and Coloums are not same.



QUICK TRICK

Total Number of Squares

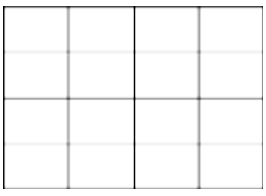
= mn + (m-1) (n-1) + (m-2) (n-2) + ...0

(where "m" is number of smallest square in the row and "n" is number of smallest square in the column)

=5×4+4×3+3×2+2×1 = 20+12+6+2 = 40

TYPE -2

(i) Number of smallest rectangle in the row and in the column is the same:



QUICK TRICK

Total Number of Rectangles

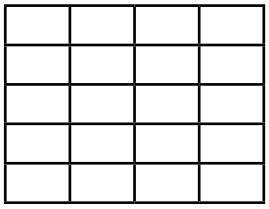
$= n^3 + (n-1)^3 + \ldots\ldots 1^3$

(Where "n" is number of smallest rectangle in the row/column)

$= 4^3 + 3^3 + 2^3 + 1^3$

$= 64 + 27 + 8 + 1 = 100$

(ii) Number of smallest rectangle in the row and in the column are not the same:



QUICK TRICK

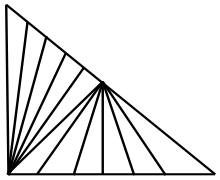
Total Number of Rectangles

= (1+2+3 .....m)× (1+2+3 .....n)

(where "m" is number of smallest rectangle in the row and "n" is number of smallest rectangle in the column)

= (1+2+3+4+5) × (1+2+3+4) = 15 × 10 = 150

Ex.16. Find number of triangle in given figure ?



(A) 32 **(B)** 27 **(C)** 23 **(D)** 37

QUICK TRICK

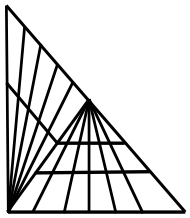
Sol.(D) Total Number of Triangles

$= \{n_1(n_1+1) \div 2\} + \{n_2(n_2+2) \div 2\}$,

$= \{ 5 \times 6 \div 2 \} + \{ 6 \times 7 \div 2 \} + 1$

$= 15 + 21 + 1 = 37$

Ex.17. Find number of triangle in given figure ?



(A) 92 **(B)** 94

(C) 96 **(D)** 98

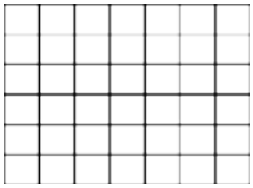
Sol.(B) Total Number of Triangles

= {n1(n1+1)÷2}×2+{n2(n2+1)÷2}×3+1

= {5×6÷2}×2+{6×7÷2}×3+1

= 15×2+21×3+1= 30+63+1= 94

Ex.18. Find number of squares in the given figure?



(A) 102 **(B)** 104

(C) 112 **(D)** 106

QUICK TRICK

Sol.(C) Total Number of Squares

= mn+(m-1)(n-1)+(m-2)(n-2).....+0

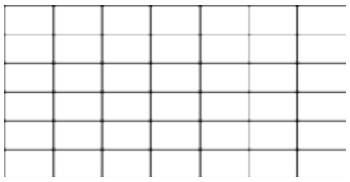
(where "m" is number of smallest square in the row and "n" is number of smallest square in the column)

= 7×6+6×5+5×4+4×3+3×2+2×1

= 42+30+20+12+6+2

= 112

Ex.19. Find number of rectangles in the given figure?



(A) 602 **(B)** 588

(C) 598 **(D)** 612

QUICK TRICK

Sol.(B) Total number of rectangles =

=(1+2+3-------+m) ×(1+2+3--------+n)

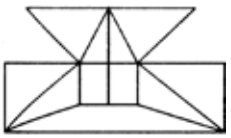
= (1+2+3+4+5+6+7)×(1+2+3+4+5+6)

= 28×21= 588

EXERCISE

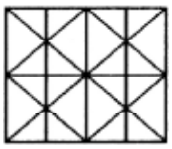
Q.1-4. In each of the following questions, find the number of straight lines required to make the given figure.

Q.1.



(A) 16 **(B)** 17 **(C)** 18 **(D)** 19

Q.2.

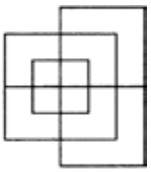


(A) 11 **(B)** 14 **(C)** 16 **(D)** 17

Q.3.

(A) 9 **(B)** 11 **(C)** 15 **(D)** 16

Q.4.



(A) 13 **(B)** 15 **(C)** 17 **(D)** 19

Q.5-11. In each of the following questions, find the number Triangle in the given figure.

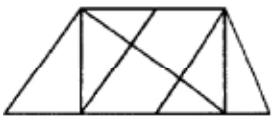
Q.5.

(A) 13 **(B)** 15 **(C)** 17 **(D)** 19

Q.6.

(A) 21 **(B)** 23 **(C)** 25 **(D)** 27

Q.7.



(A) 8 **(B)** 10 **(C)** 12 **(D)** 14

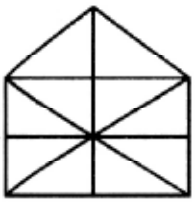
Q.8.

(A) 22 **(B)** 24 **(C)** 26 **(D)** 28

Q.9.

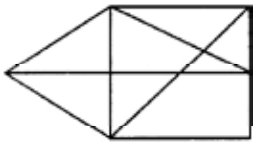
(A) 27 **(B)** 25 **(C)** 23 **(D)** 21

Q.10.



(A) 10 **(B)** 19 **(C)** 21 **(D)** 23

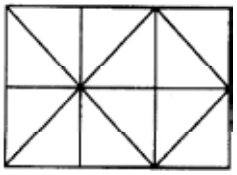
Q.11.



(A) 12 **(B)** 13 **(C)** 14 **(D)** 15

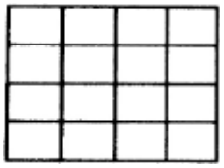
Q.12-15. In each of the following questions count the number of squares in the given figure

Q.12.



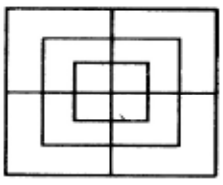
(A) 6 **(B)** 7 **(C)** 9 **(D)** 10

Q.13.



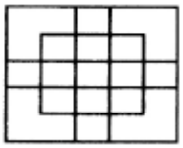
(A) 32 **(B)** 30 **(C)** 29 **(D)** 28

Q.14.



(A) 8 **(B)** 12 **(C)** 15 **(D)** 18

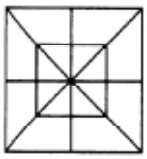
Q.15.



(A) 18 **(B)** 19 **(C)** 25 **(D)** 27

Q.16-19..In each of the following questions, count the number of triangles and squares in the given figure.

Q.16.



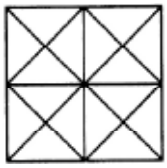
(A) 28 triangles, 10 squares

(B) 28 triangles, 8 squares

(C) 32 triangles, 10 squares

(D) 32 triangles, 8 squares

Q.17.



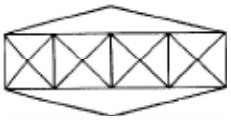
(A) 44 triangles, 10 squares

(B) 14 triangles, 16 squares

(C) 27 triangles, 6 squares

(D) 36 triangles, 9 squares

Q.18.



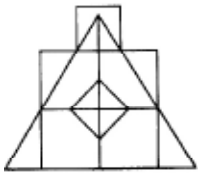
(A) 36 triangles, 7 squares

(B) 38 triangles, 9 squares

(C) 40 triangles, 7 squares

(D) 42 triangles, 9 squares

Q.19.



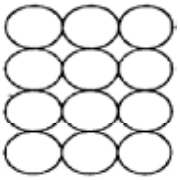
(A) 21 triangles, 7 squares

(B) 18 triangles, 8 squares

(C) 20 triangles, 8 squares

(D) 22 triangles, 7 squares

Q.20. In the adjoining figure, if the centres of all the circles are joined by horizontal and verticle lines, then find the number of squares that can be formed.



(A) 6 **(B)** 7 **(C)** 8 **(D)** 1

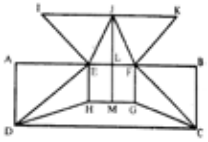
EXPLANATION

Q.1.(B) There should be number of line that is -

IK, AB, HG, DC

AD, EH, JM, FG, BC

IE, JE, JF, KF, DE, DH, FC GC



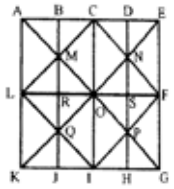
Ans. fig. - 1

Thus, there are 17 straight lines in the figure.

Q.2.(B) AK, BJ, CI, DH, EG

AE, LF, KG

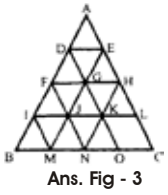
LC, CF, FI, LI, EK , AG



Ans. fig. - 2

Thus, there are 14 straight lines in the figure.

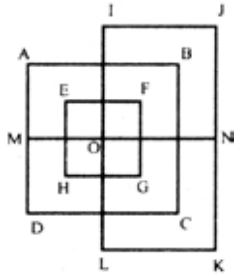
Q.3.(B) DE, FH, IL, BC , AC, DO, FN, IM, AB, EM, HN



Ans. Fig - 3

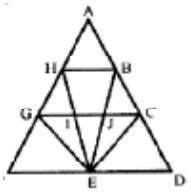
Thus, there are 11 straight lines in the figure.

Q.4.(A) IJ, AB, EF, MN, HG, DC, LK, AD, EH, IL, FG, BC, JK



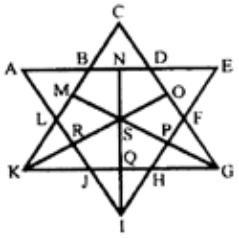
Thus, there are 13 straight lines in the figure.

Q.5.(B) AHB, GHI, BJC, GFE, GIE, IJE, CEJ, CDE, HEG, BEC, HBE, JGE, FHE, GCE, BED



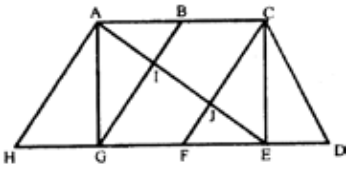
Thus, there are 18 triangles in the given figure.

Q.6.(D) ABL, BCD, DBF, FGP, PGH, QHI, JQI, KRJ, LRK, OSG, SGQ, SPI, SRI, KSQ, KMS, FGH, JHI, JKL, KSG, NEI, ANI, MCG, KCO, GMK, KOG, AEI, KCG



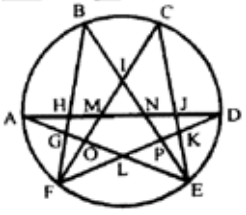
Total number of triangles in the given figure 27

Q.7.(D) AHG, AIG, AIB, JFE, CJE, CED, ABG, CFE, ACJ,EGI, ACE, AGE, CFD, AHE



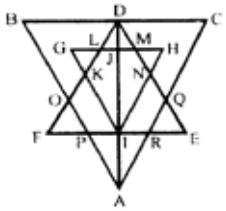
There are 14 triangles in the given figure.

Q.8.(D) AGH, GFO, LFO, DJK, EKP, PEL, IMN, GFL, KEL, AMO, NDP, BHN, CMJ, NEJ, HFM, IOE, IFP, BIF, CEI, ANE, DMF, FCK, BGE, ADL, BPF, COE, DHF, AJE

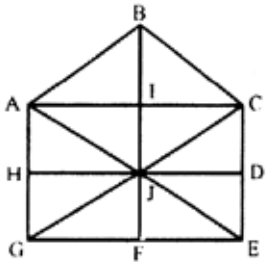


Total number of triangles in the figure are 21

Q.9.(A) GLK, DLJ, DJM, HMN, QRE, IRA, IPA, FPO, EDO, CDQ, DLM, PRA, KFI, NEI, HJI, GJI, OKI, DNI, DIE, DFI, DOA, DQA, GHI, DCA, DBA, DBF, ABC



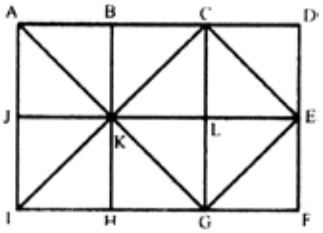
Q.10.(C) ABI, BIC, ALJ, CIJ, AHJ, CDJ, JHG, JDE, GJF, EJF, ABC, BCJ, ACJ, BAJ, AJG, CJE, GJE, ACG, ACE, CGE, AGE



Total number of triangles in the figure 21.

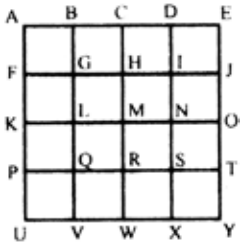
Q.11.(D) The total number of triangle in the figure is 15.

Q.12.(C) ABKJ, BCLK, CDEL, LEFG, KLGH JKHI, CEGK, ACGI, BDFH



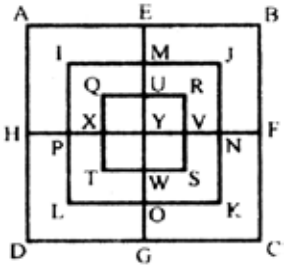
There are 9 squares in the figure.

Q.13.(B) ABGF, BCHG, CDIH, DEJI, FGLK, GHML, H1NM, IJON, KLQP, LMRQ, MNSR, NOTS, PQVU, QRWV, RSXW, STYX, ACMK, BDNL, CEOM, FHRP, GISQ, HJTR, KMWU, LNXV, MOYW, ADSP, BETQ, FIXU, GJYV, AEYU



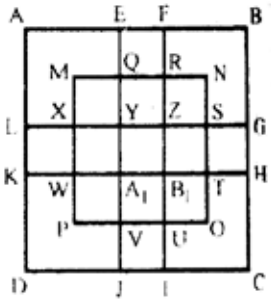
So, There are 30 squares in the figure.

Q.14.(C) QUYX, URSY, YVSW, XYWT, IMYP, MJNY, YNKO, PYOL, AEYH, EBFY, YFCG, HYGD, QRST, IJKL, ABCD,



So, There are 15 squares in the figure.

Q.15.(D) EFRQ, MQYX, QRZY, RNSZ, LXWK, XYAW, YZBA, ZSTB, SGHT, WAVP, AUVB, BTOU, VUIJ, AEYL, FBGZ, KAJD, BHCI, MRBW, QNTA XZUP, YSOV, AFB1K, EBHA, LZID, YGCJ, MNOP, ABCD.

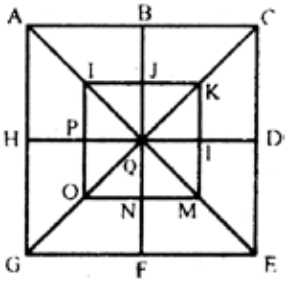


So, There are 27 squares in the figure.

Q.16.(C) IJQ, JKQ, KLQ, LMQ, MNQ, NOQ, OPQ, PIQ, ABQ, BCQ, CDQ, DEQ, EFQ, FGQ, GHQ, HAQ, IKQ, KMQ, MOQ, OIQ, ACQ, CEQ, EGQ, GAQ, IKM, KMO, MOI, OIK, ACE, CEG, EGA, GAC

Total number of triangles in the figure 32.

UQP, JKLQ, QLMN, PQNO, ABQH, BCDQ, QDEF, HQFG, IKMO, ACEG

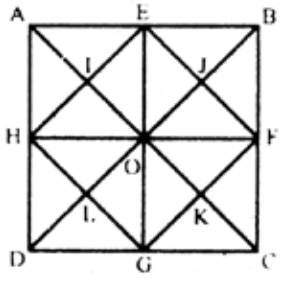


Thus, there are 10 squares in the given figure.

Q.17.(A) AEI, EOI, OHI, HAI, EBJ, BFJ, 1 FOJ, OEJ, HOL, OGL, GDL, DHL, OFK, FCK, CGK, GOK, HAE, AEO, EOH, OHA, OEB, EBF, BFO, FOE, DHO, HOG, OGD, GDH, GOF, OFC, FCG, CGO, HEF, EFG, FGH, GHE, ABO, BCO, CDO, DAO, DAB, ABC, BCD, CDA

Total number of triangles in the figure 44.

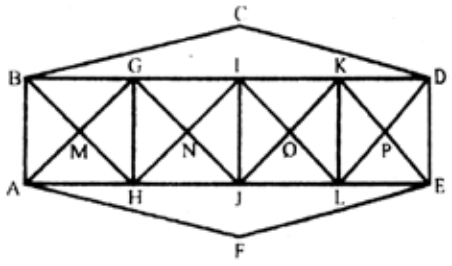
HIOL, IEJO, JFKO, KGLO, AEOH, EBFO, OFGC, HOGD, EFGH, ABCD



Q.18.(C) BGM, GHM, HAM, ABM, GIN, IJN, JHN, HGN, IKO, KLO, LJO, JIO, KDP, DEP, ELP, LKP, BCD, AFE, ABG, BGH, GHA, HAB, HGI, GIJ, IJH, JHG, JIK, IKL, KLJ, LJI, LKD, KDE, DEL, ELK, BHI, GJK, ILD, AGJ, HIL, JKE

Total number of triangles in the figure 40.

MGNH, NIOJ, OKPL, GHA, GIJH, I KLJ, KDEL,

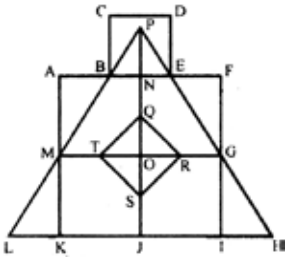


Total number of squares in the figure 7.

Q.19.(A) BPN, PNE, ABM, EFG, MLK, GHI, QRO, RSO, STO, QTO, BPE, TQR, QRS, RST, STQ, MPO, GPO, LPJ, HPJ, MPG

Total number of triangles in the figure 21.

KJOM, JIGQ, ANOM, NFGO, CDEB, QRST, AFIK,

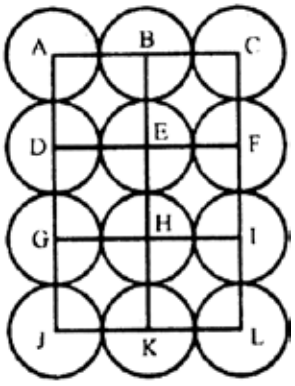


Total number of squares in the figure 7.

Q.20.(C) ABED, BCFE, DEHG, EFIH, GHKJ, HILK, ACIG, DFLJ

Thus, 8 squares will be formed.

AE, JF, AJ, CH, EF, AG, BF, JD, IE, AB, DE, JI, FG,



CHAPTER-24

FIGURE COMPLETION, EMBEDDED FIGURE, GROUPING OF IDENTICAL FIGURE, FIGURE MATRIX, FORMATION OF FIGURE

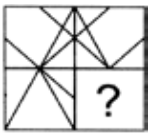
Scan the QR code to get video of this chapter.

PART-I : FIGURE COMPLETION

The objective of this module is to complete the remaining part of question figure. A figure has to be selected from a separate set of answer figures, which could complete or continue the squence of pattern.

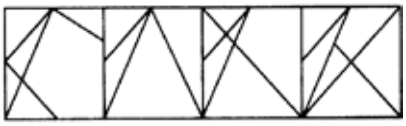
Ex.1-8. Complete the pattern in fig. (X) by selecting one of the figures from the four alternatives (A), (B), (C) and (D).

Ex.1. Problem Figure



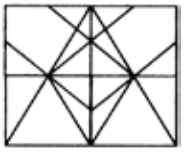
(X)

Answer figure

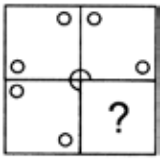


(A) (B) (C) (D)

Sol.(B) If option (B) is placed in the place of quesiton marks (?) then it will complete the question figure as shown below:

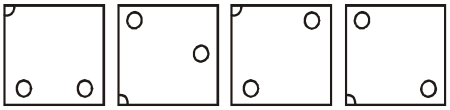


Ex.2. Problem Figure



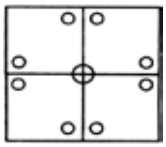
(X)

Answer Figures

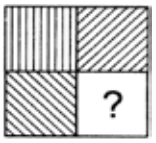


(A) (B) (C) (D)

Sol.(C) If option (C) is placed in the missing portion of the original figure, it completes the original figure and the figure will look like the figure given below.

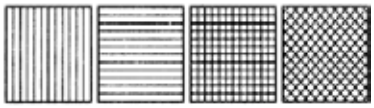


Ex.3. Problem Figure



(X)

Answer figure



(A) (B) (C) (D)

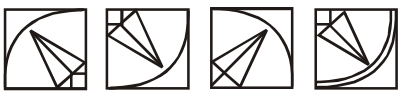
Sol.(B) It is clear that answer figure (B) completes the original figure, which looks like the figure given below.

These array of lines are rotating 45° in clockwise direction.

Ex.4. Problem Figure

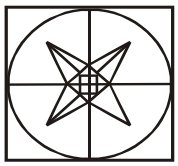
(X)

Answer figure

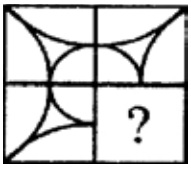


(A) (B) (C) (D)

Sol.(B) Clearly, option (B) completes the original figure which looks like the figure given below.



Ex.5. Problem Figure

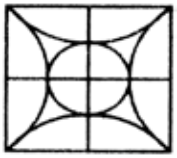


(X)

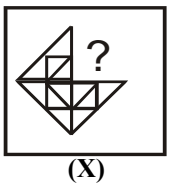
Answer figure

(A) **(B)** **(C)** **(D)**

Sol.(B) Clearly, fig. (B) will complete the pattern when placed in the blank space of fig. (X) as shown below :

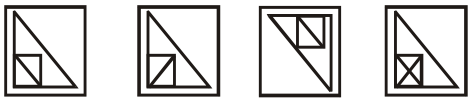


Ex.6. Problem Figure



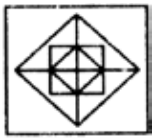
(X)

Answer figure

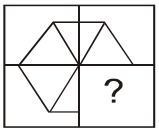


(A) **(B)** **(C)** **(D)**

Sol.(A) Clearly, fig. (A) will complete the pattern when placed in the blank space of fig. (X) as shown below :

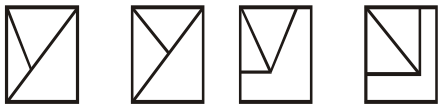


Ex.7. Problem Figure



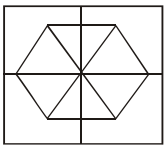
(X)

Answer figure

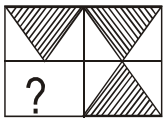


(A) **(B)** **(C)** **(D)**

Sol.(C)

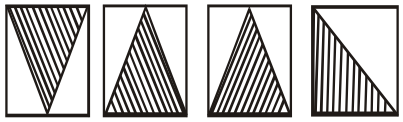


Ex.8. Problem Figure



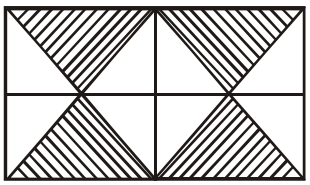
(X)

Answer figure



(A) **(B)** **(C)** **(D)**

Sol.(B)



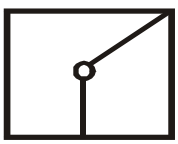
PART - II : EMBEDDED FIGURES

A figure is said to be embedded in, suppose, if figure (X) contains a part of that figure. In this chapter, we deal with questions in which an original figure is given which in turn is followed by four alternative answers. One of the answer figures, is embedded or hidden in the original figure. You are required to select from the alternatives that figure which clearly shows the embedded portion in the original figure.

Type - I

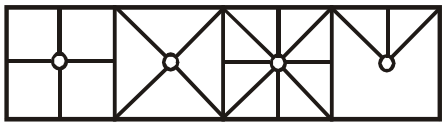
Ex.9-19. In the following question, figure (X) is embedded in any one of the four alternative figures (A), (B), (C), (D). Choose that alternative which contains figure (X) as its part.

Ex.9. Problem Figure



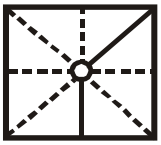
(X)

Answer figure

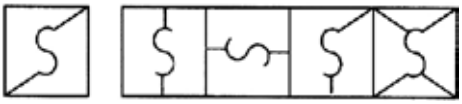


(A) (B) (C) (D)

Sol.(C) On close observation, we find figure (X) is embedded in figure (C) as shown below.



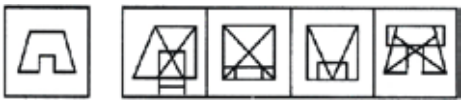
Ex.10.



(X) (A) (B) (C) (D)

Sol.(D) On close observation figure (X) is embedded in figure (D) as shown below.

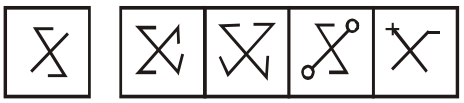
Ex.11.



(X) (A) (B) (C) (D)

Sol.(D) On close observation figure (X) is embedded in figure (D) as shown below.

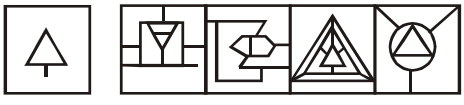
Ex.12.



(X) (A) (B) (C) (D)

Sol.(C) On close observation figure (X) is embedded in figure (C) as shown below.

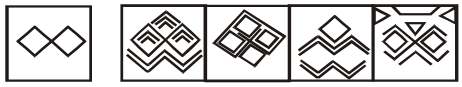
Ex.13.



(X) (A) (B) (C) (D)

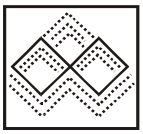
Sol.(C) On close observation, we find that fig. (X) is embedded in fig. (C) as shown below:

Ex.14.

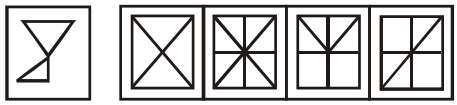


(X) (A) (B) (C) (D)

Sol.(A) On close observation, we find that fig. (X) is embedded in fig. (A) as shown below:

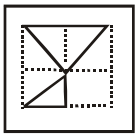


Ex.15.

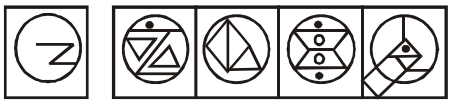


(X) (A) (B) (C) (D)

Sol.(B) Clearly, fig. (X) is embedded in fig. (B) as shown below :

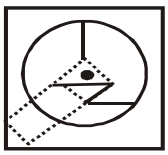


Ex.16.



(X) (A) (B) (C) (D)

Sol.(D) Fig (X) is embedded in fig. (D) as shown below :

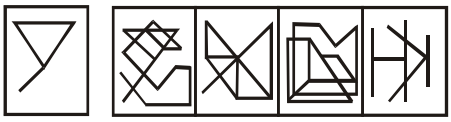


Ex.17.

(X) (A) (B) (C) (D)

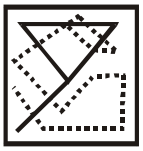
Sol.(C)

Ex.18.

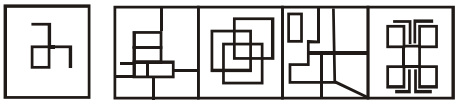


(X) (A) (B) (C) (D)

Sol.(A)

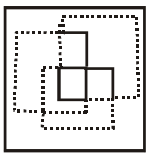


Ex.19.



(X) (A) (B) (C) (D)

Sol.(B)



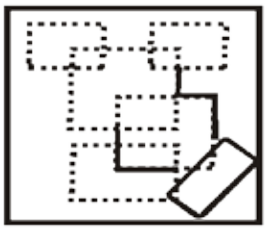
Type - II

In such types of problems, a complex figure is given, followed by four alternative figures. (candidate is required to select that alternative figure which is embedded in fig, (X)

Ex.20. Which figure is embedded in the pattern given in fig. (X) ?

(X) (A) (B) (C) (D)

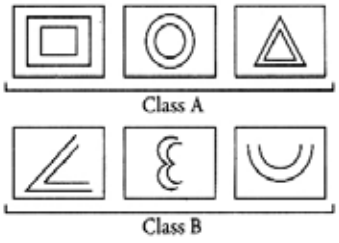
Sol.(D) On close observation, we find that fig. (X) contains fig. (D) rotated through an angle of 135° CW as shown below :



PART - III : GROUPING OF IDENTICAL FIGURES

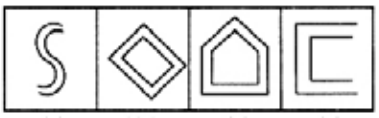
In this chapter, we have a set of few figures which are numbered as 1, 2, 3, 4, .. . We are required to analyse these figures and classify them into groups consisting of figures having more or less than same properties. The best answer is to be selected from a given set of fairly close alternatives.

Ex.21. There, are. two classes of three figures each. Class 'A' figures differ in certain way from the figures in class 'B'.



Which two of the four answer figures belong to class 'A'?

Answer figure



(A) (B) (C) (D)

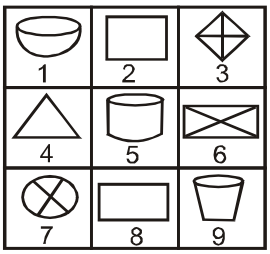
(A) (A) and (C) **(B)** (A) and (B)

(C) (B) and (D) **(D)** (B) and (C)

Sol.(D) Each figure in class A consists of two similar closed figures in which one figure is placed inside the other figure.

In this type of questions, you are given a set of a few figures casually nine), which are numbered. The candidate is required to analyse these figures and classify them into groups consisting of figures having more or less the same properties. The best answer is to be sought from a given set of fairly close alternatives.

Ex.22. Group the following figures into three classes on the basis of identical properties.



(A) 1,5,9, 3,6,7; 2,4,8 **(B)** 2,3,6; 4,8,9; 1,5,7

(C) 3,6,8; 2,4,9; 1,5,7 **(D)** 2,5,8; 1,7,9; 3,4,6

Sol.(A) In the given figures, the figures 1, 5 and 9 are cup shaped of three dimensional figures; the figures 2, 4 and 8 are simple geometrical two dimensional figures and the figures 3, 6 and 7 are two-dimensional figures containing two straight lines which divide the figure into four parts.

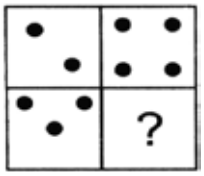
Thus, the given nine figures can be grouped into three classes (1,5, 9), (2,4,8) and (3, 6,7).

PART - IV : FIGURE MATRIX

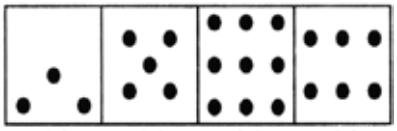
In this chapter, we deal with questions which have either 2 × 2 or 3 × 3 matrix. These matrix are formed by a group of figures. Corresponding rows or columns follow a certain pattern. You are required to analyse each of the sets to find out the common pattern and then on the basis of that the missing figure is to be identified from a set of alternatives, so as to complete the matrix.

Ex.23-25. In each of the following questions, find out which of the answer figures (A), (B), (C) and (D) completes the figure matrix?

Ex.23. Problem Figure



Answer Figures

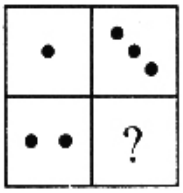


(A) (B) (C) (D)

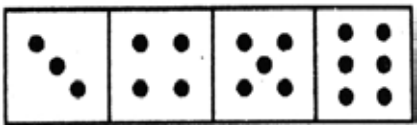
Sol.(D) Clearly, in the upper row, the number of dots in the second figure is twice the number of dots in the first figure. Similarly, in the lower row, the number of dots in the second figure must be twice the number of dots in the lower first figure.

So, number of dots in missing segment is =2×3 = 6

Ex.24. Problem Figure



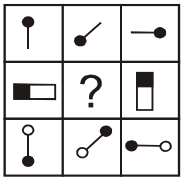
Answer Figures



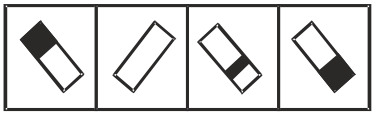
(A) (B) (C) (D)

Sol.(D) Clearly in the upper-row the number of dots in the second figure is thrice the number of dots in the first figure. Similarly, in the lower-row, the number of dots in the second figure must be thrice the number of dots in the first figure. So, the number of dots in the missing figure must be 2 × 3 = 6.

Ex.25. Problem Figure



Answer Figures



(A) (B) (C) (D)

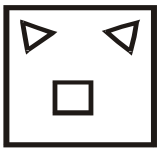
Sol.(D) Clearly, in each row, the second figure is obtained by rotating the first figure through 135° ACW and the third figure is obtained by rotating the second figure through 135° ACW.

PART - V : FORMATION OF FIGURES

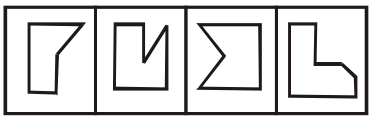
In this chapter, we deal with questions which are based on formation of a figure from various given parts, fragmentation of a figure into simple parts; choosing the patterns with identical components and rearrangement of pattern.

Ex.26. In the following question, find out which of the figures (A), (B), (C) and (D) can be formed from the pieces given in the problem figure.

Problem Figure

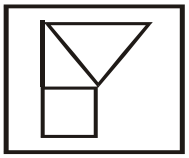


Answer Figures

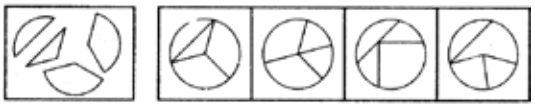


(A) (B) (C) (D)

Sol.(A) Using all the components given in problem figure we can arrange them as



Ex.27.



(X) (A) (B) (C) (D)

Sol.(A)

EXERCISE

Q.1-6. Select a figure from the four alternation figures, which when placed in the missing portion (?) of the original figure as shown by figure **(X)** , would complete the pattern.

Q.1.

(X) **(A)** **(B)** **(C)** **(D)**

Q.2.

(X) **(A)** **(B)** **(C)** **(D)**

Q.3.

(X) **(A)** **(B)** **(C)** **(D)**

Q.4.

(X) **(A)** **(B)** **(C)** **(D)**

Q.5.

(X) **(A)** **(B)** **(C)** **(D)**

Q.6.

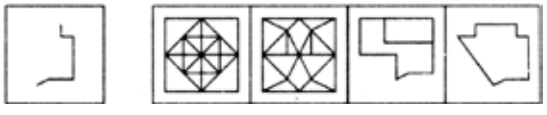
(X) **(A)** **(B)** **(C)** **(D)**

Q.7-12. In each of the following questions, you are given a fig, **(X)** followed by four alterative figures (a), (b), (c) and (d) such that fig. **(X)** is embedded in one of them. Trace out the alternative figure which contains fig. **(X)**

Q.7.

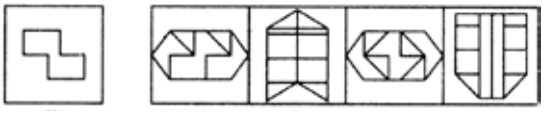
(X) **(A)** **(B)** **(C)** **(D)**

Q.8.



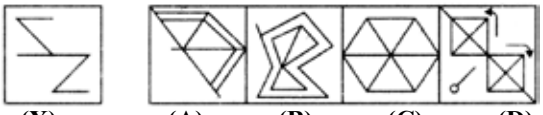
(X) **(A)** **(B)** **(C)** **(D)**

Q.9.



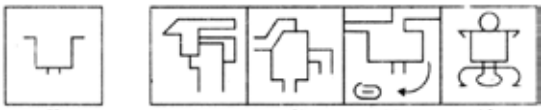
(X) **(A)** **(B)** **(C)** **(D)**

Q.10.



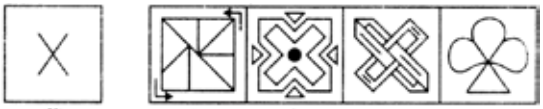
(X) **(A)** **(B)** **(C)** **(D)**

Q.11.



(X) **(A)** **(B)** **(C)** **(D)**

Q.12.



(X) **(A)** **(B)** **(C)** **(D)**

Q.13-17. In each of the following questions, group the given figures into three classes using each figure only once.

Q.13.

1 2 3 4 5 6 7 8 9

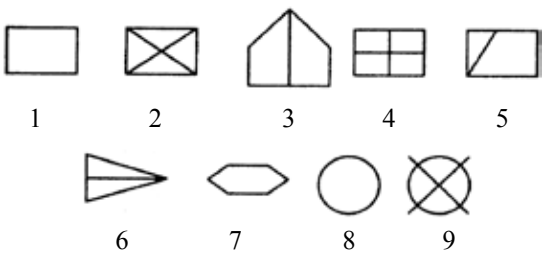
(A) 7,8,9; 2,4,3; 1,5,6

(B) 1,3,2; 4,5,7; 6,8,9

(C) 1,6,8; 3,4,7; 2,5,9

(D) 1,6,9; 3,4,7; 2,5,8

Q.14.



1 2 3 4 5

6 7 8 9

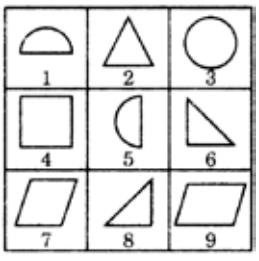
(A) 1,2,4; 3,5,6; 7,8,9

(B) 1,7,8; 3,5,6; 2,4,9

(C) 1,3,4; 2,8,9; 5,6,7

(D) 1,7,8; 2,3,6; 4,5,9

Q.15.



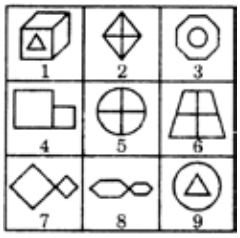
(A) 1,3,5 ; 2,6,9 ; 4,7,8

(B) 2,3,4; 5,6,8; 9,1,7

(C) 1,3,5 ; 2,6,8 ; 4,7,9

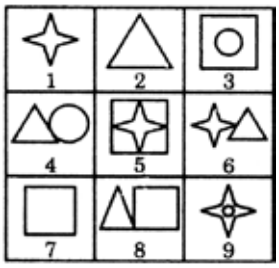
(D) 3,2,4; 6,5,8; 7,9,1

Q.16.



(A) 1,3,9 ; 2,5,6 ; 4,7,8
(B) 1,3,9 ; 2,7,8 ; 4,5,6
(C) 1,2,4 ; 3,5,7 ; 6,8,9
(D) 1,3,6 ; 2,4,8 ; 5.7,9

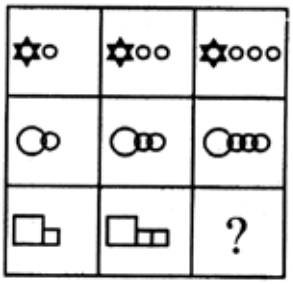
Q.17.



(A) 3,4.9 ; 5,7,8 ; 1,2,6
(B) 1,5,6 ; 2,4,8 ; 3,7,9
(C) 4,6,8 ; 3,5,7 ; 1,2,9
(D) 1,2,7 ; 3,5,9 ; 4,6,8

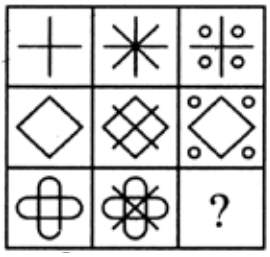
Q.18-22. Each of the following question find out which of the answer figure **(A)**, **(B)**, **(C)** and **(D)** complete the figure matrix.

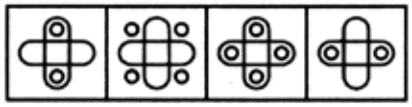
Q.18.



(A) **(B)** **(C)** **(D)**

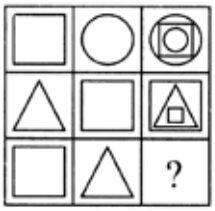
Q.19.

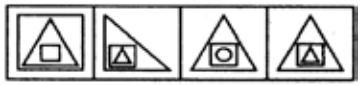




(A) **(B)** **(C)** **(D)**

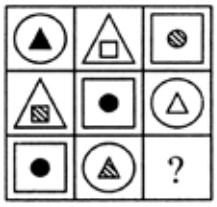
Q.20.





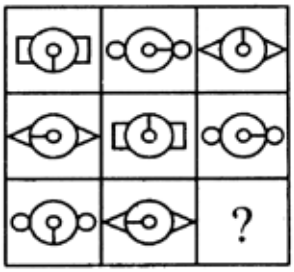
(A) **(B)** **(C)** **(D)**

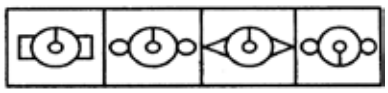
Q.21.



(A) **(B)** **(C)** **(D)**

Q.22.

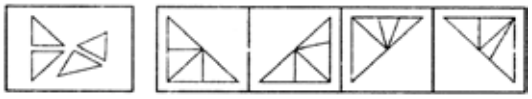




(A) **(B)** **(C)** **(D)**

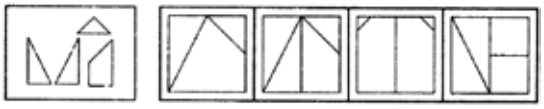
Q.23-28. In each of the following question, find out which of the answer figures (A), (B), (C) and (D) can be formed from the pieces given in the problem figure (X).

Q.23.



(X) **(A)** **(B)** **(C)** **(D)**

Q.24.

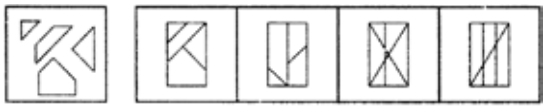


(X) (A) (B) (C) (D)

Q.25.

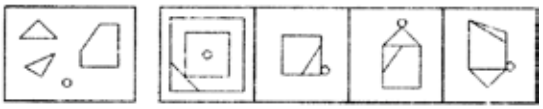
(X) (A) (B) (C) (D)

Q.26.



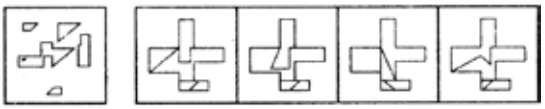
(X) (A) (B) (C) (D)

Q.27.



(X) (A) (B) (C) (D)

Q.28.



(X) (A) (B) (C) (D)

EXPLANATION

Q.1.(C)	Q.2.(D)	Q.3.(C)	Q.4.(D)	Q.5.(A)	Q.6.(D)	Q.7.(D)	Q.8.(D)	Q.9.(C)	Q.10.(D)
Q.11.(D)	Q.12.(D)	Q.13.(D)	Q.14.(B)	Q.15.(C)	Q.16.(A)	Q.17.(D)	Q.18.(A)	Q.19.(B)	Q.20.(D)
Q.21.(D)	Q.22.(A)	Q.23.(B)	Q.24.(B)	Q.25.(B)	Q.26.(A)	Q.27.(C)	Q.28.(A)		

NOTES

CHAPTER-25
NON-VERBAL (SERIES, ANALOGY AND CLASSIFICATION)

Scan the QR code to get video of this chapter.

INTRODUCTION

Non-verbal reasoning tests consist of those tests in which figures, digits, letters and symbols are used. The instruction or direction given before the questions need careful understanding. In these tests, your power of logical reasoning, speed of thinking and the ability to differentiate or find co-relations between given objects/figures/patterns will be tested. Non-verbal tests make use of diagrams, figures or designs to evaluate your mental ability, speed of reasoning and differeniation etc., rather than academic knowledge. Most non-verbal reasoning tests can be classified under the following categories.

Type 1 : Series (sequence/order)

Type 2 : Analogy

Type 3 : Classification (odd man out)

PART - 1 : SERIES

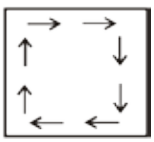
This chapter deals with the problems based upon the continuation of figures. There are various types of problems on series. However, the fundamental concept for each type is the same. There is a sequence of figures depicting a change step by step. Either one of these figures is out of order and has to be omitted or figure has to be selected from a separate set of figures which would continue the series.

There are two directions mostly used in the figures.

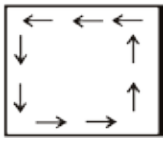
(I) Clock-wise direction

(II) Anticlock-wise direction

(I) A Clock-wise direction movement will be as in a square boundary.



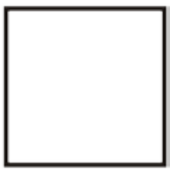
(II) Anticlock-wise direction moves like this in a square boundary will be as:



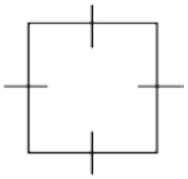
or opposite of clockwise direction.

Note :-

In a square boundary means a square box.



First of all we divide the box into four parts like this-



(I) 45^o means 1/2 step CW or ACW.

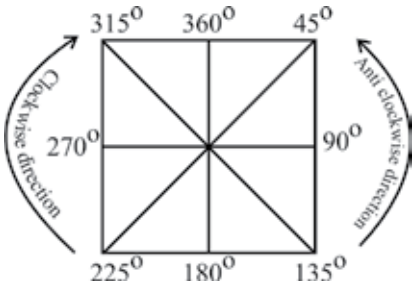
(II) 90^o means 1 step CW or ACW.

(III) 135^o means $1\frac{1}{2}$ step CW or ACW.

(IV) 180^o means 2 step CW or ACW.

or opposite movement of symbols/number/letter means 180^o movement CW/ACW.

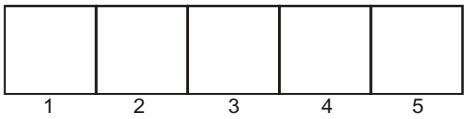
Memorable Points



In nonverbal 45^0 = 1/2 place, 90^0 = 1 place, 135^0 = $1\frac{1}{2}$ and so on.

Preference Order

Non verbal can easily solve with the help of these preference order of the series.



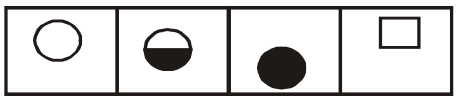
- 1, 2, 3, 4, 5, 6, --------
- 1, 2/ 1, 2/ 1, 2/ -------
- 1, 2, 3,/ 1, 2, 3,/ 1, 2, 3,/ -------
- 1, 3,/ 2, 4,/ 4, 6, -------
- 1, 3, 5,/ 2, 4, 6, -------
- 1, 2, 3, 4,/ 1, 2 -------
- 1, 2, 3, 4, 5,/ 1 -------
- 1, 4,/ 2, 5,/ 3, 6, -------

FOUR FIGURE SERIES

In this case the series or the sequence is indicated by four problem figures and it is required to select a figure from amongst the answer figures, which would be fifth figure to continue the series.

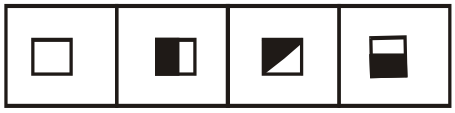
Ex.1-2. Select a figure from the answer set (A, B, C, and D) which would continue the series indicated by the four figures of the problem set.

Ex.1. PROBLEM FIGURES



(1) (2) (3) (4)

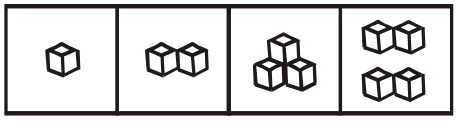
ANSWER FIGURES



(A) (B) (C) (D)

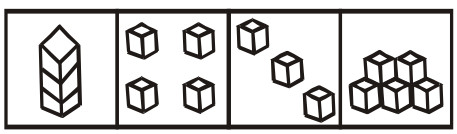
Sol.(D) The white figure gets its lower half shaded in first step, gets shaded completely in the second step and gets replaced by a new white figure in the third step and then the above steps are repeated.

Ex.2. PROBLEM FIGURES



(1) (2) (3) (4)

ANSWER FIGURES



(A) (B) (C) (D)

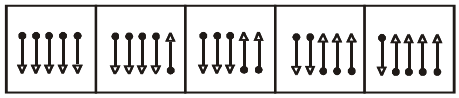
Sol.(D) Number of cubes increase by one in every subsequent figure.

FIVE FIGURE SERIES

This type of problems on series consist of five figures numbered. 1, 2, 3, 4 and 5 forming the problem set, followed by four other figures A, B, C, and D forming the Answer set. The five consecutive problem figures form a definite sequence and it is required to choose one of the figures from the Answer set which will continue the same sequence.

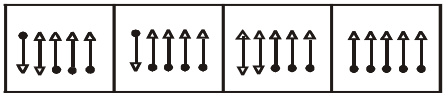
Ex.3-4. In each of the following examples find the figure from the Answer set (i.e. figures A, B, C, and D) which will continue the series given in the Problem set.

Ex.3. PROBLEM FIGURES



(1) (2) (3) (4) (5)

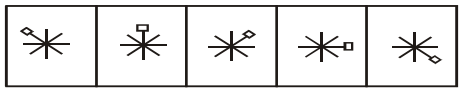
ANSWER FIGURES



(A) (B) (C) (D)

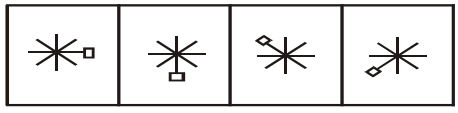
Sol.(D) One of the pins gets inverted in each step.

Ex.4. PROBLEM FIGURES



(1) (2) (3) (4) (5)

ANSWER FIGURES



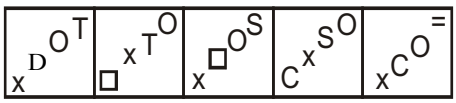
(A) (B) (C) (D)

Sol.(B) Here, the square rotates half step clockwise in every subsequent figure.

Lets see some more examples of four and five figures:

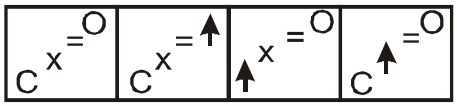
Ex.5-21. In each of the questions given below which one of the following answer figures on the right should come after the problem figures on the left, if the sequence were continued ?

Ex.5. PROBLEM FIGURES



(1) (2) (3) (4) (5)

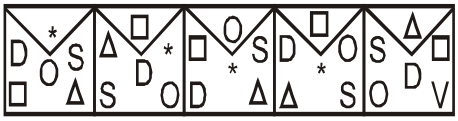
ANSWER FIGURES



(A) (B) (C) (D)

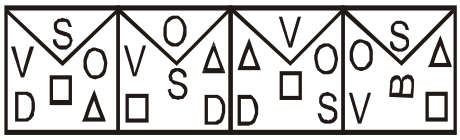
Sol.(C) The elements move in the sequences  alternately. Also, in each step, the element that reaches the encircled position, gets replaced by a new element.

Ex.6. PROBLEM FIGURES



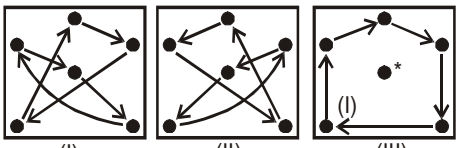
(1) (2) (3) (4) (5)

ANSWER FIGURES



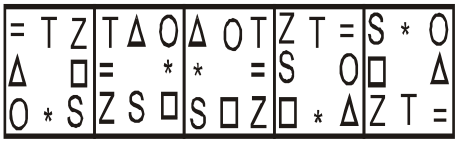
(A) (B) (C) (D)

Sol.(C)



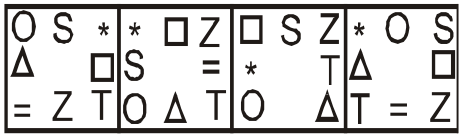
(I) (II) (III)

Ex.7. PROBLEM FIGURES



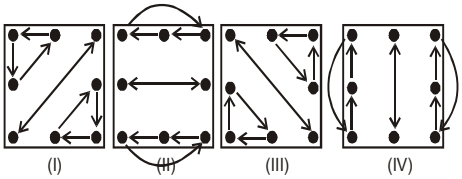
(1) (2) (3) (4) (5)

ANSWER FIGURES



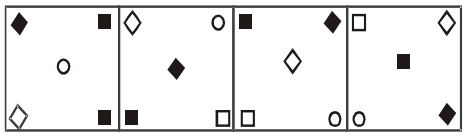
(A) (B) (C) (D)

Sol.(B)



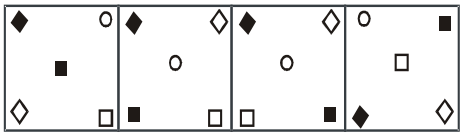
(I) (II) (III) (IV)

Ex.8. PROBLEM FIGURES



(1) (2) (3) (4)

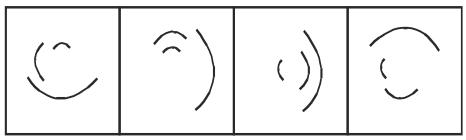
ANSWER FIGURES



(A) (B) (C) (D)

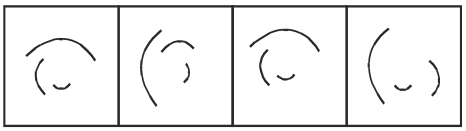
Sol.(D)

Ex.9. PROBLEM FIGURES



(1) (2) (3) (4)

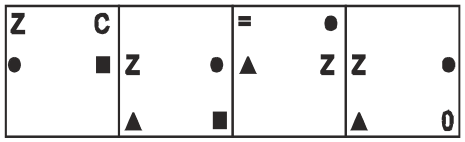
ANSWER FIGURES



(A) (B) (C) (D)

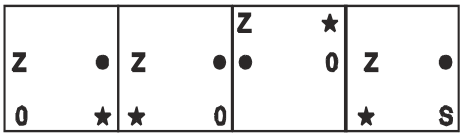
Sol.(C)

Ex.10. PROBLEM FIGURES



(1) (2) (3) (4)

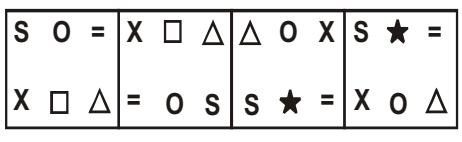
ANSWER FIGURES



(A) (B) (C) (D)

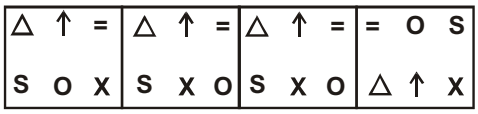
Sol.(C)

Ex.11. PROBLEM FIGURES



(1) (2) (3) (4)

ANSWER FIGURES



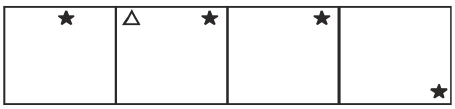
(A) (B) (C) (D)

Sol.(D)

Ex.12. PROBLEM FIGURES

(1) (2) (3) (4)

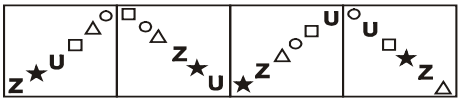
ANSWER FIGURES



(A) (B) (C) (D)

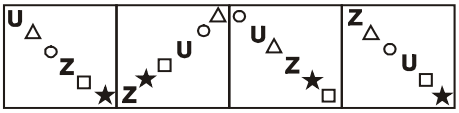
Sol.(D)

Ex.13. PROBLEM FIGURES



(1) (2) (3) (4)

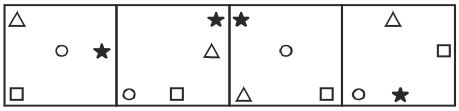
ANSWER FIGURES



(A) (B) (C) (D)

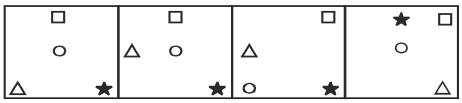
Sol.(B)

Ex.14. PROBLEM FIGURES



(1) (2) (3) (4)

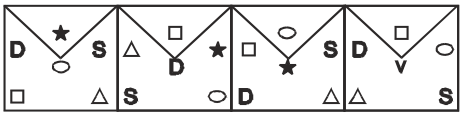
ANSWER FIGURES



(A) (B) (C) (D)

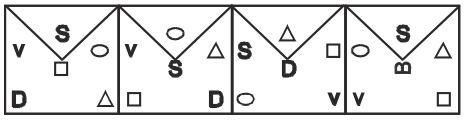
Sol.(D)

Ex.15. PROBLEM FIGURES



(1) (2) (3) (4)

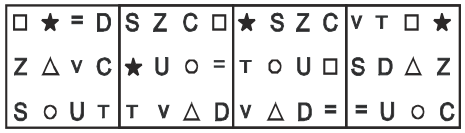
ANSWER FIGURES



(A) (B) (C) (D)

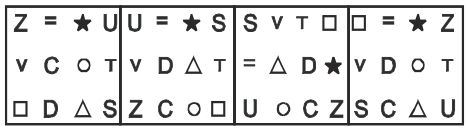
Sol.(C)

Ex.16. PROBLEM FIGURES



(1) (2) (3) (4) (5)

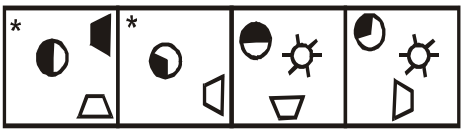
ANSWER FIGURES



(A) (B) (C) (D)

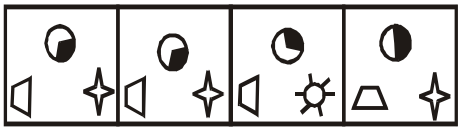
Sol.(C)

Ex.17. PROBLEM FIGURES



(1) (2) (3) (4)

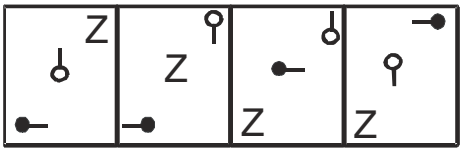
ANSWER FIGURES



(A) (B) (C) (D)

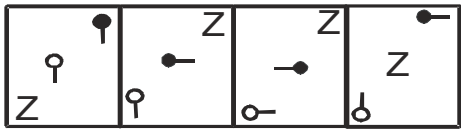
Sol.(D)

Ex.18. PROBLEM FIGURES



(1) (2) (3) (4)

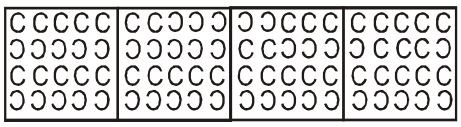
ANSWER FIGURES



(A) (B) (C) (D)

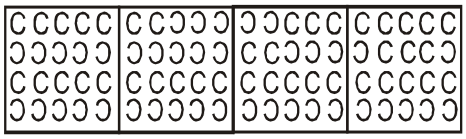
Sol.(D)

Ex..19. PROBLEM FIGURES



(1) (2) (3) (4)

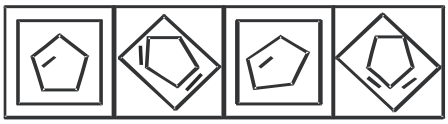
ANSWER FIGURES



(A) (B) (C) (D)

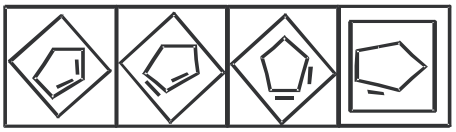
Sol.(C)

Ex.20. PROBLEM FIGURES



(1) (2) (3) (4)

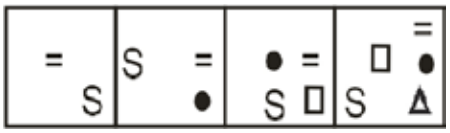
ANSWER FIGURES



(A) (B) (C) (D)

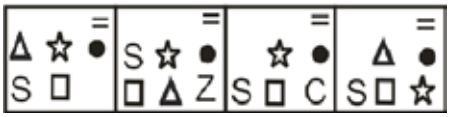
Sol.(D)

Ex.21. PROBLEM FIGURES



(1) (2) (3) (4)

ANSWER FIGURES



(A) (B) (C) (D)

Sol.(D)

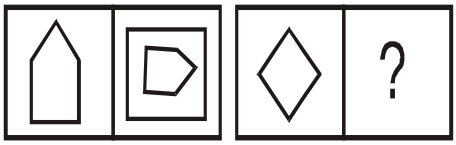
PART - II : ANALOGY

Analogy literally means 'similarity' or corresponding figure/ image i.e.(having similar features or character.) This segment of non-verbal reasoning has been designed to test the ability of a candidate to understand the relationship between two figures, which follow a certain rule, and apply the same rule to select the figure which establishes the same relationship with the figures asked in the question.

TYPE- I

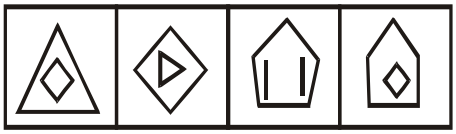
In these type of questions, two sets of figures namely problem figures and answer figures are given. The set of problem figures consists of two parts. The first part comprises two figures which have same relationship between them on the basis of certain rule. The second part comprises one figure and a sign of question mark (?) Students are asked to select one figure from the set of answer figures which replaces the sign of question mark (?) in such a way that it bears same relationship with the other figure as first figure of the first part bears with second figure of the same part, following examples illustrate the typed and methods to solve the questions on analogy.

Ex.22. PROBLEM FIGURES



(1) (2) (3) (4)

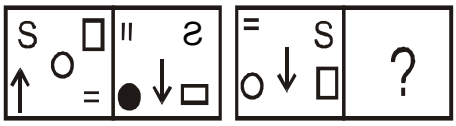
ANSWER FIGURES



(A) (B) (C) (D)

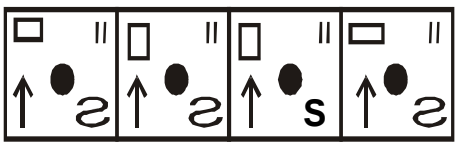
Sol.(A) From problem figure (1) to (2), the pentagon rotates 900 clockwise and a square having four sides covers it. Similarly, from figure (3) to (4) the square (having four sides) rotates 900 clockwise and will be covered by a triangle (having three sides). Hence, answer figure (A) will replace the sign of?.

Ex.23. PROBLEM FIGURES



(1) (2) (3) (4)

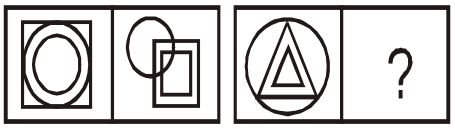
ANSWER FIGURES



(A) (B) (C) (D)

Sol.(A) From problem figure (1) to (2), all the symbols positions as shown in the diagram in such a way that symbol. S is reversed, rectangle rotates 90^0, arrow is inverted, circle is shaded and symbol = rotates 90^0, Hence, answer figure (A) will replace the sign ?

Ex.24.

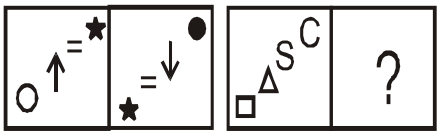


(1) (2) (3) (4)

(A) (B) (C) (D)

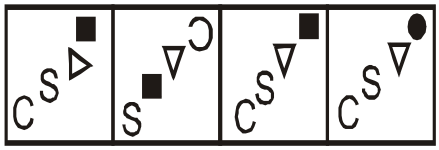
Sol.(D) From problem figure (1) to (2), double figure converted into single figure and vice-versa, Also. Figure change place in a set order. Hence, answer figure (D) is replace the sign?

Ex.25. PROBLEM FIGURES



(1) (2) (3) (4)

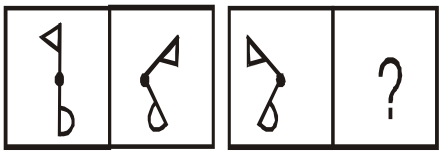
ANSWER FIGURES



(A) (B) (C) (D)

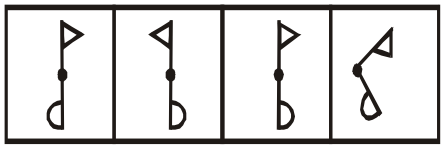
Sol.(C) Counting from bottom, first and fourth, second and third symbols interchange positions in such a way that fourth figure is shaded and third figure is inverted at new position. Hence, answer figure (C) will replace the sign of ?

Ex.26. PROBLEM FIGURES



(1) (2) (3) (4)

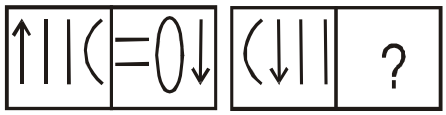
ANSWER FIGURES



(A) (B) (C) (D)

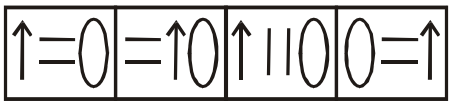
Sol.(A) Triangle and semi-circle rotate 45^0 clockwise and anti-clockwise respectively and are reversed. Hence, answer figure **(A)** will replace the sign of ?

Ex.27. PROBLEM FIGURES



(1) (2) (3) (4)

ANSWER FIGURES



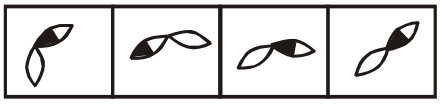
(A) (B) (C) (D)

Sol.(A) All the symbols shift to left one place and the leftmost symbol becomes the rightmost symbol from problem figure (1) to (2) in such a way that arrow is inverted double lines rotate 90^0 and the semi-circular figure completed. Hence, answer figure (A) will replace the sign of ?

Ex.28. PROBLEM FIGURES

(1) (2) (3) (4)

ANSWER FIGURES



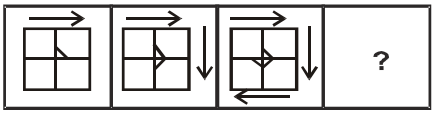
(A) (B) (C) (D)

Sol.(C) The half-shaded leaf rotates 135^oACW and the unshaded leaf rotates 135^oCW.

TYPE- II

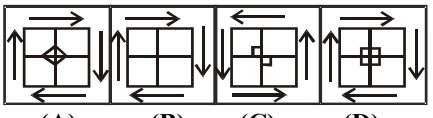
Ex.29-37. The second figure in the first part of the problem figures bears a certain relationship to the first figure. Similarly, one of the figures in answer figures bears the same relationship to the first figure in the second part. You have to select the figure from the set of answer figures which would replace the sign of question mark (?).

Ex.29. PROBLEM FIGURES



(1) (2) (3) (4)

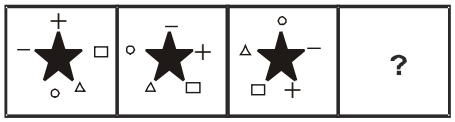
ANSWER FIGURES



(A) (B) (C) (D)

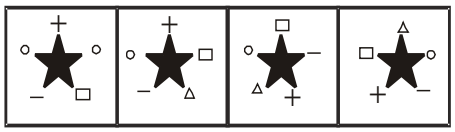
Sol.(A)

Ex.30. PROBLEM FIGURES



(1) (2) (3) (4)

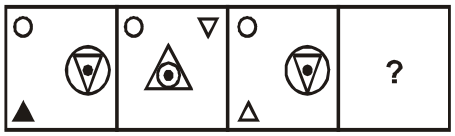
ANSWER FIGURES



(A) (B) (C) (D)

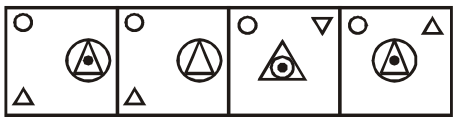
Sol.(D)

Ex.31. PROBLEM FIGURES



(1) (2) (3) (4)

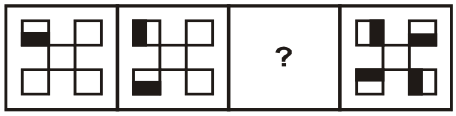
ANSWER FIGURES



(A) (B) (C) (D)

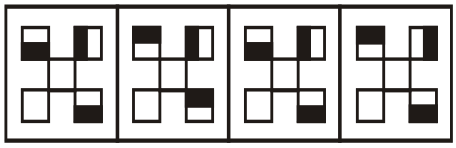
Sol.(C)

Ex.32. PROBLEM FIGURES



(1) (2) (3) (4)

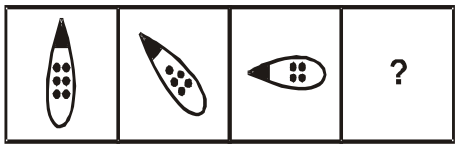
ANSWER FIGURES



(A) (B) (C) (D)

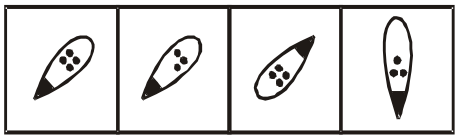
Sol.(D)

Ex.33. PROBLEM FIGURES



(1) (2) (3) (4)

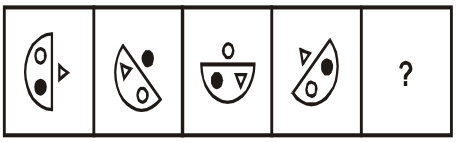
ANSWER FIGURES



(A) (B) (C) (D)

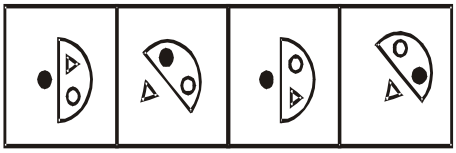
Sol.(B)

Ex.34. PROBLEM FIGURES



(1) (2) (3) (4) (5)

ANSWER FIGURES



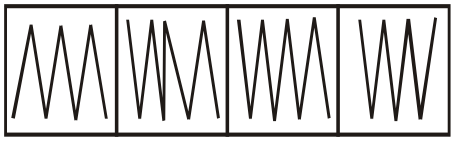
(A) (B) (C) (D)

Sol.(C)

Ex.35. PROBLEM FIGURES

(1) (2) (3) (4) (5)

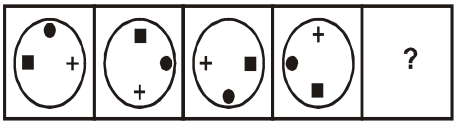
ANSWER FIGURES



(A) (B) (C) (D)

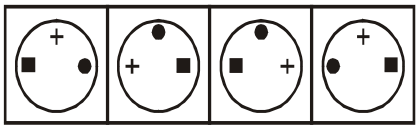
Sol.(D)

Ex.36. PROBLEM FIGURES



(1) (2) (3) (4) (5)

ANSWER FIGURES



(A) (B) (C) (D)

Sol.(C)

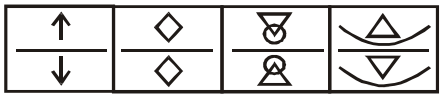
PART - III : CLASSIFICATION (CHOOSING THE ODD FIGURE)

In the chapter on classification, we deal with problems of **"Odd-One-Out"** type. In such problems we are given a set of figures, such that, all except one have similar characteristics/ features. We are required to select the figure which differs from all other figures in the given set. Several other types of problems based upon classification are also discussed in details in this chapter.

Direction

Ex.37-45. Out of the five given figures, four are similar in a certain way. One figure is not like the other four. That means four figures form a group based on some common characteristics. Find out the figure which does not belong to the group i.e., which does not share the common features/characteristics with the other four figures.

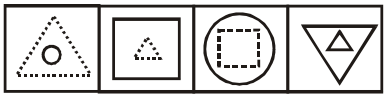
Ex.37.



(A) (B) (C) (D)

Sol.(D) In all other figures, the two figures on either side of the line are inverted image of one another.

Ex.38.



(A) (B) (C) (D)

Sol.(D) In all other cases, one of the two figures is made of dotted lines.

Ex.39.

(A) (B) (C) (D)

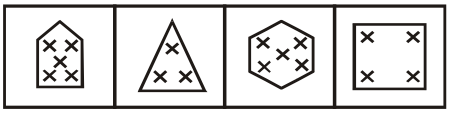
Sol.(B) Each one of the figures except fig. (B), is obtained by the lateral inversion of an English alphabet.

Ex.40.

(A) (B) (C) (D)

Sol.(A) In all other figures, all the line segments are drawn perpendicular to one base only.

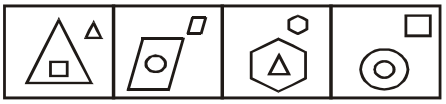
Ex.41.



(A) (B) (C) (D)

Sol.(C)

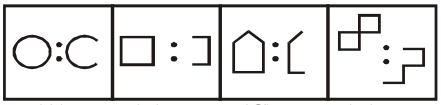
Ex.42.



(A) (B) (C) (D)

Sol.(D)

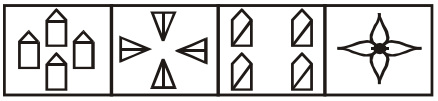
Ex.43.



(A) (B) (C) (D)

Sol.(D)

Ex.44.



(A) (B) (C) (D)

Sol.(D)

Ex.45.

(A) (B) (C) (D)

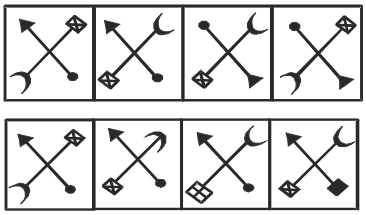
Sol.(C)

EXERCISE

SERIES:

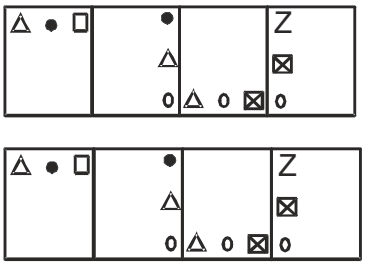
Q.1-5. In each of the questions given below which one of the following five answer figures on the right should come after the problem figures on the left, if the sequence were continued ?

Q.1.



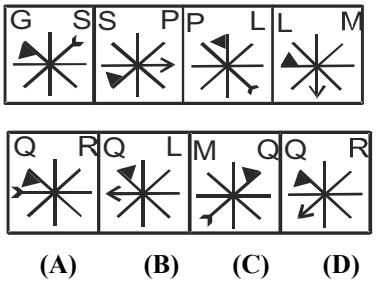
(A) (B) (C) (D)

Q.2.



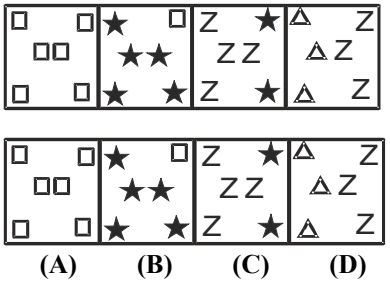
(A) (B) (C) (D)

Q.3.



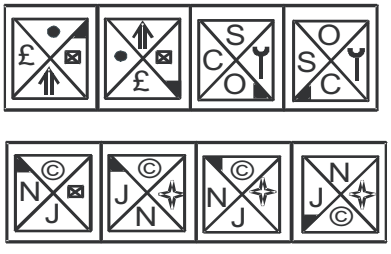
(A) (B) (C) (D)

Q.4.



(A) (B) (C) (D)

Q.5.

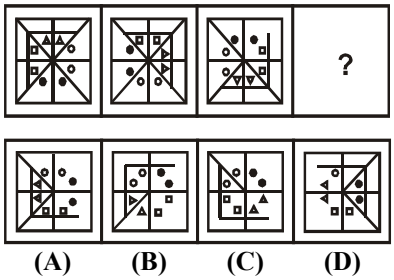


(A) (B) (C) (D)

ANALOGY:

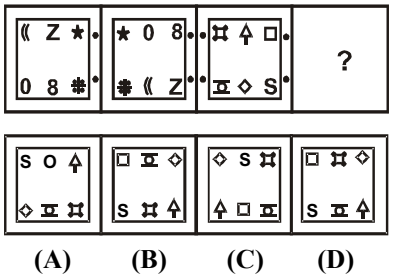
Q.6-10. The second figure in the first part of the problem figures bears a certain relationship to the first figure. Similarly, one of the figures in answer figures bears the same relationship to the first figure in the second part. You have to select the figure from the set of answer figures which would replace the sign of question mark (?).

Q.6.



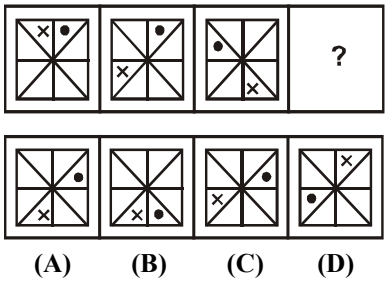
(A) (B) (C) (D)

Q.7.



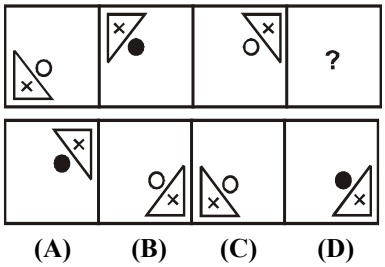
(A) (B) (C) (D)

Q.8.



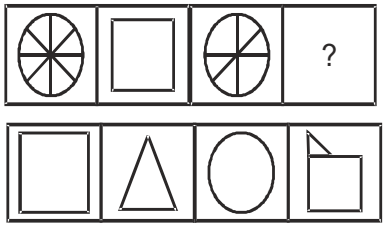
(A) (B) (C) (D)

Q.9.



(A) (B) (C) (D)

Q.10.

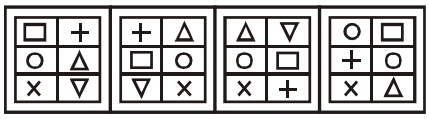


(A) (B) (C) (D)

CLASSIFICATION:

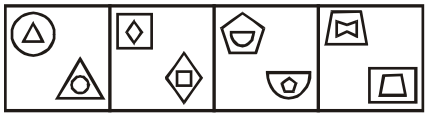
Q.11-15. Out of the five given figures, four are similar in a certain way. One figure is not like the other four. That means four figures form a group based on some common characteristics. Find out the figure which does not belong to the group i.e., which does not share the common features/characteristics with the other four figures.

Q.11.



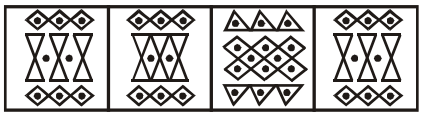
(A) **(B)** **(C)** **(D)**

Q.12.



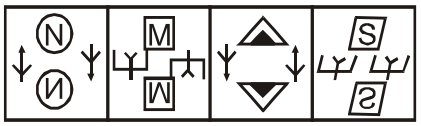
(A) **(B)** **(C)** **(D)**

Q.13.



(A) **(B)** **(C)** **(D)**

Q.14.



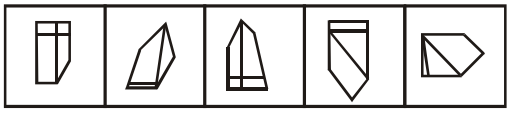
(A) **(B)** **(C)** **(D)**

Q.15.

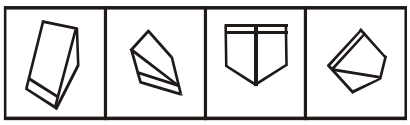
(A) **(B)** **(C)** **(D)**

Q.16-20. In the given series, figures can be classified in different classes choose the suitable option from the given one as answer.

Q.16.



1 2 3 4 5



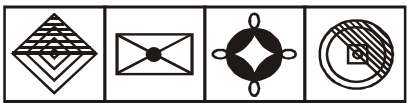
6 7 8 9

(A) 1,4,8/6,9,5/2,3,7 **(B)** 1,4,8/2,9,5/6,3,7

(C) 1,6,9/4,8,5/2,3,7 **(D)** 1,4,8/2,3,5/6,9,7

Q.17.

1 2 3 4 5

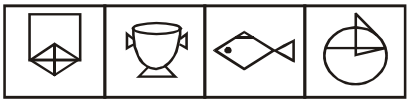


6 7 8 9

(A) 1,6,9/2,5,8/3,4,7 **(B)** 2,4,9/1,6,7/3,5,8

(C) 2,6,9/1,5,8/3,5,8 **(D)** 1,6,9/2,4,7/3,5,8

Q.18.



1 2 3 4

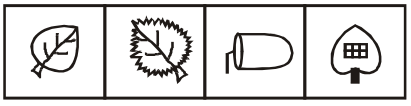
5 6 7 8 9

(A) 1,6,9/3,4,8/2,5,7 **(B)** 1,4,8/3,6,9/2,5,7

(C) 1,4,8/3,5,7/2,4,8 **(D)** 1,4,9/6,2,8/3,5,7

Q.19.

1 2 3 4 5



6 7 8 9

(A) 1,4,9/2,5,8/3,6,7 **(B)** 1,4,9/3,5,8/2,6,7

(C) 2,5,9/1,4,8/3,6,7 **(D)** 1,3,5/2,4,6/7,8,9

Q.20.

1 2 3 4 5

6 7 8 9

(A) 1,4,7/2,5,8/3,6,9 **(B)** 1,4,9/3,5,8/2,6,7

(C) 1,4,8/3,5,7/2,4,8 **(D)** 1,4,9/6,2,8/3,5,7

EXPLANATION

Q.1.(A) In Ist step the right & lower left element gets interchange while other two remain same. In next step the remaining two gets interchange and other remain same. The is process follows alternatively.

Q.2.(C) All the elements of the row move 90^0 CW direction and left two elements interchange their position and IIIrd gets new. In next the right side two element interchange their position and remaining becomes new. And this process repeats.

Q.3.(C) The shaded figure first move two step ACW and then 3 Step CW and repeated and change its direction reverse in each step. The'<' signs one step CW in each step and change its direction reverse. The letters on cornes interchanges and Ist let- ter become new.

Q.4.(A) In each successive figure 5, 4, 3, 2, 1 new elements in added. And one, two three four five element from old designs is added in next step. And 4, 3, 2, 1 new element is added in next step.

Q.5.(D) The shaded part of triangle moves 1 step CW in adjacent figure. Middle right element is in order of 1, 2 and 3, 4 and 5,6 same and other there elements move ACW.

Q.6.(A) Each next figure rotates 90^0 clockwise.

Q.7.(B) The next figure will be the figure gien in the option (B).

Q.8.(D) Correct represent of P's journing has been given in option (C).

Q.9.(D) In this symbol 'X' rotates 90^0 anticlockwise while this is not so in option (D).

Q.10.(B) In the figure one there are four diameters in circle hence they four diameter formed a suare in figure 3 there are three diameters hence they will form a triangle.

Q.11.(D) Figure (D) has one triangle while other figures has two triangle. in the next figure and circle shape rotates 45^0 anticlockwise.

Q.12.(D) Except option (D) first and second shapes are alternatively inside one and another while in option (D) the shape is changed.

Q.13.(C) In option (C) the number of dots is 14 while in other figures the number of dots is 8.

Q.14.(D) Except option (D) the symbols in all figures are reversed like water image while this is not so in option (D).

Q.15.(B) Only in figure (2), one identical pairs of the line segment is parallel to each other and in other pairs, one line is obtained by inverting the other line.

Q.16.(A) In figures 1,4,8 there is a triangle inside a outer north-east corner.

Q.17.(D) 1,6,9 are light emitting instruments. 2, 4, 7 □ goods related with cricket and 3, 5, 8 □ study materials.

Q.18.(B) Shapes 1, 4, 8 are geometrical shapes 3, 6, 9 fish like and shapes 2, 5, 7 cup like.

Q.19.(A) Shapes 1, 4, 9 triangular shapes 2, 5, 8 cylindrical and shapes 3,

Q.20.(A) Shapes 1, 4, 7 are based on a triangle shapes 2, 5, 8 are kettle shape designs shapes 3, 6, 9 are flower designs based on semi circle.

NOTES

CHAPTER-26
MATRIX

Scan the QR code to get video of this chapter.

In the following question, a word is represented by only one set of number as given in any one of the alternative. The set of number given in the alternatives are represented by two classes of alphabets as in two matrixs given below.

Ex.1-2. The columns and rows Matrix - I are numbered from 0 to 4 and that of Matrix - II are numbered from 5 to 9. A letter from these matrix is to be represented first by its row and then by its column, e.g 'D' can be represented by 41, 32, 23 etc and 'M' 85, 76, 67 etc.

Matrix - I

	0	1	2	3	4
0	D	O	B	A	I
1	O	B	A	I	D
2	B	A	I	D	O
3	A	I	D	O	B
4	I	D	O	B	A

Matrix - II

	5	6	7	8	9
5	W	N	R	M	L
6	N	R	M	L	W
7	R	M	L	W	N
8	M	L	W	N	R
9	L	W	N	R	M

Ex.1. What is the code of **'LAMB'?**

(A) 77, 30, 85, 11 **(B)** 77, 30, 85, 22

(C) 77, 30, 86, 11 **(D)** 77, 32, 85, 11

Sol.(A)

Ex.2. What is the code of **'WORD'?**

(A) 69, 24, 75, 21 **(B)** 69, 24, 75, 23

(C) 69, 24, 78, 23 **(D)** 69, 20, 75, 23

Sol.(B)

Ex.3-4. The columns and rows Matrix - I are numbered from 0 to 4 and that of Matrix - II are numbered from 5 to 9. A letter from these matrix is to be represented first by its row and then by its column, e.g 'D' can be represented by 40, 23, 34, etc and 'E' 77, 69, 55 etc.

MATRIX -I

	0	1	2	3	4
0	L	D	T	I	B
1	I	B	D	L	T
2	T	L	B	D	I
3	B	I	L	T	D
4	D	T	I	B	L

MATRIX -II

	5	6	7	8	9
5	E	R	A	O	N
6	N	A	O	R	E
7	R	O	E	N	A
8	A	N	R	E	O
9	O	E	N	A	R

Ex.3. What is the code of **'ABIDE'?**

(A) 98, 43, 24, 33, 69 **(B)** 85, 22, 03, 34, 77

(C) 66, 30, 32, 12, 55 **(D)** 85, 22, 03, 32, 77

Sol.(B) 85,22,03.34,77

Ex.4. What is the code of **'DARE'?**

(A) 34, 85, 75, 76 **(B)** 40, 98, 76, 69

(C) 23, 85, 99, 88 **(D)** 34, 85, 86, 88

Sol.(C) 23, 85, 99, 88

Ex.5-6. The columns and rows Matrix - I are numbered from 0 to 4 and that of Matrix - II are numbered from 5 to 8. A letter from these matrix is to be represented first by its row and then by its column, e.g 'D' can be represented by 12, 31, 43,00 etc and 'A' 87, 75, 56 etc.

Matrix - I

	0	1	2	3	4
0	D	V	C	P	M
1	P	M	D	V	C
2	V	C	P	M	D
3	M	D	V	C	P
4	C	P	M	D	V

Matrix - II

	5	6	7	8	9
5	S	A	U	T	J
6	T	J	S	A	U
7	A	U	T	J	S
8	J	S	A	U	T
9	U	T	J	S	A

Ex.5. What is the code of **CAMP?**

(A) 02,57,04,34 **(B)** 14,68,42,33

(C) 21,75,11,41 **(D)** 40,39,42,12

Sol.(C)

Ex.6. What is the code of **JUMP?**

(A) 59,57,03,04 **(B)** 85,95,30,42

(C) 78,88,23,34 **(D)** 85,95,30,44

Sol.(C)

Ex.7-8. The columns and rows **Matrix - I** are numbered from 0 to 4 and that of **Matrix - II** are numbered from **5** to **8**. A letter from these matrix is to be represented first by its row and then by its column, e.g **'A'** can be represented by **00, 12, 24, 43** etc and **'P' 04, 11, 23, 30, 42** etc.

Matrix-I

	0	1	2	3	4
0	A	E	M	N	P
1	N	P	A	E	M
2	E	M	N	P	A
3	P	A	E	M	N
4	M	N	P	A	E

Matrix-II

	5	6	7	8	9
5	I	L	R	S	T
6	R	S	T	I	L
7	T	I	L	R	S
8	L	R	S	T	I
9	S	T	I	L	R

Ex.7. What is the code of **PAIN?**

(A) 23, 00, 89, 97 **(B)** 23, 00, 89, 10

(C) 00, 89, 23, 98 **(D)** 23, 00, 97, 89

Sol.(B) P A I N

23 00 89 10

Ex.8. What is the code of **PEST?**

(A) 04, 42, 11, 32 **(B)** 32, 11, 38, 52

(C) 11, 32, 58, 88 **(D)** 32, 11, 38, 58

Sol.(C) P E S T

11 32 58 88

Ex.9-10. The columns and rows Matrix **- I** are numbered from **0** to **4** and that of Matrix - **II** are numbered from **5** to **9**. A letter from these matrix is to be represented first by its row and then by its column, e.g **'T'** can be represented by **10, 22, 34, 41** etc and **'K' 58, 65, 77, 89** etc.

Matrix I

	0	1	2	3	4
0	A	E	S	T	H
1	T	H	A	S	E
2	E	S	T	H	A
3	H	A	E	S	T
4	S	T	H	A	E

Matrix II

	5	6	7	8	9
5	P	O	R	K	L
6	K	L	P	O	R
7	O	R	K	L	P
8	L	P	O	R	K
9	R	K	L	P	O

Ex.9. What is the code of **EAST ?**

(A) 44, 32, 21, 03 **(B)** 32, 31, 02, 04

(C) 20, 43, 33, 11 **(D)** 14, 12, 13, 10

Sol.(D) EAST = 14, 12, 13, 10

Ex.10. What is the code of **LEST ?**

(A) 97, 32, 21, 34 **(B)** 87, 32, 21, 31

(C) 85, 02, 04, 22 **(D)** 66, 00, 20, 34

Sol.(A) LEST= 97, 32, 21, 34

Ex.11-12. The columns and rows **Matrix - I** are numbered from **0** to **4** and that of **Matrix - II** are numbered from **5** to **9**. A letter from these matrix is to be represented first by its row and then by its column, e.g **'R'** can be represented by **02, 13, 24** etc and **'G' 57, 68, 79** etc.

Matrix - I

	0	1	2	3	4
0	L	A	R	D	T
1	D	T	L	R	A
2	A	L	D	T	R
3	T	R	A	L	D
4	R	D	T	A	L

Matrix - II

	5	6	7	8	9
5	O	S	G	P	B
6	P	O	B	G	S
7	S	B	P	O	G
8	G	P	S	B	O
9	B	G	O	S	P

Ex.11. What is the code of **'GOAT'**?

(A) 68, 89, 44, 11 **(B)** 68, 88, 43, 11

(C) 68, 89, 43, 11 **(D)** 68, 89, 43, 12

Sol.(C) 68, 89, 43, 11

Ex.12. What is the code of **'BLOG'**?

(A) 88, 12, 78, 97 **(B)** 88, 12, 78, 96

(C) 88, 12, 79, 96 **(D)** 88, 13, 78, 96

Sol.(B) 88, 12, 78, 96

Ex.13-14. The columns and rows **Matrix - I** are numbered from 0 to 4 and that of **Matrix - II** are numbered from **5** to **9**. A letter from these matrix is to be represented first by its row and then by its column, e.g **'H'** can be represented by **44, 21, 00,** etc and **'G'** **87, 75, 58,** etc.

Matrix - I

	0	1	2	3	4
0	H	T	I	B	L
1	B	L	H	T	I
2	I	H	B	L	T
3	T	I	L	H	B
4	L	B	T	I	H

Matrix - II

	5	6	7	8	9
5	O	D	S	G	A
6	A	G	O	S	D
7	G	O	D	A	S
8	S	A	G	D	O
9	D	S	A	O	G

Ex.13. What is the code of **'HOST'**?

(A) 21,67,57,13 **(B)** 21,67,57,14

(C) 21,67,58,13 **(D)** 21,68,57,13

Sol.(A)

Ex.14. What is the code of **'BOAT'**?

(A) 34, 76, 64, 24 **(B)** 34, 76, 65, 25

(C) 34, 76, 65, 24 **(D)** 34, 76, 65, 33

Sol.(C)

Ex.15. The columns and rows Matrix - I are numbered from 0 to 4 and that of Matrix - II are numbered from 5 to 8. A letter from these matrix is to be represented first by its row and then by its column, e.g **'E'** can be represented by **30, 11, 22, 43** etc and **'L', 57, 65, 76, 88** etc.

Matrix - I

	0	1	2	3	4
0	Q	A	C	P	E
1	C	E	D	A	P
2	D	D	E	C	A
3	E	P	A	D	C
4	A	C	P	E	D

Matrix - II

	5	6	7	8	9
5	R	S	L	B	T
6	L	B	S	T	R
7	T	L	R	S	B
8	B	R	T	L	S
9	S	T	B	R	L

What is the code of '**STABLE**'?

(A) 67,75,02,97,65,22 **(B)** 67,75,01,87,65,22

(C) 67,75,01,97,65,22 **(D)** 67,75,01,97,77,22

Sol.(C) 67, 75, 01, 97, 65, 22

EXERCISE

Q.1-10. A word is represented by only one set of numbers as given in any 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, 41 etc. and 'C' can be represente d by 31, 02 etc. Identify the set for the words given below.

MATRIX - I

	0	1	2	3	4
0	E	A	C	S	E
1	J	D	E	G	I
2	G	F	S	A	B
3	S	C	H	J	D
4	B	A	G	I	S

MATRIX - II

	5	6	7	8	9
5	P	V	T	M	R
6	K	R	Q	Z	X
7	W	P	Y	R	T
8	N	Z	M	W	V
9	L	X	P	T	O

Q.1. **EAST**

(A) 12, 41, 30, 57 **(B)** 12, 14, 44, 79

(C) 12, 14, 22, 98 **(D)** 00, 41,03, 75

Q.2. **BEAR**

(A) 40, 21, 01, 59 **(B)** 04, 21, 01, 59

(C) 24, 12, 01, 59 **(D)** 24, 12, 10, 59

Q.3. **WARD**

(A) 88, 10, 78, 34 **(B)** 11, 58, 21, 78

(C) 88, 01, 78, 34 **(D)** 43, 85, 12, 78

Q.4. **GVRX**

(A) 13, 65, 78, 69 **(B)** 13, 56, 78, 96

(C) 24, 56, 87, 96 **(D)** 75, 01, 87, 34

Q.5. **DMER**

(A) 34, 87, 12, 59 **(B)** 31, 56, 87, 96

(C) 11, 85, 21, 87 **(D)** 42, 56, 78, 69

Q.6. **STFM**

(A) 04, 01, 66, 12 **(B)** 22, 79, 41, 58

(C) 21, 14, 65, 00 **(D)** 22, 57, 21, 58

Q.7. **PHBW**

(A) 55, 32, 24, 88 **(B)** 21, 41, 65, 00

(C) 97, 23, 42, 88 **(D)** 01, 14, 56, 00

Q.8. **STEM**

(A) 03, 57, 12, 87 **(B)** 56, 32, 24, 87

(C) 22, 57, 21, 85 **(D)** 76, 32, 42, 75

Q.9. **VAST**

(A) 89, 01, 22, 56 **(B)** 89, 23, 22, 75

(C) 56, 41, 44, 57 **(D)** 56, 23, 22, 75

Q.10. **FRANK**

(A) 04, 78, 01, 58, 66 **(B)** 21, 78, 41, 85, 65

(C) 21, 66, 01, 85, 56 **(D)** 04, 66,10, 58, 65

EXPLANATION

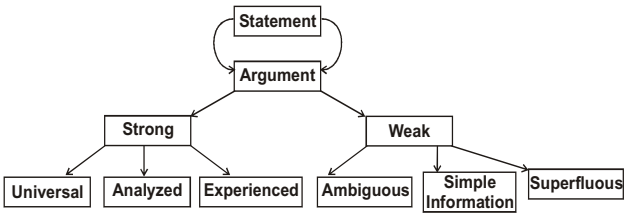
Q.1.(A) **Q.2.(C)** **Q.3.(C)** **Q.4.(B)** **Q.5.(A)** **Q.6.(D)** **Q.7.(A)** **Q.8.(A)** **Q.9.(C)** **Q.10.(B)**

NOTES

CHAPTER-27
STATEMENT AND ARGUMENT COURSE OF ACTION

Scan the QR code to get video of this chapter.

An Argument is designed to either support or defend a statement. An argument generates only after the accomplishment of the statement.



TYPES OF STRONG ARGUMENT

1. **UNIVERSAL TRUTH:** If any argument is universally accepted that cannot be denied and it has link with the statement then it will be a universal truth.
   EXAMPLE : Light travels faster than sound. The argument is universal and it will be generally accepted.
2. **ANALYZED TRUTH :** The decision taken by our government, Supreme Court, constitutional body, United Nations or any Supreme authority is always welcomed and is deemed as an analyzed truth.
   EXAMPLE : "Aadhar Card is mandatory for LPG Connection" - said by government
3. **EXPERIENCE BASED :** If any argument is said on the basis of experience then it will be accepted.
   EXAMPLE : All bank branches in rural areas should be computerized.

TYPES OF WEAK ARGUMENT

1. **AMBIGUOUS :** The argument which creates doubt or confusion is taken as ambiguous argument.
   EXAMPLE : One should eat, drink freely because tomorrow one has to die.
2. **SIMPLE INFORMATION :** If any argument shows that the sentence is immitating/copying anything then it can not be accepted.
   EXAMPLE : Sachin should take retirement from cricket because most of the cricketers at his age prefer to retire.
   So, it will be a weak argument because it shows the immitation/copy of another sports persons.
3. **SUPERFLUOUS :** If any argument is next to impossible then it is taken as superfluous.
   In making decisions about important questions, it is desirable to be able to distinguish between 'strong' arguments and 'weak' arguments. '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.

Ex.1-2. Each question below is followed by three arguments numbered (I), (II) and (III). You have to decide which of the arguments is a 'strong'argument and which is a 'weak'argument.

(A) Only I and II are strong.
(B) Only II is strong.
(C) Only II and III are strong.
(D) All I, II and III are strong.

Ex.1. **Statement :** Should the govt. roll back all the subsidies on the petrol, diesel and cooking gas?

Arguments :

I. Yes, this will largely help the oil companies to sell their products at competitive price.
II. No, the general public cannot afford the original prices of these products.
III. Yes, govt. needs to stop subsidizing these products and channelize the money for developmental projects.

Sol.(A) First and second arguments are strong because govt. provides subsidies on that products which real cost is high and the products which are important for daily routine. Hence, the original cost will be more costly for the public due to the roll back of subsidies on that products and companies will start selling the products at different prices according to their quality.
In the other statement nothing is given about development planning.

Ex.2. **Statement :** Should the institutes of higher learnings in India like IITs and IIMs be made totally free from govt. control ?

Arguments :

I. Yes, such institutes in the developed countries are run by non-govt agencies.
II. No, govt. needs to regulate functioning of these institutes for national interest.
III. No, these institutes are not capable to take policy decisions for smooth functioning.

Sol.(B)

EXERCISE

Q.1-20. Each question below is followed by a statement and two arguments I and II. You have to decide which of the following arguments is a strong argument and which is a weak. In making decisions about important questions, it is desirable to be able to distinguish between strong arguments and weak arguments so for 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. Give Answer -

(A) If only argument I is strong.

(B) If only argument II is strong.

(C) If neither I nor II is strong.

(D) If both I and II are strong.

Q.1. **Statement:** Should private companies be allowed in infrastructure sector?

Arguments:

I. Yes, this is necessary to mobilise private money in the development process.

II. No, private companies are interested only in profit making.

Q.2. **Statement:** Should dams be built on rivers.

Arguments:

I. No, some dam projects have proved to be unsuccessful in recent years.

II. Yes, They are beneficial in checking floods and conserving soil.

Q.3. **Statement:** Should government servants in reveal areas have more incentives?

Arguments:

I. Yes, incentives are necessary to generate interest among government servants to go in rural areas.

II. No, rural areas are cheaper, healthier, and less Complex than urban centres. Therefore why such incentives?

Q.4. **Statement:** Is our young generation enjoy the old melodious songs?

Arguments:

I. Yes, the modern songs lack rhythm and taal.

II. No, the old songs lack the fastness and loud music.

Q.5. **Statement:** Should the standard of questions in the competitive exams be lower or easier?

Arguments:

I. Yes, Students feel embarrassed in examination hall.

II. No, it hardly matters in a Competitive exam as the questions appear tough to all examinees.

Q.6. **Statement:** Should India adopt capitalist pattern of economy instead of mixed economy?

Arguments:

I. No, For this we'll have to amend our constitution and our credit will be at stake.

II. Yes, This is the only way adopted by developing countries.

Q.7. **Statement:** Should admission in schools be under the complete control of respective state government?

Arguments:

I. Yes, This will diminish the importance of members of the school management.

II. No, Because of this there will delay into getting admission, standard of schools will fall and it will instigate corruption.

Q.8. **Statement:** Should physical penalty be completely banned in schools?

Arguments:

I. No, During tender and formative age penalty and discipline help the formulation of norms.

II. Yes, Many physical penalties hurt the ego of a person and he will towards violence means.

Q.9. **Statement:** Should municipal corporations be turned into public limited companies to enhance their efficiency and to reduce their expenditure?

Arguments:

I. Yes, Because this will bring the culture of professional management and public will get service at rationale charges.

II. No, The process of election for local bodies will come to an end in absence of any elected corporator.

Q.10. **Statement:** Should National Cadet Cores (NCC) be made compulsory for all college students?

Arguments:

I. Yes, This is in practice in many countries.

II. No, This will have impact on student's concentration and many poor students will fail in their study.

Q.11. **Statement:** Should women be given equal opportunity in matter of employment in every field?

Arguments:

I. Yes, They are equally capable.

II. No, They have household responsibilities too.

Q.12. **Statement:** Should trade unions be banned completely?

Arguments:

I. No, This is the only way through which employees can put their demands before management.

II. Yes, Employees get their illegal demands fulfilled through these unions.

Q.13. **Statement:** Should the habit of late coming in educational institutions be checked?

Arguments:

I. No. Until it affects the work.

II. Yes, Discipline must be maintained.

Q.14. **Statement:** Should children be prevented completely from watching television?

Arguments:

I. No, We get vital information regarding education through television.

II. Yes, it hampers the study of children.

Q.15. **Statement:** Should seniority be the only criteria for the promotion?

Arguments:

I. No, All the senior employees are not interested in promotion.

II. Yes, Otherwise senior employees do feel humiliated.

Q.16. **Statement:** Should military training of 3 years be made compulsory to all able bodies' youths in India?

Arguments:

I. Yes, similar practice is being followed in some developed countries.

II. No, compulsion spoils the best in everything.

Q.17. **Statement:** Should Government standardize rent for rented houses in big cities in India?

Arguments:

I. No, it is an interference in the relationship between landlord and tenant.

II. Yes, Government can do it, provided it has political will to do it.

Q.18. **Statement:** Should old and poorly maintained petrol/diesel vehicles like auto rickshaw, taxies which generate heavy pollution be banned for public services in big cities?

Arguments:

I. Yes, it will reduce pollution level in these cities which will enhance health of citizen.

II. No, what the poor auto rickshaw/taxi drivers will do for their survival.

Q.19. **Statement:** Should Government dependent loss making academic institutes like Universities/Colleges be closed down in India?

Arguments:

I. Yes, they are only creating batches of unemployable young graduates.

II. Yes, none of the developed countries support universities by such massive financing.

Q.20. **Statement:** Should the system of paying minimum purchase price for farmers for wheat, rice and like be scrapped in India?

Arguments:

I. No, farmers who produce our staple food must get decent return on their investment and labour in a Welfare State like India.

II. Yes, it is an outdated practice which we must discard.

EXPLANATION

Q.1.(A)	**Q.2.(B)**	**Q.3.(A)**	**Q.4.(C)**	**Q.5.(B)**	**Q.11.(A)**	**Q.12.(C)**	**Q.13.(B)**	**Q.14.(A)**	**Q.15.(C)**
Q.6.(C)	**Q.7.(C)**	**Q.8.(A)**	**Q.9.(A)**	**Q.10.(C)**	**Q.16.(C)**	**Q.17.(C)**	**Q.18.(A)**	**Q.19.(C)**	**Q.20.(A)**

COURSE OF ACTION

A course of Action is a step or administrative decision to be taken up for improvement or follow-up for further action in regard to the problem, policy etc. on the basis of the information given in the statement.

TYPES OF COURSE OF ACTION

1. **Problem and solution based Question:** When the presented situation talks of a problem and the suggested course of action talk of a solution.

   The solution or course of action is practically possible.

   A suggested course of actions can be said to solve/ reduce/minimize, the problem

2. **Fact and improvement based:** When the presented situations talks of a simple fact (not a problem, just a situation) and the suggested courses of action suggest ways of improvement.

Note: A course of action if not possible in practical life is not advisable or possible

✍ **Water fall model to solve the types of questions.**

Think & Analyse The Problem

↓

Find The Logical Positive Solution

↓

Problem Minimized or Resolved

Ex.1-5. In each of the following questions a statement is given followed by **two** Courses of Action. A Course of Action is taken for improvement, follow up etc. Read the statement carefully and give answer -

(A) Only I follows.

(B) Only II follows.

(C) Neither I nor II follows.

(D) Both I and II follow.

Ex.1. Statement:

A large number of people in ward X of the city are diagnosed to be suffering from malaria.

Courses of Action:

I. The city municipal authority should take immediate steps to carry out extensive fumigation in ward X.

II. The people in the area should be advised to take steps to avoid mosquito bites.

Sol.(D) As both the action are for the prevention and elimination of mosquitoes. The action will reduce the problem.

Ex.2. Statement:

On an average, about twenty people are run over by trains and die every day while crossing the railway tracks through the level crossing.

Courses of Action:

I. The railway authorities should be instructed to close all the level crossings.

II. Those who are found crossing the tracks, when the gates are closed, should be fined heavily.

Sol.(B) Accidents can be prevented by barring people from the crossing track. So, this action suggests the improvement.

Ex.3. Statement:

In spite of the principal's repeated warnings, a child was caught exploding crackers secretly in the school.

Courses of Action:

I. All the crackers should be taken away from the child and he should be threatened not to do it again.

II. The child should be severely punished for his wrong act.

Sol.(B) Since the act has been repeated despite various warnings, so course of action I would only be another warning and would not help. Severe punishment to set example for him and others is inevitable. Thus, Course of action II shall follow.

Ex.4. Statement:

The finance minister submits his resignation a month before the new budget is to be presented in the parliament.

Courses of Action:

I. The resignation should be accepted and another person should be appointed as the Finance Minister.

II. The resignation should not be accepted.

Sol.(B) Clearly, an already working Finance Minister shall know better all the plans and resources of the government and he alone can present a suitable budget so, course of action II follows.

Ex.5. 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.

Sol.(D) The situation can be tackled by periodic cuts in supply, and urging people to conserve water. So, both course of Action follows.

EXERCISE

Q.1-15. In each of the following questions a statement is given followed by two courses of Action. A courses of Action is taken for improvement, follow up etc. Read the statement carefully and give answer -

(A) If only course of Action I follows.

(B) If only course of Action II follows.

(C) If neither course of Action I nor II follows.

(D) If both courses of Action I and II follow.

Q.1. **Statement :** Students claim that they do not regularly get the magazines which they have subscribed to.

Courses of Action :

I. It is required that an inquiry should be made with the postal department regarding the matter.

II. They should cancel the agreement with the magazine concerned.

Q.2. **Statement :** An employee in a company was caught sleeping while on duty.

Courses of Action :

I. He should be suspended immediately.

II. He should not be disturbed from his sleep.

Q.3. **Statement :** After the scorching, record breaking heat of 2001, this year promises to be worse.

Courses of Action :

I. Electricity and water should be in healthy position.

II. Air Conditioners and coolers should be produced in large number.

Q.4. **Statement :** Chinese Companies are coming in India with cheaper products.

Courses of Action :

I. Indian companies should lower their product rates to face the emsuing competition.

II. Chinese companies should be banned in India to save the Indian companies.

Q.5. **Statement :** Pilgrims from Pakistan will take part in Urs of Ajmare Sharif.

Courses of Action :

I. Govt. should tighten security at borders.

II. Govt. should arrange separate accomodation for pilgrims.

Q.6. **Statement :** Widely attended world conference on "Education of All" endorsed the Frame work for Action for Meeting the basic learning needs of all children.

Courses of Action :

I. India should suitably implement the action points of this conference.

II. India should also immediately organise this type of conference.

Q.7. Statement : Huge amount of resources are required to develop tourist places in a country like India which is end owed with vast coastal lines, rivers, forests, temple etc.

Courses of Action :

I. More tourist resorts along the coastal line only should be started.

II. The tourist potential of India should be exploited.

Q.8. **Statement :** About 30% to 40% of children who are enrolled do not attend school on any given day.

Courses of Action :

I. More schools should be started.

II. Reasons for this obsenteeism should be found out.

Q.9. **Statement :** Over 1200 industrial units employing 200000 people in Mayapuri in West Delhi are facing acute power shortage.

Courses of Action :

I. The industrial units in Mayapuri should be closed down immediately.

II. Government should immediately take steps to provide adequate power supply to the industrila units in Mayapuri.

Q.10. **Statement :** The Union Ministry of Tourism and civil aviation has fixed an annual target of Rs. 10000 cr by way of tourism earning towards the end of the current decade.

Courses of Action :

I. There is need of developement of further new tourist spots to meet the target.

II. The ministry should evolve attractive packages to woo the foreign tourists to meet the target.

Q.11. **Statement :** Severe draught is reported to have set in several parts of the country.

Courses of Action :

I. Govt.should immediately make arrangement for providing financial assistance to those affected area.

II. Food, water and fodder should immediately be

sent to all these areas to save the people and cattle.

Q.12. **Statement :** A larger number of lower ranked politicians are murdered by antisocial elements in City A.

Courses of Action :

I. All those in the city with criminal records should immediately be arrested.

II. The city policy should keep a close vigil on the movements of antisocial elements so as to prevent future attacks.

Q.13. **Statement :** It is reported that though Vitamin E present in fresh fruits and fresh vegetables is beneficial for human body, capsules Vitamin E does not have same effect on human body.

Courses of Action :

I. The sale of capsules Vitamin E should be banned.

II. People should be encouraged to take fresh fruits and fresh vegetables to meet the body requirement of Vitamin E.

Q.14. **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.

Q.15. **Statement :** India has now been recognised by the Western World as a vast resource of knowledge and are eager to use the same .

Courses of Action :

I. India should exploit this opportunity to hasten its economic growth.

II. India should bargain effectively with the Western World and become a super power in South Asia.

EXPLANATION

Q.1.(A) **Q.2.(C)** **Q.3.(A)** **Q.4.(C)** **Q.5.(D)** **Q.6.(A)** **Q.7.(B)** **Q.8.(B)** **Q.9.(B)** **Q.10.(D)**

Q.11.(D) **Q.12.(B)** **Q.13.(B)** **Q.14.(B)** **Q.15.(A)**

NOTES

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