

Quantitative Aptitude : UNIT 1

Chapter1: Series

Find the next number/s, or missing numbers in the following series

1. 5,9,13,17,____ (21,25,29)
2. 27,21,15,9 ____ (3,-3,-9)
3. 3,6,12,24,____ (48,96)
4. 8,27,64 ____ ($5^3=125, 6^3=216$)
5. 4,6,9,13,18 ____ (24,31,39)
6. 7,9,13,19,27 ____ (37, 49, 63)
7. $\frac{3}{4}, \frac{5}{7}, \frac{7}{10}, \frac{9}{13}, \dots$ ($\frac{11}{16}, \frac{13}{19}, \frac{15}{22}$)
8. $\frac{11}{4}, \frac{8}{9}, \frac{5}{16}, \dots$ ($\frac{2}{25}, \frac{-1}{36}$)
9. 89,80,72,65,59,____,50 (54)
10. 2,7,14,23,34,--,62 (47)
(Difference 5,7,9,11,13,15)
11. 6,12,24,48,--,192 (96)
12. 2,3,7,16,32,57,93,--,206(142)
(1,4,9,16,25,...added)
13. 5,6,14,23,87,112,328,--,889(377)
(1,8,9,64,25,216,added= $1^3, 2^2, 3^3, 4^2, \dots$)
14. 3,4,6,9,14,21,32,--,62,81(45)
(1,2,3,5,7,11,13....primes are added)
15. 2,3,7,16,41,90,--,380,669(211)
(1,4,9,25,49,121,169 are added, which are prime no squares ,from 2nd term.)

Chapter2: Number System

1. In the number 257368 the face value of 7 and place value of 7 is
a)7 and 7000 b)7000 and 7 c)7 and 1000 d)1000 and 7 (Ans a)
2. The sum of the place value and face value of 3 in 63897 is
a)3000 b)1003 c)3003 d)3300(Ans C)
3. Without Actual Division,find which of the following numbers are divisible by 2,3,4,7,9,10,11
36324,2211,87120,473312 (Ans 36324)
4. The last digit in 5^{2023} is
a)5 b)10 c)0 d)3 (Ans 5)
5. If the number 197M5462 is divisible by 9 then value of M is
a)2 b)3 c)1 d)4 (Ans a)
6. If the number 245678N is divisible by 11, then the value of N is
a)4 b)3 c) 8 d)5 (Ans a)
7. If the number 62684PQ is divisible by 8 and 5 then value of P and Q are
a)3 and 0 b)8 and 0 c)5 and 0 d)0 and 5 (Ans b)
8. Find the least number to be subtracted from 1000 so that the new number is divisible by 23 (Ans:11)
9. What is the least number to be added to 1200 so that the number is divisible by 17 (Ans:7)
- 10.What is the value of M and N if M39048458N is divisible by 8 and 11
(n=4,M=6)
- 11.A number which divides 899 leaves the remainder 63 .Find the remainder when it is divided by 29(Ans 5)

12.A certain number when divided by 3 and 5 leaves the remainder 1 and

2.Find the remainder when the same number is divided by 15 (Ans 7)

13.Difference of two numbers is 11 and one-fifth of their sum is 9 Find the
numbers (28,17)

14.Sum of two numbers is 15 and sum of their squares is 113 .Find the
numbers

a)9 and 6 b)7 and 8 c)10 and 5 d)10 and 13 (Ans b)

15.When three numbers are added in pairs , the sums equal to 10,19 and 21
find the numbers (Ans 6,4,15)

Chapter 3 : L CM And HCF

1. Find HCF of 140 and 200 (Ans 20)
2. Find HCF of 324,630 and 342 (Ans 18)
3. Find LCM of 12 and 20 (ans 60)
4. Find LCM of 14,56,91 and 84 (Ans 2184)
5. Find HCF and LCM of $4\frac{1}{2}, \frac{6}{2}, 10\frac{1}{2}$ Ans $1\frac{1}{2}, 63$)
6. Find HCF and LCM of 0.6,9.6,0.36 (Ans 0.12,144)
7. Find HCF and LCM of $\frac{2}{3}, \frac{8}{9}, \frac{16}{81}, \frac{10}{27}$ ($2/81, 80/3$)
8. Two numbers are in the ratio 15:11. If their HCF is 13, find the numbers
(Ans: 15×13 and 11×13)
9. Find the greatest possible length which can be used to measure exactly the length 4m 95cm, 9m and 16m 65cm
(Ans: find lcm of 495,900,1665=45 cm)
10. Write the numbers $\frac{1}{2}, \frac{2}{3}, \frac{5}{6}, \frac{3}{4}$ in ascending order
(Ans: LCM of (2,3,6,4) =12 $\frac{1}{2} = \frac{6}{12}, \frac{2}{3} = \frac{8}{12}, \frac{5}{6} = \frac{10}{12}, \frac{3}{4} = \frac{9}{12}$
Ascending order $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$)
11. Find least number exactly divisible by 12,15,20,27
(Ans: Lcm=540)
12. Find the largest number which divides by 256 and 480
(HCF of 256 and 480 Ans:32)
13. Find the smallest and largest number of three digits which is exactly divisible by 16 and 24

(LCM (16,24) =48 Smallest 3 digit no 100 / 48 gives r=4

Ans:96+48=144 or 48x3

Largest 3 digit number =999 , 48x20=960 Ans 960 is largest such no)

14. Product of Two numbers is 300 .Their LCM is 60.Find HCF

($300/60 =5$ =HCF)

15. HCF and LCM of two numbers are 3 and 60. One number is 12. Find the other number.(Ans 15)

Chapter 4 :Squares and Square Roots

1. Find the square root of 196,6084,1521,106276 (14, 78, 39,326,)
2. Find the square root of 151 (12.28)
3. Find the square root of 679 (26.05)
4. Find the square root of $\sqrt{2.56}$ (1.6)
5. Find the smallest number by which 396 must be multiplied so that product becomes a perfect square
 $(396 = 2 \times 2 \times 3 \times 3 \times 11 \text{ Ans: } 11)$
6. Find the smallest number by which 6300 be divided so that quotient is a perfect square
 $(6300 = 2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 7 \text{ Ans: } 7)$
7. What is the number to be subtracted from 1230 to get a perfect square?
(Find square root, it is bet 35 and 36. And $35^2 = 35 \times 35 = 1225$, So subtract 5 from 1230)
8. $\sqrt{2}$ is
 - a) 1.41
 - b) 1.42
 - c) 1.43
 - d) 1.47 (Ans a)
9. $\sqrt{3}$ up to 3 decimal places is a)1.731 b)1.732 c)1.735 d)1.723 (Ans b)
10. Find the least square number which is exactly divisible by 10,12,15 and 18
($\text{Lcm}(10,12,15,18)=180=2 \times 2 \times 3 \times 3 \times 5$ Multiply by 5, it becomes a square Ans: $180 \times 5 = 900$)
11. Find the greatest number of four digits which is a perfect square
(Greatest four digit number= 9999 $\sqrt{9999} = 99.$ – r=198
Required number= $9999 - 198 = 9801$)

12. Find the smallest number that must be added to 1780 to make it a perfect square

$$(\sqrt{1780} = 42 \dots \text{ Next number } 43^2 = 1849 \quad 1849 - 1780 = 69)$$

13. Find the least number to be subtracted from 300 to make it perfect square

$$(289 = 17^2 \quad \text{Ans: } 11)$$

14.11. Solve for x if $\sqrt{\frac{36}{16}} = 2x (\frac{3}{4})$

15.. Simplify $\sqrt{\frac{0.0289}{0.000121}}$ (Ans : 15.45)

Chapter 5 :CUBE AND CUBE ROOTS

1. Find cube root of 343 and 2744

$$(343=7 \times 7 \times 7 \quad \text{Ans:7})$$

$$(2744= 2 \times 2 \times 2 \times 7 \times 7 \times 7 \quad \text{Ans:} 2 \times 7 = 14)$$

2. Find cube of 33

$$((a+b)^3=a^3+b^3+3ab(a+b)$$

$$33^3=(30+3)^3=30^3+3^3+3 \times 30 \times 3(30 + 3)=35937 \quad)$$

3. Find the cube root of 9261,74088 and 658503

(N=9261 Group into 3 digits from right to left (9) (261) So cube root is 2-digit number LR

Unit digit 1=R Tenth place: $2^3 < 9 < 3^3$ L=2 Ans:21)

(Note: cube of 1,2,3,4,5,6,7,8,9 ends with 1,8,7,4,5,6,3,2,9 respectively)

N =(74) (088) last digit 8,cube root =2 so R=2

$4^3 < 74 < 5^3$ L=4 Ans:42

N=(658) (503) R=7

$8^3 = 512 < 658 < 729 = 9^3$ L=8 Ans:87)

4. Find the cube root of 2.744

($2744= (2) (744)$ last digit=4,cube root last digit =4 so R=4

$1^3 < 2 < 2^3$ L=1 Ans:14 $\sqrt[3]{2.744} = 1.4$)

5. Find least number to be multiplied to 4320 to obtain a number which is a perfect cube

($4320=2^3 \times 3^3 \times 2^2 \times 5$ Ans: $2 \times 5^2 = 50$)

6. Which of the following is a cube

- a)529 b)1000 c)625 d)196 (Ans b)

7. Smallest number to be multiplied to 3600 to get a perfect cube is

- a) 50 b) 60 c) 40 d) 100 (Ans b)

8. Simplify $\sqrt[3]{0.008} + \sqrt[3]{0.125}$ (0.7)

9. Simplify $\sqrt[3]{0.000125}$ (0.05)

10. Simplify $\sqrt[3]{0.000000064}$ (0.008)

11. Simplify $\sqrt[3]{\frac{0.008}{0.001}}$ is a) 4 b) 2 c) 2 d) 1 (Ans C)

12. $\sqrt[3]{27} + \sqrt[3]{0.027} + \sqrt[3]{0.000027}$ is a) 3 b) 3.3 c) 3.33 d) 3.303 (Ans C)

13. Which of the following is not a cube

- a) 216 b) 256 c) 343 d) 729 Ans (b)

14.. Solve the Equation $x^3 + 8 = 0$ (Ans -2)

15 A cube root of -512 is

- a) 8 b) 9 c) 4 d) -8 (Ans d)

CHAPTER 6 : SURDS and INDICES

1. Simplify $1000^7 \times 10^5$ (Ans 10^{26})

2. Simplify $5^{25} \div 125^8$ (Ans 5)

3. Simplify $\sqrt[4]{3x+1} = 2$ find x (x=5)

4. Simplify $((\sqrt{2})^3)^4$ (Ans 8)

5. Simplify $((\sqrt{64})^3)^2$ (Ans 16)

6. Simplify $\sqrt[2]{\sqrt[3]{27}}$ (Ans 3)

7. Simplify $(3^2)^3 \div (\sqrt{3})^4$ (Ans 81)

8. Simplify $\sqrt[3]{\sqrt[4]{5}}$ (Ans $5^{1/12}$)

9. Simplify $(\sqrt[3]{27})^2 + \sqrt[3]{64^2} + \sqrt[3]{\frac{125}{64}}$ (Ans : $105/4$)

10. Express $\sqrt[4]{2} \sqrt[3]{3} \sqrt[5]{4}$ as surds of same orders

(Lcm of 4,3,5=60

$$\sqrt[4]{2} = \sqrt[60]{2^{15}} \sqrt[3]{3} = \sqrt[60]{3^{20}} \sqrt[5]{4} = \sqrt[60]{4^{12}} \quad)$$

11. Find x if $(\sqrt{(0.0009)})^3 = x$ (Ans 0.000027)

12..Find x if $\sqrt{\frac{32.4}{x}} = \sqrt[3]{8}$ (Ans 8.1)

13.. Evaluate $\sqrt{248 + \sqrt{51 + \sqrt{169}}}$ (Ans 16)

14 Find x if $2^x \cdot 2^{x-1} = 32$ (Ans x=3)

15.Find the value of $\frac{2^{10} \times 3^5 \times 5^2}{25 \times 243 \times 512}$ (Ans 2)

Chapter 7 : CLOCK and CALENDAR PROBLEMS

1. An accurate clock shows 8 o'clock in the morning. Through how many degrees will the hour hand rotate when the clock shows 2 o'clock in the afternoon?
- a) 144° b) 150° c) 168° d) 180° (Ans d)

Solution: Angle traced by the hour hand in 6 hours = $\frac{360^\circ}{12} \times 6$ hours = 180°

2. The angle between the minute hand and the hour hand of a clock when the time is 4.20, is:

- a) 0° b) 10° c) 5° d) 20° (Ans b)

Solution: Angle = $30^\circ H - 5.5^\circ M$

$$= (30^\circ \times 4) - (5.5^\circ \times 20).$$

$$= 120^\circ - 110^\circ.$$

$$= 10^\circ$$

(Since the minute hand gains 6° in a minute and the hour hand gains 0.5° in a minute and ultimately the minute hand gains 5.5° (i.e. $6^\circ - 0.5^\circ$) over hour hand in a minute)

3. At what time between 5 & 6 will the hands of a clock coincide

- a) $27\frac{3}{11}$ min past 5 b) 26 min past 5 c) $27\frac{6}{11}$ min past 5 d) 27 min past 5 (Ans a)

Solution: at 5 O' clock the hands are 25 minutes apart. Clearly the minute hand must gain 25 minutes over hour hand to be coincident.

But the minute hand gains 55 minutes in 60 minutes over hour hand.

Let us assume that minute hand gains 25 minutes in x minutes

$$\text{Then } \frac{55}{25} = \frac{60}{x}$$

$$x = \frac{25 \times 60}{55} = \frac{300}{11} = 27\frac{3}{11}$$

(the minute hand moves 60 min divisions in an hour and the hour hand moves 5 min divisions in an hour. Hence the minute hand gains 55 minutes (i.e. 60-5) in an hour over the hour hand)

4. At what time between 4 and 5 o'clock will the hands of a watch point in opposite directions?

- a) 45 min. past 4 b) 40 min. past 4 c) $50\frac{4}{11}$ min. past 4 d) $54\frac{6}{11}$ min. past 4
4(Ans d)

Solution: At 4 o'clock, the hands of the watch are 20 min. spaces apart.

To be in opposite directions, they must be 30 min. spaces apart.

∴ Minute hand will have to gain 50 min. spaces. (20+30)

55 min. spaces are gained in 60 min.

Let us assume that minute hand gains 50 min. spaces in x minutes

$$\text{Then } \frac{55}{50} = \frac{60}{x}$$

$$x = \frac{50 \times 60}{55} = \frac{600}{11} = 54\frac{6}{11}$$

i.e. $54\frac{6}{11}$ min. past 4

5. How many times do the hands of a clock coincide in a day?

- a) 20 b) 21 c) 22 d) 24(Ans C)

Solution: The hands of a clock coincide 11 times in every 12 hours (Since between 11 and 1, they coincide only once, i.e., at 12 o'clock). So, **22 times** a day.

6. At what time between 5.30 and 6 will the hands of a clock be at right angles?

- a) 40 min. past 5 b) 45 min. past 5 c) $43\frac{5}{11}$ min. past 5 d) $43\frac{7}{11}$ min. past 5

At 5 o'clock, the hands are 25 min. spaces apart.

To be at right angles and that too between 5.30 and 6, the minute hand has to gain $(25 + 15) = 40$ min. spaces.

55 min. spaces are gained in 60 min.

Let us assume that minute hand gains 40 min. spaces in x minutes

$$\text{Then } \frac{55}{40} = \frac{60}{x}$$

$$x = \frac{40 \times 60}{55} = \frac{480}{11} = 43\frac{7}{11}$$

i.e. $43\frac{7}{11}$ min. past 5(Ans d)

7.Which of the following is a leap year?

- a) 1998 b)2002 c)2004 d)2014 (Ans d)

Solution: 2004 is a leap year because it is completely divisible by 4

8.If Vivekananda Jayanthi in 2018 was on Friday ,then Vivekananda Jayanthi in 2019 and 2024 falls on

- a) Saturday, Friday b) Sunday,Friday c) Thursday,Saturday d)
Saturday,Thursday (Ans a)

Solution: 2018 is a general year and a general year consists of 365 days (52 complete weeks and 1 odd day)

January 1st 2018= Friday

January 1st 2019= Saturday, 2020 :Sunday,2021:Tuesday,2022 Wed,2023
:thu.2024 Friday

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9..What was the day of the week on 15 th Aug 1947 ?

- a) Thursday b) Friday c) Saturday d) Sunday(Ans b)

Solution: 28 May, 2006 = (1946 years + Period from 1.1.1947 to 15.08.1947)

$$1946=1600+300+46$$

Odd days in 1600 years = 0

Odd days in 300 years = 1

46 years = (35 ordinary years + 11 leap year) = $(35 \times 1 + 11 \times 2) = 57$ odd days

Jan. to Aug 15 th $(31 + 28 + 31 + 30 + 31 + 30 + 31 - 15) = 227$ days

Total odd days = $1 + 57 + 227 = 285$

$\therefore 285 \text{ days} = (40 \text{ weeks} + 5 \text{ day}) \equiv 5 \text{ odd days.}$

Given day is **Friday**.

10. Today is Sunday. After 65 days it will be:

- a) Sunday b) Monday c) Tuesday d) Wednesday

(Ans C)

Solution: Each day of the week is repeated after 7 days.

So, after 63 days, it will be Sunday.

\therefore After 65 days, it will be **Tuesday**.

$(65 \div 7 = 9 \text{ complete weeks and } 2 \text{ odd days})$

11. If 6th April 2023 falls on Thursday then day the of the week falls on 11th Dec 2023 is

- a) Monday b) Tuesday c) Wednesday d) Friday (Ans a)

Solution:

April, May, June, July, Aug, Sep, Oct, Nov and Dec

$(24+31+30+31+31+30+31+30+11)= 249 \text{ days}$

There are 249 days. If 249 is divided by 7 we get 35 complete weeks and 4 odd days.

So, December 11th 2023= Thursday+ 4 days = **Monday**

12. What was the day of the week on 17th June, 1998?

- a) Monday b) Tuesday c) Wednesday d)
Thursday(Ans C)

Solution: 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 = $(5 \times 3) \equiv 1$

97 years has 24 leap years + 73 ordinary years.

Number of odd days in 97 years ($24 \times 2 + 73$) = 121 = 2 odd days.

Jan. Feb. March April May June $(31 + 28 + 31 + 30 + 31 + 17) = 168$ days

$\therefore 168 \text{ days} = 24 \text{ weeks} = 0 \text{ odd day.}$

Total number of odd days = $(0 + 1 + 2 + 0) = 3$.

Given day is **Wednesday**.

13. 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(Ans d)

e) **Solution:** 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**

14.) For Certain month, the dates of three Sundays are even numbers. What day is 15 th of that month ?

- a) Thursday. b) Friday c) Saturday d) Sunday (Ans C)

Solution: The only Possible dates with 3 even numbers are 2,9,16,23,30. So 16 th is Sunday, 15 th Saturday)

15. .Calender for Which Pairs of year are same in the following ?

- a) 2001 and 2008 b) 2002 and 2008
c) 2003 and 2010 d) 2004 and 2011 (Ans b)

Chapter 8 :ALGEBRA

1) If $7x-5=4x+11$ then x is

- a) $\frac{3}{16}$ b) $5\frac{1}{2}$ c) $5\frac{1}{3}$ d) $\frac{16}{11}$ (Ans C)

2) If $\frac{4}{x} - \frac{3}{2x} = 5$ then x is

- a)2 b) $\frac{1}{2}$ c)20 d)50 (Ans b)

3) Sum of digits of a two digit number is 16. If the number formed by reversing the digits is less than the original number by 18. The original number is

- a)79 b)88 c)97 d)None (Ans C)

4) Solve for x and y, if $4x+3y=25$, $x+5y=19$

- a)(3,4) b)(4,3) c)(2,1) d)(9,2) (Ans b)

5) What is the value of k if the system $6x-2y=3$, $kx-y=2$ has a unique solution?

- a)3 b)2 c) $\frac{1}{3}$ d)-3 (Ans a)

6) What is the value of k if the equations $3x+5y=10$, $kx+10y=20$ has infinitely many solutions?

- a)6 b)2 c)9 d)12 (Ans a)

7) Which of the following is a quadratic equation:

- a) $x^3 + 2x + 3 = 0$ b) $(x-1)(x+4) = x^2 + 1$ c) $x^4 - 3x + 5 = 0$ d) $(2x-1)(3x-4) = 2x^2 + 3$ (Ans d)

8) Solve $x \cdot \frac{1}{x} = 1\frac{1}{2}$; then x is

- a) 2 b) $\frac{1}{2}$ c) $x=3$ d) $x=5$ (Ans a)

9) Which of the following equations has real roots?

- a) $3x^2 + 4x + 5 = 0$ b) $x^2 + x + 4 = 0$ c) $(x-1)(2x-5) = 0$ d) $2x^2 - 3x + 4 = 0$ (Ans c)

10) Write a quadratic equation whose roots are 1 and 2.

- a) $x^2 - 3x + 2 = 0$ b) $(x^2 + 3x - 2) = 0$ c) $x^2 - 5x + 2 = 0$
d) $x^2 + 5x - 2 = 0$ (Ans a)

11) Sum of roots of a quadraticequation is 7, product is 12. Find the quadratic equation.

[Hint:a+b=7 ab=12, $(a-b)^2=(a+b)^2-4ab$; a+b=7 a-b=1, So a=4,b=3]

- a) $x^2 - 6x + 5 = 0$ b) $x^2 - 7x + 12 = 0$ c) $x^2 + 7x - 12 = 0$ d) $x^2 - 12x + 7 = 0$ (Ans b)

12) Write an algebraic equation satisfying salaries of Praveen and Pradeep. If Pradeep salary(x) is 10 less than 3 times Praveens salary(y)

- a) $y=3x-10$ b) $3x+3y=10$ c) $x+y=10$ d) $x=3y-10$ (Ans d)

13) If Bhavyas age is 5 more than $\frac{2}{3}$ rd of Kavyas age and Kavyas age is x, then three times Bhavyas age is,

a) $2x+15$

b) $\frac{2x}{3} + 5$

c) $\frac{2x}{3} - 5$

d) $2x+5$ (Ans a)

(solution : $y = (2x/3) + 5$ find $3y$)

14) A fraction becomes $2/3$ if 1 is added to both its numerator and denominator. It becomes $1/2$ if 1 is subtracted from numerator and denominator, the number is

a) $5/3$

b) $3/5$

c) $1/2$

d) $3/4$

(Ans b)

15) Sum of 2 numbers is 16, Difference is 6. Find the numbers

a) 10 and 6

b) 9 and 7

c) 11 and 5

d) 13 and

7(Ans c)

Chapter 9: PERCENTAGE

1. Express the fraction $\frac{11}{12}$ into the percent

- a) 90 % b) $91\frac{2}{3}\%$ c) 99 % d) $91\frac{4}{3}\%$ (Ans a)

2) Ratio of the house is increased from Rs 7,000 to Rs 7,700 Express the increase

in Price as a Percentage of the original rent.

- a) 7 % b) 17 % c) 20 % d) 10% (Ans d)

**3) The cost of a bike last year was Rs 19,000. Its cost this year is Rs 17,000 Find
the percentage decrease in its cost.**

- a) 10 % b) 10.5 % c) 5% d) 15 % (Ans b)

4) Two numbers are respectively 20 % and 25 % of a third number.

What Percent is the 1 st of the second ?

- a) 20% b) 80 % c) 50 % d) 45% (Ans b)

(Hint: Take 3 rd no as 100, 1 st no is 20, 2nd no is 25)

**5. A positive number is divided by 5 instead of being multiplied by 5. By what
percent is the result of the required correct value ?**

- a) 40 % b) 50 % c) 4 % d) 5% (Ans c)

(hint : Take the number as 100)

(Refer PDF)

6. Find X when 5% of X is 1000.

- a) 200 b) 50 c) 2,000 d) 20,000

$$\text{Solution: } X \times \frac{5}{100} = 1000$$

$$X = \frac{100000}{5}$$

$$= 20,000$$

7.A batsman scored 110 runs which included 3 boundaries and 8 sixes. What percent of his total score did he make by running between the wickets?

- a) 45% b) $45 \frac{5}{11}\%$ c) $54 \frac{6}{11}\%$ d) 55%

Solution: Number of runs made by running = $110 - (3 \times 4 + 8 \times 6)$

$$= 110 - 60 = 50$$

$$= \frac{50}{110} \times 100 = 45 \frac{5}{11}\%$$

8Two students appeared at an examination. One of them secured 9 marks more than the other and his marks was 56% of the sum of their marks. The marks obtained by them are:

- a) 39, 30 b) 41, 32 c) 42, 33 d) 43, 34

Solution: Let their marks be $(x + 9)$ and x .

$$\text{Then, } x + 9 = \frac{56}{100} (x + 9 + x)$$

$$\Rightarrow 25(x + 9) = 14(2x + 9)$$

$$\Rightarrow 3x = 99$$

$$\Rightarrow x = 33$$

So, their marks are **42 and 33**.

9.The price of a commodity first fell by 25% and then rose by $33\frac{1}{3}\%$. Increase in price compared to the original price?

- (a) $8\frac{1}{3}\%$ (b) 0% (c) $29\frac{1}{6}\%$ (d) $33\frac{1}{3}\%$

Solution: let the price of the commodity be 100

Price of the commodity when the price fell by 25% = $\frac{100 \times 75}{100} = 75$

Price of the commodity when the price rose by $33\frac{1}{3}\%$ = $75 \times \frac{4}{3} = 100$

Increase in price = $100 - 75 = 25$

10. Fruit seller had some apples. He sells 40% apples and still has 420 apples.

Originally, he had:

- a) 588 apples
- b) 600 apples
- c) 672 apples
- d) 700 apples

Solution: Suppose originally, he had X apples.

Then, 60% of $X = 420$

$$\frac{60}{100} \times X = 420$$

$$X = \frac{420}{60} \times 100 = 700 \text{ Apples}$$

11. In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:

- a) 2700
- b) 2900
- c) 3000
- d) 3100

Solution: Number of valid votes = 80% of 7500 = 6000.

\therefore Valid votes taken by another candidate = 45% of 6000

$$6,000 \times \frac{45}{100} = 2,700$$

12.If the radius of a circle increased by 20% then the corresponding increase in the area of circle is

- a) 40% b) 44% c) 20% d) 21%

Solution: Let the radius of original circle =100

$$\therefore \text{Area of original circle} = \pi r^2 = \pi(100)^2$$

$$\text{Area of original circle} = 10,000\pi$$

But, the radius of the circle is increased by 20%

$$\therefore \text{Radius of new circle } R = 100 + 20 = 120$$

$$\text{Area of new circle} = \pi r^2 = \pi(120)^2 = 14,440\pi$$

$$\text{Increased area} = 14,440\pi - 10,000\pi = 4,440\pi$$

$$\text{Percentage increase in area} = \frac{4,440}{10,000} \times 100 = 44\%$$

13.A man gives 40% of his money to his children and 20% of the remaining to a trust.

If he is still left with Rs.9,600, then what did he originally have?

- a) 19,845 b) 14,000 c) 20,000 d) 25,400

Solution: Let 'x' be the money he originally had.

$$\text{The money he gave to his children} = X \times \frac{40}{100} = 0.4x$$

$$\text{The money he gave to trust} = (x - 0.4x) \times \frac{20}{100} = 0.12x$$

$$\text{The money he left with} = x - 0.4x - 0.12x = 0.48x$$

$$0.48x = 9600$$

$$x = \frac{9600}{0.48} = 20,000$$

14.Three candidates contested an election and received 1136, 7636 and 11628 votes respectively. What percentage of the total votes did the winning candidate get?

- a) 57% b) 60% c) 65% d) 90%

Solution : Total number of votes polled = $(1136 + 7636 + 11628) = 20400$.

$$= \frac{11628}{20400} \times 100 = 57\%$$

15.The population of a town increased from 1,75,000 to 2,62,500 in a decade.

The average percent increase of population per year is:

- a) 4.37% b) 5% c) 6% d) 8.75%

Solution : Increase in 10 years = $(262500 - 175000) = 87500$.

$$\text{Increase} = \frac{87500}{175000} \times 100 = 50\%$$

$$\text{Required average} = \frac{50}{10} = 5\%$$

Chapter 10 : PROFIT AND LOSS

1. A shopkeeper made a profit of 20% on an article which is sold for ₹2400. The cost price of the article is

- a) 2,000 b) 2,200 c) 2,600 d) 2,800

Solution: Cost + Profit = Sales $100 + 20 = 120$

\therefore cost sales

$$\begin{array}{rcl} 100 & \cancel{\times} & 120 \\ ? & & 2,400 \end{array}$$

$$2400 \times \frac{100}{120}$$

$$= 2,000$$

2. An article was brought for Rs 2000 and sold for Rs 2200 Gain or loss percent is

- a) 10 b) 5 c) 15 d) 20

$$(Gain = 200/2000) \times 100 = 10\%$$

3. A shopkeeper expects a gain of 22.5% on his cost price. If in a week, his sale was of ₹392, what was his profit?

- a) ₹18.20 b) ₹70 c) ₹72 d) ₹88.25

Solution: Cost + Profit = Sales

$$100 + 22.5 = 122.5$$

Sales	profit
122.5	22.5
392	?
392	$\times \frac{22.5}{122.5} = 72$

4.By selling a table for Rs 330, a trader gains 10 % Find the cost price of the table

Solution : S.P=330, Profit =10 %

If Actual Price =100 Rs , S.P =110,

Actual Price = ? If S.P=330 Ans= $100 \times 330 / 110 = 300$ Rs

5. A sells a bicycle to B at a Profit of 20 % and B sells it to C at a Profit of 25 %

If C pays Rs 225 for it ,what did A pay for it ?

Solution : C.P of A = $225 \times \frac{100}{120} \times \frac{100}{125} = 150$

6.A mobile phone was sold for Rs 5060 at a gain of 10 % .If it had been sold for Rs 4370, what would have been the gain ?

Solution 110 -----100

$$5060.....? = 5060 \times 100 / 110 = 4600 = CP$$

If it is sold for Rs 4370 then loss =230

So loss percentage $4600 \dots 230$

$$100.....? = 230 \times 100 / 4600 = 5 \%$$

7.Cost Price of 6 articles is equal to Selling Price of 4 Articles,finfd the gain Percent.

Solution : If x is C.P of 6 articles =6x

S.P of 4 articles =6x

C.P of 4 articles=4x

profit =2x

percentage profit = $(2x/4x) \times 100 = 50\%$

8.The percentage profit earned by selling an article for ₹1920 is equal to the percentage loss incurred by selling the same article for ₹ 1280. At what price should the article be sold to make 25% profit?

- a) ₹2000 b) ₹2200 c) ₹2400 d) ₹2800

Solution: Let cost be x.

$$\text{Then, } \frac{1920-X}{X} \times 100 = \frac{X-1280}{X} \times 100$$

$$\Rightarrow 1920 - x = x - 1280$$

$$\Rightarrow 2x = 3200$$

$$\Rightarrow x = 1600$$

Required S.P. = 125% of 1600

$$1600 \quad \frac{125}{100} = 2,000$$

9.A man buys a cycle for ₹1400 and sells it at a loss of 15%. What is the selling price of the cycle?

- a) ₹1090 b) ₹1160 c) ₹1190 d) ₹1202

Solution: S.P. = 85% of 1400

$$= \frac{85}{100} \times 1400 = ₹1190$$

10. A man sold an article at a loss of 20%. If he had sold it for ₹12 more, then he would have gained 10%. The cost price of the article is

- a) 60 b) 40 c) 30 d) 22

Solution: Let the cost of radio be X

If it had sold at 20% loss \Rightarrow S.P. = 0.8X

If it had sold for ₹12 more then, S.P. = 1.1X

$$= \text{So, } 0.8X + 12 = 1.1X$$

$$12 = 1.1X - 0.8X$$

$$12 = 0.3X$$

$$X = \frac{12}{0.3} = 40$$

11. When a plot is sold for ₹18,700, the owner loses 15%. At what price must that plot be sold in order to gain 15%?

- a) ₹21,000 b) ₹22,500 c) ₹25,300 d) ₹25,800

Solution:

Sales percentage

18,700 85

? 115

$$18,700 \times \frac{115}{85} = 25,300$$

12. 100 oranges are bought at the rate of Rs. 350 and sold at the rate of Rs. 48 per dozen. The percentage of profit or loss is:

- a) $14\frac{2}{7}\%$ gain b) 15% loss c) $14\frac{2}{7}\%$ loss d) 15% loss

Solution:

$$\text{Cost of one orange} = \frac{350}{100} = ₹ 3.50$$

$$\text{S.P. of one orange} = \frac{48}{12} = ₹ 4$$

$$\text{Gain} = \frac{0.50}{3.50} \times 100 = \frac{100}{7}\% = 14\frac{2}{7}\%$$

13. A shopkeeper sells one transistor for Rs. 840 at a gain of 20% and another for Rs. 960 at a loss of 4%. His total gain or loss percent is:

- a) $5\frac{15}{17}\%$ loss b) $5\frac{15}{17}\%$ gain c) $6\frac{2}{3}\%$ gain d) none of these

Solution:

$$\text{Cost of 1st transistor} = \frac{100}{120} \times 840 = ₹ 700$$

$$\text{Cost of 2nd transistor} = \frac{100}{96} \times 960 = ₹ 1000$$

$$\text{So, total Cost} = (700 + 1000) = ₹ 1700$$

$$\text{Total S.P.} = (840 + 960) = ₹ 1800.$$

$$\text{Gain \%} = \frac{100}{1700} \times 100 = 5\frac{15}{17}$$

14. A trader mixes 26 kg of rice ₹ Rs. 20 per kg with 30 kg of rice of other variety at ₹ 36 per kg and sells the mixture at ₹ 30 per kg. His profit percent is:

- a) No profit, no loss b) 5% c) 10% d) 8%

Solution: cost of 56 kg rice = $(26 \times 20 + 30 \times 36) = (520 + 1080) = ₹1600$.

S.P. of 56 kg rice = $(56 \times 30) = ₹1680$.

$$\text{Gain} = \frac{80}{1600} \times 100 = 5\%$$

15. Among some articles brought, 6 articles were bought for Rs. 5 and sold 5 articles for Rs. 6. Gain percent is:

- a) 30%
- b) $33\frac{1}{3}\%$
- c) 35%
- d) 44%

Solution: Suppose, number of articles bought = L.C.M. of 6 and 5 = 30

$$\text{Cost of 30 articles} = \frac{5}{6} \times 30 = ₹25$$

$$\text{S.P. of 30 articles} = \frac{6}{5} \times 30 = ₹36$$

$$\text{Gain} = \frac{11}{25} \times 100 = 44\%$$

Chapter 11 :SIMPLE INTEREST AND COMPOUND INTEREST

- 1) Find the interest to be paid on a loan of Rs.3000 at simple interest of 5% per year for 5 years. (Rs.750)
($SI = PRT/100$)
- 2) Find the amount to be back on a loan of Rs.18,000 at 5.5% per annum for 3 years. (Rs.20970)($P=100 I/RT$)
- 3) In how many years will a sum of money triple itself at 25% per annum simple interest? (8 years) (take money as 100 Rs)
- 4) What rate per cent per annum will produce Rs.250 as simple interest on Rs.6000 in 2.5 years? (5/3 %)
- 5) If Simple Interest on certain sum is Rs.360 for 2 years at 6% rate of interest, find the sum. (Rs.2000)
- 6) In what time will a sum of Rs.2000 amounts Rs 2,240 at the rate of 4% per annum? (3 years)
- 7) In how many years will a sum of money double itself at the rate of 10% per annum simple interest. (10 years)
- 8) Find the Simple Interest on Rs.60,000 at 5% for 9 months. (Rs.2,250)
- 9) Find the Simple Interest for Rs.6000 for the period from 5th Feb 2005 to 18th April 2005 at the rate of 15% pa. (Rs.180)
- 10) At what rate percent per annum, will a sum of money double in 16 years? ($6\frac{1}{4}\%$ p.a)
- 11) What is the difference between compound interest and simple interest for 2 years on the sum of 1260 at 4% per annum? (2)

- 12) Find the compound interest on Rs 20,000 at 6% rate of interest p.a for 2 years (22,472)**
- 13) In what time will Rs.4000 amounts to Rs.4840 at 10% compound interest? (2)**
- 14) If a sum of 2,000 amount to 2,880 at 20% rate of compound interest at 20% rate of compound interest p.a, find the period for which compound interested is calculated.**
(2 years)
- 15) If Rs. 1600 amounts to Rs. 1,764 in 2 years at a certain rate of compound interest. Find the rate of interest per annum (5%) (For Solutions Refer PDF Below)**

Study Materials and References:

https://drive.google.com/file/d/1spNAkzECUpExml9ko-cfW73J_aIjvG1f/view?usp=sharing

https://drive.google.com/file/d/1zId-UTXQy1ftC5UEFJ3Ch_YHTKpsnf3r/view?usp=sharing

Quantitative Aptitude 2 : UNIT 2

Chapter 1: Ratio and Proportion, Partnership

1. Divide 70 in the ratio 3:7 (21 and 49)
2. Divide Rs.2700 among a,b,c in the ratio 2:3:4
3. The ratio between two number is 3:4.If each number be increased by 2 the ratio becomes 7:9.Find the numbers(12 and 16)
4. The sum of two numbers is 60 and their difference is 6.What is the ratio of the two numbers?(11:9)
5. Find the mean proportional between 3 and 75 (Mean proportional = $\sqrt{ab} = \sqrt{3 \times 75} = 15$)
6. Three partner Rahul,Puneet and Chandan invest Rs1600,Rs1800 andRs2300 respectively in a business.How should they divide a profit of Rs399(112,126,161)
7. A and B invested in the ratio 3:2 in a business .If 5% of the total profit goes to charity and A's share is Rs855,find the total profit(1500)
8. A and B start a business ,A invests Rs600 more than B and invest for 4 months and B for 5 months.A's share is Rs48 more than that of B,out of a total profit of Rs528.Find the capital contributed by each(1800 and 1200)
9. A began a business with Rs4500 and was joined afterwards by Rs5400.If the profits at the end of year was divided in the ratio 2:1 when did B join as a partner(7)
10. In what proportion must sugar at Rs13.00 per kg be mixed with sugar at Rs 13.65 per kg so that the mixture be worth Rs13.20 a kg?(9:4)

11. A bag contains 50 paise, 25 paise and 10 paise coins in the ratio 5:9:4 amounting to Rs.206. Find the number of coins of each type. (Coins:5x,9x,4x Value:5x/2+9x/4+4x/10=206, x=40)(200,360,160)

12. A man can complete $\frac{5}{8}$ of a job in 10 days. At their rate, how many more days will it take him to complete the job?

Solution: Workdone = $\frac{5}{8}$, Remained = $\frac{3}{8}$.

$$W_1 T_2 = W_2 T_1$$

$$\frac{5}{8} * X = \frac{3}{8} * 10$$

$$X = 6$$

13. A company had provision of food for 150 men for 45 days. After 10 days, 25 men left the company. No. of days for which the remaining food will last is

Solution:

No. of men is inversely proportional to no. of days.

After 10 days, 125 men, x days

$$150 : 125 = X : 35$$

$$X = \frac{150 \times 35}{125} = 42$$

14. The ratio of A to B is 4 : 5 and that of B to C is 2 : 3. If A equals 800, C equals:

- (a) 1,500
- (b) 2,000
- (c) 1,200
- (d) 1,000

$$A : B = 4 : 5$$

$$B : C = 2 : 3$$

$$A : B : C = 4 \times 2 : 5 \times 2 : 5 \times 3$$

$$A : B : C = 8 : 10 : 15$$

If A equals 800, then C equals **1,500**.

15. A's and B's shares in a business are in the ratio of 5:3. If A has invested ` 70,000 for 12 months, for what period B has invested `60,000?
- (a) 7 months
(b) 7.4 months
(c) 8 months
(d) 8.4 months

A's capital be $C_1 = 70,000$

B's capital be $C_2 = 60,000$

A's time be $T_1 = 12$ months

Let B's time be $T_2 = x$ months

A's share: B's share = 5:3

Apply formula:

$\text{Profit of A} \div \text{Profit of B} = C_1 \times T_1 \div C_2 \times T_2$

$5/3 = 70,000 \times 12 / 60,000 \times x$

$3,00,000 x = 25,20,000$

$x = 252 / 30 = 8.4 \text{ months}$

Chapter2: Time and Work

1.A takes 8 days and B takes 10 days to complete a job. How much time will take to complete the work together?

Solution: A's 1 day work is $1/8$, B's 1 day work is $1/10$.

(A+B)'s one day work = $1/8 + 1/10 = 9/40$.

Both will together finish the work in $40/9 = 4\frac{4}{9}$ days.

2. A alone can complete a work in 12 days. A and B together can complete it in 8 days. How long will B alone take to complete the work?

- (a) 20 Days
- (b) 16 Days
- (c) 24 Days**
- (d) 18 Days

$$\text{A's 1 day's work} = 1/12$$

$$(\text{A+B})'s \text{ 1 day's work} = 1/8$$

$$\text{B's 1 day's work} = 1/8 \text{ Less } 1/12$$

$$\text{B's 1 day's work} = 3/24$$

$$\text{B's 1 day's work} = 1/24$$

B alone can do the work in 24 days.

3. A and B can do a piece of work in 12 days, B and C in 8 days and C and A in 6 days.

How long would B take to do the same work alone?

- (a) 48 Days**
- (b) 40 Days
- (c) 24 Days
- (d) 32 Days

$$(\text{A} + \text{B})'s \text{ 1 day's work} = 1/12 \dots \text{(i)}$$

$$(B + C)'s 1 day's work = \frac{1}{8} \text{ -----(ii)}$$

$$(C + A)'s 1 day's work = \frac{1}{6} \text{ -----(iii)}$$

On adding,

$$2(A + B + C)'s 1 day's work = \frac{1}{12} + \frac{1}{8} + \frac{1}{6}$$

$$= 2 + 3 + 4 / 24$$

$$(A + B + C)'s 1 day's work = 9 / 24 \times \frac{1}{2} = 9 / 48 \text{ ----(iv)}$$

On, subtracting (iii) from (iv),

$$B's 1 day's work = 9 / 48 - \frac{1}{6} = 9 - 8 / 48 = 1 / 48$$

B can complete the work in 48 days.

4 10 men can finish a piece of work in 10 days where as it takes 12 women to finish it in 10 days. If 15 men and 6 women undertake to complete the work, how many days they will takes to complete it(5)

5. A can do a work in 4 days, B in 15 days and C in 10 days. Find the time taken by A,B,C to do the work together.

$$\text{Solution : } A+B+C = \frac{1}{4} + \frac{1}{5} + \frac{1}{10} = \frac{11}{20}$$

A,B,C together can do work in $\frac{20}{11} = 1\frac{9}{11}$ days.

6.. A's twice as good a work man as B. They together finish piece of work in 18 days. In how many days A alone finish the work.

Solution : (A+B) is one day work=1/18

Since A is twice as good as B=2:1, total work is 3.

A's 1 day's work=1/18*2/3=1/27.

A can alone finish the work is 27 days.

7. A can do a piece of work in 10 and b in 20 days. They work together but 2 days before completion A leaves. In how many days what's the work completed?

Solution: A's 1 day= $1/10$

B's 1 day= $1/20$

A's 2 days work= $2/10$

B's 2 days work= $2/20=1/10$

So, Remaining work= $1-1/10=9/10$

(A+B)'s 1 day work= $(1/10+1/20)=3/20$

Total work done by both A and B= $1/4$

8.A can lay Railway Track between 2 given stations in 16 days and b can do the same job in 12 days. With the help of C, they did the job in 4 days. Find in how many days 'C' can alone do the job?

Solution:

A+B+C's one day work= $1/4$

A+B's 1 day work= $1/16+1/12= 7/48$.

C's 1 day work= $1/4-7/48=5/48$

C can complete the work in $48/5$ days= $9\frac{3}{5}$ days.

9. Kamal can do a work in 15 days and Vimal can 50% more efficient than Kamal the number of days Vimal. Find the no.of days for Vimal to do the work alone.

Solution:

Let, Vimal can do the work in 100 days. Then, Kamal can we do the work in 150 days.

Vimal do the work in 10 days. Kamal work for 15 days.

10. 5 men prepare 10 toys in 6 days working 6 hrs a day. How many days can 12 min prepare 16 toys working 8 hrs in a day?

Solution:

$$M_1 D_1 T_1 W_2 = M_2 D_2 T_2 W_1$$

$$5 * 6 * 6 * 16 = 12 * D_2 * 8 * 6$$

$$D_2 = 3$$

11. 6 men working 8 hrs per day earn 1680/week. How much will 9 men working 6 hrs per day earn per week?

Solution:

$$M_1 D_1 W_2 = M_2 D_2 W_1$$

$$6 * 8 * W_2 = 9 * 6 * 1680.$$

- 12 .A,B and C can do a work in 6,8,12 days and earn Rs.1350. What is B's share?

(1 day work: $1/6 : 1/8 : 1/12 = 4 : 3 : 2$ B's share = $3/9 * 1350 = 450$)

13. A, B and C together can complete a piece of work in 30 minutes. A and B together can complete the same work in 50 minutes. C alone can complete the work in
- (a) 150 minutes
 - (b) 80 minutes
 - (c) 60 minutes
 - (d) 75 minutes

Work done by (A + B + C) in 1 minute = $1/30$

Work done by (A + B) in 1 minute = $1/50$

Work done by C alone in 1 minute = $1/30 - 1/50 = 5 - 3/150 = 2/150 = 1/75$

C alone will complete the work in 75 minutes.

14. A and B can complete a piece of work in 8 days, B and C can do it in 12 days, C and A can do it in 8 days. A, B and C together can complete it in
- (a) 7 days
 - (b) 6 days**
 - (c) 4 days
 - (d) 5 days

(A + B)'s 1 day's work = $1/8$

(B + C)'s 1 day's work = $1/12$

(C + A)'s 1 day's work = $1/8$

On adding,

$2(A + B + C)'s 1 day's work = 1/8 + 1/12 + 1/8 = 3 + 2 + 3/24 = 8/24 = 1/3$

(A + B + C)'s 1 day's work = A + B + C = $2(1/3) = 1/6$

Hence, the work will be completed in 6 days.

15. 10. A, B and C individually can do a work in 10 days, 12 days and 15 days respectively. If they start working together, then the number of days required to finish the work is
- (a) 2 days
 - (b) 4 days**
 - (c) 16 days
 - (d) 8 days

Work done by A, B and C in 1 day = $1/10 + 1/12 + 1/15 = 6 + 5 + 4/60 = 15/60 = 1/4$

Required time = 4 days

Chapter3-Pipes and Cisterns

1. A pipe can fill a cistern in 6 hours. Due to a leak in its bottom, it is filled in 7 hours. When the cistern is full in how much time will it be emptied by the leak? ($1/6 - 1/x = 1/7$ (42 hrs))
2. Two pipes A and B can separately fill a tank in 36 hours and 40 hours respectively. If both the pipes are opened simultaneously, how much time will be taken to fill the tank? ($1/36 + 1/40 = 1/20$ Ans 20 hours)
3. Two pipes A and B can fill a cistern in 10 hours and 12 hours respectively, and a third pipe C can empty it in 20 hours. How long will it take to fill the cistern if all the three are opened at the same time?
(a) 2 hrs (b) $7 \frac{1}{2}$ hours (c) **15 hr** (d) $12/5$ hr ($1/10 + 1/12 - 1/20 = 2/15$ so time $= 15/2 = 7.5$ hours)
4. Three pipes A, B and C can fill a tank in 6 minutes, 8 minutes and 12 minutes respectively. The pipe C is closed 6 minutes before the tank is filled. In what time will the tank be full? (4 min)
5. If three taps are opened together, a tank is filled in 12 hrs. One of the taps can fill it in 10 hrs and another in 15 hrs. How does the third tap work? ($x = -12$) (Refer PDF)
6. Two pipes A and B can fill a cistern in 20 and 30 minutes respectively, and a third pipe C can empty it in 40 minutes. How long will it take to fill the cistern if all the three are opened at the same time?
(a) $19 \frac{1}{7}$ min (b) $15 \frac{1}{7}$ min (c) **$17 \frac{1}{7}$ mi** (d) $7 \frac{1}{7}$ min

$$1/20 + 1/30 - 1/40 = 7/120$$

$$120/7 = 17 \frac{1}{7}$$

7. Two pipes A and B can separately fill a tank in 2 minutes and 15 minutes respectively. Both the pipes are opened together but 4 minutes after the start the pipe A is turned off. How much time will it take to fill the tank?

- (a) 9 min (b) **10 min** (c) 11 min (d) 12 min

$$\frac{4}{12} + \frac{x}{15} = 1$$

$$x = 10$$

8. Two pipes P and Q can fill a cistern in 12 and 15 minutes respectively. Both are opened together, but at the end of 3 minutes the first is turned off. How much longer will the cistern take to fill?

- (a) $9\frac{1}{4}$ min (b) **$11\frac{1}{4}$ min** (c) $7\frac{1}{4}$ min (d) $8\frac{1}{2}$ min

$$\frac{3}{12} + \frac{x}{15} = 1$$

$$X = 11\frac{1}{4}$$

9..A cistern has a leak which would empty the cistern in 20 minutes. A tap is turned on which admits 4 liters a minute into the cistern, and it is emptied in 24 minutes. How many liters does the cistern hold?

- (a) **480 liters** (b) 600 liters (c) 720 liters (d) 800 liters

$$\frac{1}{x} - \frac{1}{20} = -\frac{1}{24}$$

$$x = 120$$

$$120 \times 4 = 480$$

10..Two taps can separately fill a cistern 10 minutes and 15 minutes respectively and when the waste pipe is open, they can together fill it in 18 minutes. The waste pipe can empty the full cistern in?

- (a) 7 minutes (b) 13 minutes (c) 23 minutes (d) **9**

minutes

$$\frac{1}{10} + \frac{1}{15} - \frac{1}{x} = \frac{1}{18}$$

$$x = 9$$

11. A cistern is filled by a tap in 3 1/2 hours. Due to leak in the bottom of the cistern, it takes half an hour longer to fill the cistern. If the cistern is full how long will it take the leak to empty it?

- (a) 7 hour (b) 8 hours (c) 14 hours (d) **28 hours**

$$\frac{2}{7} - \frac{1}{x} = \frac{1}{4}$$

$$x = 28$$

12. Two pipes A and B can fill a tank in 4 and 5 hours respectively. If they are turned up alternately for one hour each, the time taken to fill the tank is?

- (a) 2 hours 15 minutes (b) **4 hours 24 minutes** (c) 5 hours
(d) 3 hours

$$\frac{1}{4} + \frac{1}{5} = \frac{9}{20}$$

$$\frac{20}{9} = 2 \frac{2}{9}$$

$$\frac{9}{20} \times 2 = \frac{9}{10} \text{ ---- 4 hours}$$

$$WR = 1 - \frac{9}{10} = \frac{1}{10}$$

$$1 \text{ h ---- } \frac{1}{4}$$

$$? \text{ ---- } \frac{1}{10}$$

$$\frac{2}{5} \times 60 = 24 = \textbf{4 hours 24 minutes}$$

13. Two pipes A and B can fill a cistern in 12 and 15 minutes respectively. Both are opened together but after 3 minutes A is turned off. After how much more time will the cistern be filled?

- (a) 3 1/4 minutes (b) 5 1/4 minutes (c) 8 minutes (d) **9 1/4 minutes**

$$\frac{3}{12} + \frac{3+x}{15} = 1$$

$$x = 8\frac{1}{4}$$

14. A cistern is normally filled in 8 hours but takes two hours longer to fill because of a leak in its bottom. If the cistern is full, the leak will empty it in?

- (a) 16 hours (b) 20 hours (c) **40 hours** (d) 25 hours

$$\frac{1}{8} - \frac{1}{x} = \frac{1}{10}$$

$$x = 40$$

15..Two pipes A and B can separately fill a tank in 12 and 15 minutes respectively. A third pipe C can drain off 45 liters of water per minute. If all the pipes are opened, the tank can be filled in 15 minutes. What is the capacity of the tank?

- (a) 480 liters (b) **540 liters** (c) 600 liter (d) 675 liters

$$\frac{1}{12} + \frac{1}{15} - \frac{1}{x} = \frac{1}{15}$$

$$x = 12$$

$$12 \times 45 = 540$$

Chapter4-Speed, Time and Distance

1. A train starts from a place A at 6 a.m. and arrives at another place B at 4.30 p.m. on the same day. If the speed of the train is 40 km per hour, find the distance travelled by the train?
 - (a) 400 km
 - (b) 320 km
 - (c) 230 km
 - (d) 420 km**

$$\text{Time} = 10\frac{1}{2} \text{ hours} = 21\frac{1}{2} \text{ hours}$$

$$\text{Speed} = 40 \text{ km/hour}$$

$$\text{Distance} = \text{Speed} \times \text{Time} = 40 \times 21\frac{1}{2} = \mathbf{420 \text{ km}}$$

2. A man riding his bicycle covers 150 metres in 25 seconds. What is his speed in km per hour?
 - (a) 20
 - (b) 23**
 - (c) 21.6
 - (d) 25

$$\text{Speed} = \frac{150}{25} = 6 \text{ m/sec} = 6 \times \frac{18}{5} \text{ km/hr} = \frac{108}{5} = \mathbf{21.6 \text{ km/hour}}$$

3. Two men start together to walk a certain distance, one at 4 km/hour and another at 3 km/hour. The former arrives half an hour before the latter. Find the distance.
 - (a) 9 km
 - (b) 6 km**
 - (c) 7 km
 - (d) 8 km

If the required distance be x km, then

$$\frac{x}{3} - \frac{x}{4} = \frac{1}{2}$$

$$4x - 3x / 12 = \frac{1}{2}$$

$$\times / 12 = \frac{1}{2}$$

$$x = 6\text{ km}$$

4. A train covers a certain distance in 210 minutes at a speed of 60 km/hour. The time taken by the train, to cover the same distance at a speed of 80 km/hour is:
- (a) 3 hours
 - (b) $4 \frac{5}{8}$ hours
 - (c) $2 \frac{5}{8}$ hours**
 - (d) $3 \frac{5}{8}$ hours

Speed of train = 60 km/hour & Time = 210 minutes = $3 \frac{1}{2}$ hours = $\frac{7}{2}$ hours

Distance covered = $60 \times \frac{7}{2} = 210$ km

Time taken at 80 km/hours = $\frac{210}{80} = 2 \frac{5}{8}$ hours

5. An athlete runs 200 metres race in 24 seconds. His speed (in km/hour) is:
- (a) 30**
 - (b) 28.5
 - (c) 24
 - (d) 20

Speed = Distance ÷ Time

= $200 \div 24$ metres/seconds

= $[(200 \div 24) \times (18 \div 5)]$

= $3600 \div 120$

= 30 km/hour

6. A car driver leaves Bangalore at 8.30 A.M. and expects to reach a place 300 km from Bangalore at 12.30 P.M. At 10.30 he finds that he has covered only 40% of the distance. By how much he has to increase the speed of the car in order to keep up his schedule?
- (a) 30 km/hour**
 - (b) 35 km/hour
 - (c) 40 km/hour

(d) 45 km/hour

Distance covered by car in 2 hours = $300 \times 40 \div 100 = 120$ km

Remaining distance = $300 - 120 = 180$ km

Remaining time = $4 - 2 = 2$ hours

Required speed = $180 \text{ km} \div 2 \text{ hours} = 90 \text{ km/hour}$

Original speed of car = $120 \div 2 = 60 \text{ km/hour}$

Required increase in speed = $90 - 60 = 30 \text{ km/hour}$

7. A boy goes to his school from his house at a speed of 3 km/hour and returns at a speed of 2 km/hour. If he takes 5 hours in going and coming, the distance between his house and school is:
- (a) 6.5 km
 - (b) 5.5 km
 - (c) 5 km
 - (d) 6 km

Let the required distance be x km. Then,

$$\frac{x}{3} + \frac{x}{2} = 5$$

$$2x + 3x = 30$$

$$5x = 30$$

$$x = 6 \times 5 \div 5$$

$$x = 6 \text{ km}$$

8. 9. A boy runs 20 km in 2.5 hours. How long will he take to run 32 km at double the previous speed?
- (a) 5 hours
 - (b) $4\frac{1}{2}$ hours
 - (c) $2\frac{1}{2}$ hours
 - (d) 2 hours

The boy covers 20 km in $2\frac{1}{2}$ hours.

Speed = $20 \div 2.5$ hours = 8 km/hour

New speed = 2×8 km/ hour = 16 km/ hour

Time = 32 km \div 16 km/ hour = **2 hours**

10. A car travelling at a speed of 40 km/hour can complete a journey in 9 hours. How long will it take to travel the same distance at 60 km/hour?
- (a) 4 hours
 - (b) $4\frac{1}{2}$ hours
 - (c) 6 hours**
 - (d) 3 hours

Total distance covered= Speed \times Time

= 40 km/hour \times 9 hours = 360 km.

The required time at 60 km/ hour = $360 \div 60$ = **6 hours**

11. If the speed of a bus is 40km/hr and 60 km/hr while reaching a city and coming back, what is the ratio of the time taken?

Solution:

Speed is inversely proportional to time

Ratio of speed=40:60=2:3, ratio of time=3:2

12. Excluding the stoppages the speed of a bus is 64km/hr and including the stoppage the speed of a bus is 48 km/hr. How many minutes does the bus stop per hour due to stoppages?

Solution:

$64 - 48 = 16$ km/hr.

Time taken to leave 16 km = 15 min

Stoppage time=15 min

13.A train is travelling at a speed of 160 km/hour. It takes 15 hours to cover the distance from city A to city B. Find the distance between the two cities.

$$(\text{Distance} = 160 \times 15 = 2400 \text{ km})$$

14.A car travelling from city A to city C completes the journey in 3 hours, whereas a person travelling on a bike completes the journey in 5 hours. What is the speed of the man on the bike if the car is travelling at 45 kmph?

$$(\therefore \text{distance} = 45 \times 3 = 135 \text{ km} : \therefore \text{speed} = 135 / 5 = 27)$$

15.If an employee walks 10 km at a speed of 3 km/hr, he will be late by 20 minutes. If he walks at 4 km/hr, how early from the fixed time he will reach ?

Solution: Time taken at 3 km/hr = Distance/speed

$$= 10 / 3$$

Actual time is obtained by subtracting the late time

$$\text{So, Actual time} = 10 / 3 - 1 / 3 = 9 / 3 = 3 \text{ hour}$$

$$\text{Time taken at 4 km/hr} = 10 / 4 \text{ hr}$$

$$\text{Time difference} = \text{Actual time} - \text{time taken at 4 km/hr}$$

$$= 3 - 10 / 4$$

$$= 1 / 2 \text{ hour}$$

Hence, he will be early by **30 minutes**.

Chapter 5: Train Problems

- (1) The length of the bridge, which a train 130 metres long and travelling at 45 km/hour can cross in 30 seconds, is:
- (a) 200 metres
 - (b) 225 metres
 - (c) 245 metres**
 - (d) 250 metres

$$\text{Speed} = [45 \times 5/18] \text{ m/sec} = [25/2] \text{ m/sec}$$

Time = 30 seconds
Let the length of bridge be x metres. Then, $(130 + x)/30 = 25/2 \Rightarrow 2(130 + x) = 750 \Rightarrow x = 245 \text{ m.}$

- (2) A train running at the speed of 60 km/hour crosses a pole in 9 seconds. What is the length of the train?
- (a) 120 metres
 - (b) 180 metres
 - (c) 324 metres
 - (d) 150 metres**

$$\text{Speed} = 60 \text{ km/hr} = (60 \times 5/18) \text{ m/sec} = (50/3) \text{ m/sec}$$

$$\text{Length of the train} = (\text{Speed} \times \text{Time}) = (50/3 \times 9) \text{ m} = 150 \text{ m.}$$

3.A train 100 m long is running at the speed of 30 km/hr. Find the time taken by the train to pass a man standing near the railway line.

$$\text{Speed} = 30 \times 5/18 = 25/3 \text{ m/sec}$$

$$\text{Time} = d/v = 3 \times 100 / 25 = 12 \text{ sec}$$

4.A train 110 m long is running at the speed of 132 km/hr. Find the time taken by the train to pass a platform of length 165 m .

Speed = $v=132 \times 5/18=110/3$ m/s

Distance=D = $110+165= 275$ m

Time = $d/v=7 \frac{1}{2}$ sec

5.A 150 m long train is running with a speed of 68 km/hr.In what time will it pass a man who is running at 8 km/hr ,in the same direction ?

Relative speed of train = $68-8=60$ km/hr= $60 \times 5/18=50/3$ m/s

Time=D/v= $150 \times 3/50=9$ sec

6 A 220 m long train is running with a speed of 59 km/hr.In what time will it pass a man who is running at 7 km/hr ,in the opposite direction of the train ?

Relative speed of train = $59+7=66$ km/hr= $66 \times 5/18=55/3$ m/s

Time=D/v= $220 \times 3/55=12$ sec

(7) A train 125 metres long passes a man, running at 5 km/hour in the same direction in which the train is going, in 10 seconds. The speed of the train is:

(a) 45 km/hour

(b) 50 km/hour

(c) 54 km/hour

(d) 55 km/hour

Speed of the train relative to man = $(125/10)$ m/sec = $(25/2)$ m/seconds

$[(25/2) \times (18/5)]$ km/hour = 45 km/hour

Let the speed of the train be x km/hour .Speed of man =5

Then, relative speed = $(x - 5)$ km/hour $x - 5 = 45 \Rightarrow x = 50$ km/hour

(8) Two trains running in opposite directions cross a man standing on the platform in 27 seconds and 17 seconds respectively and they cross each other in 23 seconds. The ratio of their speeds is:

- (a) 1 : 3
- (b) 3 : 2**
- (c) 3 : 4
- (d) None of these

Let the speeds of the two trains be x m/second and y m/second respectively.

Then, length of the first train = $27x$ meters, and length of the second train = $17y$ meters.

$$\begin{aligned}(27x + 17y) \div (x + y) &= 23 \\ 27x + 17y &= 23x + 23y \\ 4x &= 6y \\ x/y &= 3/2 \text{ or } 3 : 2\end{aligned}$$

- (9)** A train passes a station platform in 36 seconds and a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hour, what is the length of the platform?
- (a) 120 metres
 - (b) 240 metres**
 - (c) 300 metres
 - (d) None of these

Speed = $(54 \times 5/18)$ m/second = 15 m/second

Length of the train = (15×20) m = 300 m.

Let the length of the platform be x meters.

$$\begin{aligned}\text{Then, } (x + 300)/36 &= 15 \\ x + 300 &= 540 \\ x &= 240 \text{ m.}\end{aligned}$$

(10) A 300 meter long train crosses a platform in 39 seconds while it crosses a signal pole in 18 seconds. What is the length of the platform?

- (a) 150 metres
- (b) 200 metres
- (c) 350 metres**
- (d) 400 metres

$$\text{Speed} = [300 / 18] \text{ m/second} = 50/3 \text{ m/second}$$

Let the length of the platform be x meters.

$$\text{Then, } x + 300 / 39 = 50/3$$

$$3(x + 300) = 1950$$

$$x = 350 \text{ m.}$$

(11) A train crosses a platform of 120 metres in 15 second, same train crosses another platform of length 180 metres in 18 second, then find the length of the train?

- (a) 175 metres
- (b) 180 metres**
- (c) 185 metres
- (d) 170 metres

Length of the train be ' X '

$$X + 120/15 = X + 180/18$$

$$6X + 720 = 5X + 900$$

$$X = 180 \text{ m}$$

(12) A train 400 m long can cross an electric pole in 20 second and then find the speed of the train?

- (a) 65 km/ hour

- (b) 70 km/ hour
- (c) 72 km/ hour**
- (d) 75 km/ hour

Length = Speed × time

Speed = Length/ Time

$$S = 400 / 20$$

$$S = 20 \text{ M/Second}$$

Speed= $20 \times 18/5$ (To convert M/Second in to Km/ hour multiply by 18/5)

Speed = 72 Km/ hour

- 13.** Two trains of length 100 m and 120 m running in same directions with a speed of 72 km/hr and 54 km/hr In how much time will the first train cross the second ?

$$\text{Relative speed} = 72 - 54 = 18 \text{ km/hr} = 18 \times 5/18 = 5 \text{ m/s}$$

$$\text{Total distance covered} = 100 + 120 = 220$$

$$\text{Time} = 220/5 = 44 \text{ sec}$$

- (14)** The two trains of lengths 400 metres, 600 metres respectively, running at same directions. The faster train can cross the slower train in 180 second, the speed of the slower train is 48 km., then find the speed of the faster train?

- (a) 58 km/ hour
- (b) 68 km/ hour**
- (c) 78 km/ hour
- (d) 55 km/ hour

Length of the two trains = 600 metres + 400 metres

Speed of the first train = X

Speed of the second train= 48 Km/ hour

$$1000/ X - 48 = 180$$

$$1000/ x - 48 \times 5/18 = 180$$

$$50 = 9X - 120$$

$$X = 68 \text{ Km/ hour}$$

(15) Two stations A and B are 110 km apart on a straight line. One train starts from A at 7 a.m. and travels towards B at 20 km/ hour. Another train starts from B at 8 a.m. and travels towards A at a speed of 25 km/ hour. At what time will they meet?

- (a) 9 a.m.
- (b) 10 a.m.**
- (c) 10.30 a.m.
- (d) 11 a.m.

Suppose they meet x hours after 7 a.m.

Distance covered by A in x hours = $20x$ km.

Distance covered by B in $(x - 1)$ hours = $25(x - 1)$ km.

$$\text{Therefore } 20x + 25(x - 1) = 110$$

$$45x = 135$$

$$x = 3.$$

So, they meet at **10 a.m.**

Chapter 6: Boats and Streams

Boats and Streams

Boats and Streams aptitude questions are a popular category of questions that are asked in various competitive exams, entrance tests, and interviews. The two fundamental concepts in the Boats and Streams Aptitude Quiz are upstream and downstream. These questions are based on the principle of relative speed and are used to calculate the speed of a boat or a stream in still water, given the speed of the boat in the downstream or upstream direction.

Important terms:

Stream: Moving water in a river or any other water body.

Upstream: Moving against the direction of the stream or current.

Downstream: Moving along the direction of the stream or current.

Still Water: Water in a river or any other water body that is not flowing or stationary.

Boats and Streams Formula:

Speed Upstream = $U-V$ km/ hour=B

Speed Downstream = $U+V$ km / hour=A

U=Speed of the boat in still water

V=Speed of the stream

Speed of boat in still water = $1/2 \times (A+B)$ km / hour

Rate of stream = $01/2 \times (A - B)$ km/hour

- 1. The speed of a boat when travelling down stream is 32 km/hr were as when travelling upstream is 28 km/hr. What is the speed of the boat in still water in speed of the stream?**

Solution:

Speed of boat in still water= $1/2(a+b)=30$ km/hr

Speed of stream= $1/2(a-b)=2$

- 2. A man takes 3 hours 45 minutes to row the boat 15 km down stream of a river and 2 hours 30minutes to cover a distance of 5 km upstreams. Find speed of river current in km/hr.**

Solution:

$$\text{Speed of downstream} = 15/3\text{hrs } 45\text{min} = 4\text{km/hr}$$

$$\text{Speed of upstream} = 5/2\text{hrs } 30\text{min} = 2\text{km/hr}$$

$$\text{Speed of current/stream} = 1/2(a-b) = 1\text{km/hr}$$

- 3. A Man can row 6km/hr in still water,takes him twice as long to row up to row down the river.Find the rate of the stream.**

Solution:

$$\text{Let man's way upstream} = b = x\text{km/hr}$$

$$\text{Rate downstream} = a = 2x\text{km/hr}$$

$$\text{Rate in still water} = 1/2(a+b) = 6$$

$$x=4$$

$$\text{Speed of rate of upstream} = b = x = 4$$

$$\text{Speed of stream} = a = 2x = 8\text{km/hr}$$

$$\text{Rate of stream} = 1/2(a-b) = 2\text{km/hr}$$

- 4. A man can row 7.5 km/hr in still water. If in a river 1.5 km an hour, it takes him 150min to raw to a place and back, How far off is the place.**

Solution;

$$\text{Speed of downstream} = U + V = 9\text{km/hr} = 7.5 + 1.5$$

$$\text{Speed of upstream} = U - V = 6\text{km/hr} = 7.5 - 1.5$$

Let the distance=x km

$$\text{Time} = 50 \text{ min} \quad x/9 + x/6 = 50/60$$

$x=3$

Required distance=3km

5. A man goes 18km downstream, in 4 hours and returns against the stream in 12 hours. Find the speed of stream in km/hr.

Solution:

$$\text{Speed downstream} = 18/4 = 9/2 = a$$

$$\text{Speed upstream} = 18/12 = 3/2 = b$$

$$\text{Speed of stream} = 1/2(a-b) = 3/2$$

6. A man swimming in a stream which flows 1.5 km. Find that in a given time he can swim twice as far with a stream as he can against it at what rate does he swim.

Solution:

$$\text{Speed of upstream be } x=b$$

$$\text{Speed of downstream be } 2x=a$$

$$\text{Speed of the man} = 1/2(a+b)$$

$$\text{Speed of the stream} = 1/2(a-b) = x/2$$

$$\text{Given that speed of stream} = 1.5 \text{ km/hr} = 3/2$$

$$x/2 = 3/2 \quad x=3$$

$$\text{Speed of upstream} = x = 3 = b$$

$$\text{Speed of downstream} = 2x = 6 = a$$

$$\text{Speed of man} = 1/2(a+b) = 4.5 \text{ km/hr}$$

7. If a boat 7km upstreams in 42 min and the speed of the stream is 3km/hr. Then what is the speed of the boat in still water.

Solution:

$$42\text{min} = 42/60\text{hr} = 7/10 \text{ hr}$$

Speed of the stream=3km/hr

Speed of still water=x

Upstream speed=U-V=x-3=10

x=13km/hr

- 8. A man's speed with the current is 15km/hr and speed of the current is 2.5 km/hr What is the man's speed against the current?**

Solution:

Man's speed in still water= $u-v=15-2.5=12.5\text{km}$

Man's speed against the current= $12.5-2.5=10\text{km/hr}$

- 9. A man can row upstream at 7 kmph and downstream at 10kmph. Find man's rate in still water and the rate of current.**

Solution:

Rate in still water= $1/2(10+7)\text{km/hr}=8.5\text{km/hr}$

Rate of current= $1/2(10-7)\text{km/hr}=1.5\text{km/hr}$

- 10. A man can row 18kmph in still water, it takes him thrice as long to row up as to row down the river. Find the rate of stream.**

Solution:

Let man's rate of upstream be $x\text{kmph}$, his rate of downstream= $3x\text{ kmph}$.

So, $2x=18$ or $x=9$

Rate of upstream= 9km/hr , rate of downstream= 27km/hr

Rate of stream= $1/2(27-9)=9\text{km/hr}$

- (11) A boatman can row a boat upstream at 14 km/ hour and downstream at 20 km/ hour. Find the speed of the boat in still water and the speed of the stream.**

We are given that speed downstream, $D = 20 \text{ km / hour}$ and speed upstream,

$$U = 14 \text{ km / hour}$$

Therefore, Speed of boat in still water = $0.5 \times (D + U) \text{ km / hour} = 0.5 \times (14 + 20) = 17 \text{ km / hour}$

Also, speed of the stream = $0.5 \times (D - U) \text{ km / hour} = 0.5 \times (20 - 14) = 3 \text{ km / hour}$

- (12) A boatman can row a boat at the speed of 5 km upstream and 15 km downstream. To cover upstream he needs 2.5 hours and to cover downstream, he needs 10 hours. Find the speed of the stream and the speed of the boat in still water.

We are given that the boatman covers 5 km upstream in 2.5 hours and 15 km downstream in 10 hours.

$$\text{= Speed upstream, } U = 5 / 2.5 = 2 \text{ km / hour}$$

$$\text{= Speed downstream, } D = 15 / 1.5 = 10 \text{ km / hour}$$

Therefore, Speed of boat in still water = $0.5 \times (D + U) \text{ km / hour} = 0.5 \times (10 + 2) = 6 \text{ km / hour}$

Also, speed of the stream = $0.5 \times (D - U) \text{ km / hour} = 0.5 \times (10 - 2) = 4 \text{ km / hour}$

- (13) A man has to go from a port to an island and return. He can row a boat with a speed of 7 km/ hour in still water. The speed of the stream is 2 km/hour. If he takes 56 minutes to complete the round trip, find the distance between the port and the island.

$$\text{Speed upstream} = 7 - 2 = 5 \text{ km / hour}$$

$$\text{Speed downstream} = 7 + 2 = 9 \text{ km / hour}$$

Let the distance between the port and the island be D km.

Also, we know that Time = Distance / Speed

$$= (D/5) + (D/9) = 56/60$$

$$= (14 D) / 45 = 56 / 60$$

$$= D = 3 \text{ km}$$

Therefore, the distance between the port and the island = **3 km**

- (14) In a boat race, a person rows a boat 6 km upstream and returns to the starting point in 4 hours. If the speed of the stream is 2 km/hour, find the speed of the boat in still water.

Let the speed of the boat in still water be B km/ hour

$$= \text{Speed upstream} = (B - 2) \text{ km/ hour}$$

$$= \text{Speed downstream} = (B + 2) \text{ km / hour}$$

We know that, Time = Distance / Speed

$$= 6/(B - 2) + 6/(B + 2) = 4$$

$$= 6 B + 12 + 6 B - 12 = 4 (B - 2) (B + 2)$$

$$= 12 B = 4 (B - 2) (B + 2)$$

$$= 3 B = B^2 - 4$$

$$= B^2 - 3 B - 4 = 0$$

$$= (B + 1) (B - 4) = 0$$

$$= B = 4 \text{ km/ hour} \text{ (Speed cannot be negative)}$$

- (15) A racer can row a boat 30 km upstream and 44 km downstream in 10 hours. Also, he can row 40 km upstream and 55 km downstream in 13 hours. Find the speed of the boat in still water and the speed of the stream.

Let the speed upstream be U km/hour and the speed downstream be D km/hour

We know that, Distance / Speed = Time

$$= (30 / U) + (44 / D) = 10 \text{ and } (40 / U) + (55 / D) = 13$$

Solving the above pair of linear equations, we get

$$D = 11 \text{ km/ hour}$$

$$U = 5 \text{ km/ hour}$$

Therefore, Speed of boat in still water = $0.5 \times (D + U)$ km / hour = $0.5 \times (11 + 5)$ = 8 km / hour

Also, speed of the stream = $0.5 \times (D - U)$ km / hour = $0.5 \times (11 - 5)$ = **3 km / hour**

Chapter 7:Permutation and Combination

Formula : ${}^n P_r = \frac{n!}{(n-r)!}$, ${}^n C_r = \frac{n!}{r!(n-r)!}$

- Find the value of ${}^5 P_5 + {}^{10} C_3 + {}^{60} C_{60}$

a)240 b)120 c)241 d 360

2.In how many different ways can the letters of the word ‘FIGHT’ be arranged?

a)50 b)5 c)120 d)4 ($5! = 120$)

3. In how many different ways can the letters of the word ‘PRESENT’ be arranged?

a)2520 b)7 c)2250 d)2025 ($7!/2 = 2520$)

4.How many arrangements can be made out of the letters of the word ‘MATHEMATICS’?

a) $\frac{11!}{2!2!2!}$ b) $\frac{10!}{2!2!}$ c) $\frac{12!}{2!2!2!}$ d) $\frac{11!}{2!2!2!}$

5.In how many ways can a cricket team of eleven be chosen out of 14 players?

a)634 b)364 c)346 d)463 ($14 C 11 = 14C3 = 364$)

6..In how many ways can 5 girls can be seated in a bench?

a)120 b)5 c)6 d)20 ($5! = 120$)

7. In how many ways,a committee of 6 members be selected from 7 men and 5 ladies,consisting of 4 men and 2 ladies?

a)530 b)350 c)503 d)305

8. In how many ways can a group of 5 men and 2 women be made out of a total of 7 men and 3 women?

a)45 b)63 c)90 d)126 ($7C5 \times 3C2 = 21 \times 3 = 63$)

9 Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?

- A) 25200 B) 52000 C) 120 D) 24400

Explanation: Number of ways of selecting (3 consonants out of 7) and (2 vowels out of 4) = $(7C3 * 4C2) = 210$.

Number of groups, each having 3 consonants and 2 vowels = 210.

Each group contains 5 letters.

Number of ways of arranging 5 letters among themselves = $5! = 120$

Required number of ways = $(210 \times 120) = 25200$.

10. A committee of 5 persons is to be formed from 6 men and 4 women.

In how many ways can this be done when at least 2 women are included?

- A) 196 B) 186 C) 190 D) 200

Explanation: When at least 2 women are included.

The committee may consist of 3 women, 2 men: It can be done in $4C3 * 6C2$ ways

or, 4 women, 1 man: It can be done in $4C4 * 6C1$ ways

or, 2 women, 3 men : It can be done in $4C2 * 6C3$ ways.

Total number of ways of forming the committees

$$= 4C2 * 6C3 + 4C3 * 6C2 + 4C4 * 6C1$$

$$= 6 \times 20 + 4 \times 15 + 1 \times 6$$

$$= 120 + 60 + 6 = 186$$

11. A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?

- A) 1260 B) 1400 C) 1250 D) 1600

Explanation: A team of 6 members has to be selected from the 10 players.

This can be done in $10C6$ or 210 ways.

Now, the captain can be selected from these 6 players in 6 ways.

Therefore, total ways the selection can be made is $210 \times 6 = 1260$

12. In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?

- A) 360 B) 700 C) 720 D) 120

Explanation: The word 'OPTICAL' contains 7 different letters.

When the vowels OIA are always together, they can be supposed to form one letter.

Then, we have to arrange the letters PTCL (OIA).

Now, 5 letters can be arranged in $5! = 120$ ways.

The vowels (OIA) can be arranged among themselves in $3! = 6$ ways.

Required number of ways = $(120 \times 6) = 720$.

13. How many 4-letter words with or without meaning, can be formed out of the letters of the word, 'LOGARITHMS', if repetition of letters is not allowed?

- A) 4050 B) 3600 C) 1200 D) 5040

Explanation: 'LOGARITHMS' contains 10 different letters.

Required number of words = Number of arrangements of 10 letters, taking 4 at a time.

$10P4 = 5040$.

14. How many integers, greater than 999 but not greater than 4000, can be formed with the digits 0, 1, 2, 3 and 4, if repetition of digits is allowed?

- A) 376 B) 375 C) 500 D) 673

Explanation: first we find the no of numbers from 1000 to 3999

Thousands place can be filled by any of the 4 digits (1,2,3,)in 3 ways

Hundreds, tens and units place) be filled in 5 ways each.

Hence, there are $3 \times 5 \times 5 \times 5$ or 375 numbers from 1000 to 3999.

Including 4000, there will be **376** such numbers.

15. The Indian Cricket team consists of 16 players. It includes 2 wicket keepers and 5 bowlers. In how many ways can a cricket eleven be selected if we have to select 1 wicket keeper and at least 4 bowlers?

- A) 1024 B) 1900 C) 2000 D) **1092**

Explanation:

We are to choose 11 players including 1 wicket keeper and 4 bowlers or, 1 wicket keeper and 5 bowlers.

Number of ways of selecting 1 wicket keeper, 4 bowlers and 6 other players
in $2C1 * 5C4 * 9C6$

$$= 840$$

Number of ways of selecting 1 wicket keeper, 5 bowlers and 5 other players
in $2C1 * 5C5 * 9C5 = 252$

Total number of ways of selecting the team = $840 + 252 = \mathbf{1092}$

Chapter 8: Probability

Probability of occurrence of an event:

Let S be the sample space and let E be an event. Then $P(E) = \frac{n(E)}{n(S)}$

In tossing a coin, $S = \{H,T\}$

If two coins are tossed,then $S = \{HH,HT,TH,TT\}$

In rolling a dice , we have, $S = \{ 1, 2, 3, 4, 5, 6\}$

A pack of cards of each cards has 52 cards.

It has 13 cards of each suit,namely Spades,Clubs,Hearts and Diamonds.

Cards of Spades and Clubs are black cards.

Cards of Hearts and Diamonds are red cards.

There are 4 honours of each suit.

These are Aces ,Kings,Queens and Jacks.

These are called face cards.

Problems

1.In a throw of a coin, find the probability of getting a head.

- a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{4}$ (a)

2.Two unbiased coins are tossed.What is the probability of getting at most one head?

- a) $\frac{1}{2}$ b) $\frac{3}{4}$ c) $\frac{1}{4}$ d) $\frac{2}{4}$ (3/4)

3.An unbiased die s are tossed.Find the probability of getting multiple of 3.

- a) $\frac{2}{3}$ b) $\frac{1}{2}$ c) $\frac{1}{3}$ d)1 (2/6=1/3)

4.In a simultaneous throw of a pair of dice,find the probability of getting a total more than 7.

a) $\frac{5}{12}$ b) $\frac{4}{12}$ c) $\frac{7}{12}$ d) $\frac{10}{12}$ ((2,6),(3,5).....so $15/36=5/12$)

5.A bag contains 6 white and 4 black balls.Two balls are drawn at random.Find the probability that they are of the same colour.

a) $\frac{1}{15}$ b) $\frac{2}{15}$ C) $\frac{5}{15}$ d) $\frac{7}{15}$ ($n(s) = 10 C_2 = 45$ $n(E) = 6C_2 + 4C_2 = 21$ ans $21/45 = 7/15$)

6. In a simultaneous throw of two coins,the probability of getting at least one head is

a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{3}{4}$ ($3/4$)

7.In a single throw of a die,what is the probability of getting a number greater than 4?

a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{4}$ ($2/6=1/3$)

8.Two dice are thrown simultaneously.What is the probability of getting two numbers whose product is even?

a) $\frac{1}{2}$ b) $\frac{3}{4}$ c) $\frac{3}{8}$ d) $\frac{5}{16}$ ($27/36=3/4$)

9.A card is drawn from a pack of 52 cards.The probability of getting a queen of club or king of heart is

a) $\frac{1}{13}$ b) $\frac{2}{13}$ c) $\frac{1}{26}$ d) $\frac{1}{52}$ ($2/52=1/26$)

10. One card is drawn from a pack of 52 cards. What is the probability that the card drawn is either a red card or a king?

a) $\frac{1}{2}$ b) $\frac{6}{13}$ c) $\frac{7}{13}$ d) $\frac{27}{52}$ ($28/52=14/26=7/13$)

11. From a pack of 52 cards, one card is drawn at random. What is the probability that the card drawn is a ten or a spade?

a) $\frac{4}{13}$ b) $\frac{1}{4}$ c) $\frac{1}{13}$ d) $\frac{1}{26}$ ($16/52=4/13$)

12. A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?

a) $\frac{3}{4}$ b) $\frac{4}{7}$ c) $\frac{1}{8}$ d) $\frac{3}{7}$ ($8/14=4/7$)

13. Two dice are thrown simultaneously. What is the probability of getting a total score of 7?

a) $\frac{1}{6}$ b) $\frac{3}{4}$ c) $\frac{1}{8}$ d) $\frac{2}{3}$ ($6/36 =1/36$)

14. A bag contains 5 green and 7 red balls. Two balls are drawn. Find the probability that one is green and the other is red,

a) $\frac{35}{66}$ b) $\frac{3}{4}$ c) $\frac{33}{66}$ d) $\frac{1}{2}$ ($5C1 \times 7C1 / 12 C2 =35/66$)

15. When four fair dice are rolled simultaneously, in how many outcomes will at least one of the dice show 3?

A) 620

B) 671

C) 625

D) 567

Explanation:

When 4 dice are rolled simultaneously, there will be a total of $6 \times 6 \times 6 \times 6 = 1296$ outcomes.

The number of outcomes in which none of the 4 dice show 3 will be $5 \times 5 \times 5 = 625$ outcomes.

Therefore, the number of outcomes in which at least one die will show 3 =

$$1296 - 625 = \mathbf{671}$$

Study Materials and References:

https://drive.google.com/file/d/1spNAkzECUpExmI9ko-cfW73J_aIjvG1f/view?usp=sharing

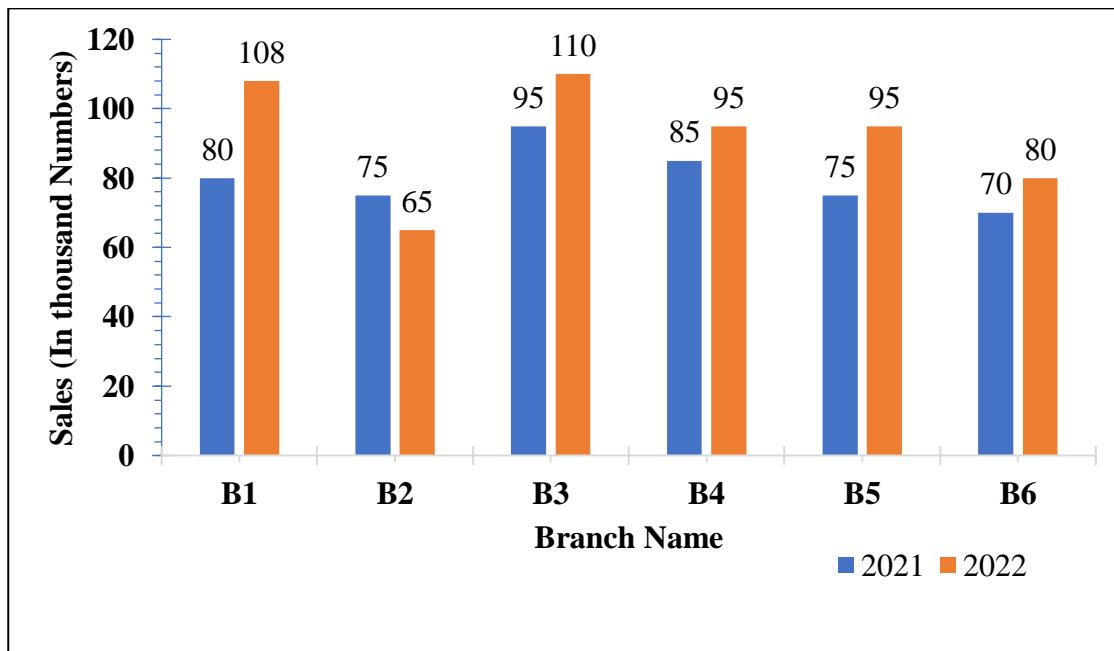
https://drive.google.com/file/d/1zId-UTXQy1ftC5UEFJ3Ch_YHTKpsnf3r/view?usp=sharing

Logical Reasoning – Unit III

Data Analysis

Directions (1-5): The bar graph given below shows the sales of books (in thousand number) from six branches of a publishing company during two consecutive years 2021 and 2022?

Sales of Books (in thousand numbers) from Six Branches – B1, B2, B3, B4, B5 and B6 of a publishing Company in 2021 and 2022.



Question 1: What is the ratio of the total sales of branch B2 for both years to the total sales of branch B4 for both years?

- A. 2:3
- B. 3:5
- C. 4:5
- D. 7:9

Answer: (D)

Question 2: Total sales of branch B5 for 2021 is what percent of the total sales of branches B6 for both the years ?

- A. 75 %
- B. 50%

- C. 25%
- D. 30%

Answer: (B)

Question 3: What is the difference of the average sales of branches B4 and B5 for both the years in thousands?

- A. 10
- B. 15
- C. 5
- D. 20

Answer: (C)

Question 4: What is the average sales of all the branches (in thousand numbers) for the year 2021?

- A. 73
- B. 80
- C. 83
- D. 88

Answer: (B)

Question 5: Total sales of branches B1, B3 and B5 together for both the years (in thousand numbers) is?

- A. 250
- B. 310
- C. 435
- D. 563

Answer: (D)

Data Sufficiency

Directions for data sufficiency questions (1-10):

- A. Data in the statement I alone is sufficient to answer the question.
- B. Data in the statement II alone is sufficient to answer the question.
- C. Data either in the statement I alone or statement II alone are sufficient to answer the question.
- D. Data given in both I & II together are not sufficient to answer the question.
- E. Data in both statements I & II together are necessary to answer the question.

Question 1: Who is taller among P, Q, R, S & T?

Statement I: S is shorter than Q. P is shorter than only T

Statement II: Q is taller than only S. T is taller than P and R

Answer: (C)

Question 2: What is the distance between point P and point Q?

Statement I: Point R is 10 m west of point P and point S is 10 m north of point P.

Statement II: Point Q is 10 m south-east of point R. Point S is 20 m north-west of point Q.

Answer: (D)

Answer: (E)

Question 3: What is Monica's position with respect to Rahul?

Statement I: In a row of 25 students, Monica is sitting 12th from right end of row and Rahul is sitting 20th from left end of the row.

Statement II: Monica is 4th from right end and Rahul is 8th from left end.

Answer: (A)

Question 4: Who has secured less marks among P, Q, R, S & T?

Statement I: S has secured less marks than only R and T.

Statement II: Q secured more marks than P.

Answer: (A)

Question 5: Amit is facing which direction?

Statement I: Shikha is facing east direction and if she turns to her right, she will face Raj.

Statement II: Amit is facing opposite direction as that of Kiran who is facing Shikha.

Answer: (D)

Question 6: How much was the total sale of the company?

Statement I: The company sold 8000 units of product A each costing Rs. 25.

Statement II: This company has no other product line.

Answer: (E)

Question 7: On which date in August was Kapil born?

Statement I: Kapil's mother remembers that Kapil was born before nineteenth but after fifteenth.

Statement II: Kapil's brother remembers that Kapil was born before seventeenth but after twelfth.

Answer: (E)

From I, we conclude that Kapil was born on any one of the dates among 16th, 17th and 18th.

From II, we conclude that Kapil was born on any one of the dates among 13th, 14th, 15th and 16th.

Question 8: What is the shortest distance between Devipur and Durgapur?

Statement I:Durgapur is 20 kms away from Rampur.

Statement II:Devipur is 15 kms away from Rampur.

Answer: (D)

Clearly, the distance of each village from Rampur is given in I and II. But nothing about their relative positions is mentioned. So, the distance between the two villages cannot be calculated.

Question 9: On which day in April is Gautam's birthday?

Statement I:Gautam was born exactly 28 years after his mother was born.

Statement II:His mother will be 55 years 4 months and 5 days on April 18 this year.

Answer: (E)

Clearly, the birthday of Gautam's mother can be found out from II and then Gautam's birthday can be determined using the fact given in I.

Question 10: What will be the total weight of 10 poles, each of the same weight?

Statement I:One-fourth of the weight of each pole is 5 kg.

Statement II:The total weight of three poles is 20 kilograms more than the total weight of two poles.

Answer: (C)

DECISION MAKING

Directions for questions 1 to 5: A famous retail electronics showroom chain has six new mobile phone models - T, V, W, X, Y, and Z – each equipped with at least one of the following three options: digital camera, music player, and office document viewer. No mobile has any other option. The following conditions apply:

V features both a digital camera and an office document viewer.

W has digital camera and music player

W and Y have no options in common.

X has more options as compared to W

V and Z have exactly one option in common

T has fewer options as compared to Z.

Question 1: For exactly how many of the six mobile phones is it possible to determine exactly which option each one has?

- A. Two

- B. Three
- C. Four
- D. Five

Answer: (C)

Question 2: Which one of the following must be false?

- A. Exactly five mobile phones feature a music player.
- B. Exactly five mobile phones feature a document viewer.
- C. Exactly four mobile phones feature a music player.
- D. Exactly four mobile phones feature a document viewer.

Answer: (A)

Question 3: If Z has no option in common with T but has at least one option in common with every other mobile phone, then which one of the following must be false?

- A. T has digital camera
- B. Z has document viewer
- C. Exactly four of the six mobile phones have document viewer.
- D. Exactly four of the six mobile phones have music player

Answer: (D)

Question 4: Suppose no two mobile phone models have exactly the same options as one another. In that case each of the following could be true EXCEPT:

- A. Exactly three of the six mobile phones have digital camera.
- B. Exactly three of the six mobile phones have document viewer.
- C. Exactly four of the six mobile phones have document viewer.
- D. Exactly four of the six mobile phones have music player.

Answer: (B)

Question 5: Which one of the following must be True ?

- A. Exactly five mobile phones feature a music player.
- B. Exactly two mobile phones feature a document viewer.
- C. Exactly four mobile phones feature a document viewer.
- D. None of these

Answer: (C)

Directions for questions 6 to 10: Following are the conditions for admission to an engineering college. A student should

- A. be a of minimum 18 years of age as of 1.7.2000.
- B. have secured at least 50% marks in Standard XII.
- C. have secured at least 60% marks in the entrance exam.
- D. be ready to pay Rs. 20,000 at the time of admission.

A student who fulfils all conditions except:

- (A) At 2 above, but has secured 80% marks in the entrance exam, case to be referred to President, Admission.
- (B) At four above, but can pay at least Rs. 10,000 at the time of admission, case to be referred to the Dean of the College.

Based on the above conditions and information provided in each of the questions below, decide the course of action in each case. These cases are given to you as of 1.12.2000.

Question 6: Shekhar Agarwal has secured 58 per cent and 85 per cent marks in XII Std and in the entrance test respectively. He was born on 11 January 1982. He can pay Rs. 20,000 at the time of admission.

- A. Student is to be admitted.
- B. Case is to be referred to the President, Admission.
- C. Case is to be referred to the Dean of the College.
- D. Data are not adequate to make the decision.
- E. Student is not to be admitted.

Answer: (A)the student is to be admitted

Question 7: Sheela Dixit has secured 75 per cent and 80 per cent marks in the XIIStd and in the entrance test respectively. She can pay Rs. 10,000 at the time of admission and was born on 15 June 1982.

- A. Student is to be admitted.
- B. Case is to be referred to the President, Admission.
- C. Case is to be referred to the Dean of the College.
- D. Data are not adequate to make the decision.
- E. Student is not to be admitted.

Answer: (C)

Question 8: Ashok Paranjpe was born on 17 January 1982. He has secured 65 per cent and 75 per cent marks in XII Std and in the entrance test respectively. He can pay Rs. 15,000 at the time of admission.

- A. Student is to be admitted.
- B. Case is to be referred to the President, Admission.
- C. Case is to be referred to the Dean of the College.
- D. Data are not adequate to make the decision.
- E. Student is not to be admitted.

Answer: (C)

Question 9: Aruna Nadkarni can pay Rs. 20,000 at the time of admission and has secured 60 per cent and 70 per cent marks in graduation and in the entrance test respectively. She was born on 5 April 1981.

- A. Student is to be admitted.
- B. Case is to be referred to the President, Admission.
- C. Case is to be referred to the Dean of the College.
- D. Data are not adequate to make the decision.
- E. Student is not to be admitted.

Answer: (D)

Question 10: Rita Jha was born on 12 June 1980. She can pay Rs. 20,000 at the time of admission. She has secured 45 per cent and 85 per cent marks in XII Std and in the entrance test respectively.

- A. Student is to be admitted.
- B. Case is to be referred to the President, Admission.
- C. Case is to be referred to the Dean of the College.
- D. Data are not adequate to make the decision.
- E. Student is not to be admitted.

Answer: (B)

Coding and Decoding

1. In a code language, if TRAINS is coded as RTIASN, how will FLOWER be coded in the same language?

- a) LFLOWER.
- b) LFWARE.
- c) WORELF.
- d) ERFLOW

Answer: B

2. In a certain code language, the word PARTNER is coded as TRAPREN, how will FOUNDER be coded in the same language

- a) NUOFDER. b)NOUFRED. c)FOUNRED. d)OFNUEDR

Answer:B

3.In a code language,if SUGAR is coded as ZNMDB and TEA is coded as FLD , how would you code GRATE in the same code for

- a)BNDFL. b)MBDFL. c)LDZMN. d)FLDZB

Answer:B

4.If in a certain code language, TWENTY is coded as 863985 and ELEVEN is coded as 323039,how will TWELVE be coded?

- a)863903. b)86365. c)863203. d)683583

Answer:C

5.In a certain code language, the word RECTANGLE is coded as TGEVCPING, then how is the word RHOMBUS coded?

- a)TJOQDWV. b)UVWTJQN. c)TJQODWU. d)JTQOEWN

Answer:C

6.If wall is called window, window is called door,door is called floor, floor is called roof and roof is called ventilator, what will a person stand on?

- a)door. b) ventilator. c)roof. d)floor

Answer:C

7.In a certain language, the word REJECT is written as SGMIHZ.How will the word ACCEPT be written?

- a)BEFIU b)BEVMUZ. c)BEEIUZ. d)BEFIUZ

Answer:D

8.If in a certain language CHENNAI is coded as DGFMOZJ how is MUMBAI coded in the same language?

- a)NINABH. b)LVLCZJ. c)LTLCBH. d)NVNCBJ

Answer:A

9.If in a certain code language, MIRROR is coded as 1391818181518 how will APPLE be coded in the same language?

- a)11616125. b)3984145. c)1162254. d)11213147

Answer:A

10.If EAT is 26,ZEAL is 44 and AROMA is 48, how is HELMET written in the same language?

a)23. b)63. c)83. d)53

Answer:B

11.In a certain code language, SIMPLE is written as ISPTEL and CHAPTER is written as HCPARET.Then LFWARE stands for which word?

a)LOWFER. b)FLOREW. C) FLOWER. d)WORELF

Answer:C

12.In a certain code language, if CARROM is written as MORRAC , then what is the word coded as TIBBAR

a)RIBBAT. b) RABBIT. c)BARTIB. d)BITRAB

Answer:B

13.In a certain code language,if POURING is written as xfnplom, SAMPLE is written as zehxcj and WHITENER is written r atlkjojp, then which word is written as hjecz?

a)LEAMS. b)SMEAL. c)MEALS. d)MALES

Answer:C

14.If in a certain language POWERFUL is coded as QQZIWLBT,then which word is coded as ECQGJXZ?

a) DANCERS. b) HARMLESS. c)PRACTISE. d) DANGERS

Answer:A

15.If the code in a certain language, for PAPER=56 and SHEET=56, then for which of the following words is the code 88?

a)IRON. b)PUPPET. c) HELMETS. d) PARROT

Answer:D

Blood Relations

Question 1.Pointing towards a photograph Mr.Sharma said “She is the only daughter of mother of my brother ‘s sister”. How is Mr.Sharma related to the lady in the photograph?

A) cousin. B) sister. C) aunt. D) daughter in law

Answer:B

Question 2.Nicholas said “ This girl is the wife of the grandson of my mother”.Who is Nicholas to this girl?

- A) father. B) husband. C) grandfather. D Father in law

Answer:D

Question 3.Q is the brother of C and C is the sister of Q. R and D are brother and sister.R is the son of A while A and C are wife and husband.How is A related with D

- A) sister. B brother. C)aunt. D) uncle

Answer: D

Question 4.Introducing a boy,a girl said,” He is the only son of my mother’s mother “.How is the girl related to the boy?

- A) aunt. B) niece. C) sister. D) mother

Answer:B

Question 5: A Woman said to a man, “The daughter of your only sister is the sister of my husband”. What is the relation of man’s sister to the woman?

- A. Mother
- B. Mother-in-Law
- C. Daughter
- D. Data Inadequate

Answer: (B)

Question 6: Q’s mother is the sister of R and daughter of S and N is the daughter of R and sister of M. How is M related to S?

- A. Son
- B. Son’s Father
- C. Daughter’s Son
- D. Data Inadequate

Answer: (D)

Question 7: Pointing to the woman in the picture, Rajiv said, “Her mother has only one grandchild whose mother is my wife”. How is the woman in the picture related to Rajiv?

- A. Cousin
- B. Wife
- C. Sister
- D. None of these

Answer: (B)

Question 8: Pointing to a man, a woman said, “He is the brother of my uncle’s daughter”. How is the man related to woman?

- A. Cousin
- B. Son
- C. Uncle
- D. Brother-in-law

Answer: (A)

Puzzle Test

Directions for questions 1 to 3: Read the following information carefully and answers the questions below
A, B, C, D and E are famous for their Lovely Garden, Fancy Jewellery, Educational Institute, Blue Pottery and Scents but not in the same order

- I. A and C are neither Educational Institutes nor have gardens.
- II. B and E are not famous for Jewellery or Pottery.
- III. Scents and Jewellery have nothing to do with A.
- IV. D and E are not famous for Garden and Jewellery.
- V. D is not famous for Educational Institutes.

Question 1: Which of the following city is famous for gardens?

- A. A
- B. C
- C. D
- D. B

Answer: (B)

Question 2: Blue Pottery is available in which of the following cities?

- A. A
- B. C
- C. E
- D. B

Answer: (A)

Question 3: City E is famous for which of the following?

- A. Jewellery

- B. Educational Institutes
- C. Blue Pottery
- D. Scent

Answer: (B)

Directions for questions 4 to 8: Lectures A, B, C, D, E and F are to be organized in a span of seven days from Sunday to Saturday, only one lecture on each day in accordance with the following:

- I. A should not be organized on Thursday
- II. C should be organized immediately after F.
- III. There should be a gap of two days between E and D.
- IV. One day there will be no lecture (Friday is not that day), first before that day D will be organized.
- V. B should be organized on Tuesday and should not be followed by D.

Question 4: On which day, there is no lecture?

- A. Monday
- B. Friday
- C. Sunday
- D. Cannot be determined

Answer: (A)

Question 5: How many lectures are organized between C and D?

- A. None
- B. One
- C. Two
- D. Three

Answer: (D)

Question 6: Which day will the Lecture F be organized?

- A. Thursday
- B. Friday
- C. Saturday
- D. Sunday

Answer: (A)

Question 7: Which of the following is the last lecture in the series?

- A. A
- B. B
- C. C
- D. D

Answer: (A)

Question 8: Which of the following information is not required in finding the complete sequence of organization of lectures?

- A. Only I
- B. Only II
- C. Only V
- D. All are required

Answer: (D)

Question 9: If wall is called window, window is called door, door is called floor, floor is called roof and roof is called ventilator, what will a person stand on?

- A. Door
- B. Ventilator
- C. Roof
- D. Floor

Answer: (C)

A person stands on the floor and in the given code language. floor is called roof.Hence. roof will be the correct answer.)

Question 10: How many times can you subtract the number 5 from 35?

- A. 1
- B. 4
- C. 7
- D. 5

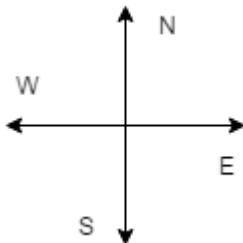
Answer: (A)

Once. After the first calculation, you will be subtracting 5 from 30, then 5 from 25, and so on.

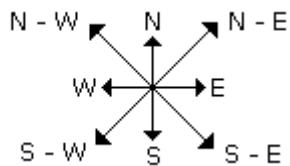
Direction Sense Test

Points to remember:

1. There are four cardinal directions; East, West, North, and South as shown in the following image.



2. The cardinal directions are divided into four primary inter-cardinal directions; Northeast, Southeast, Southwest, and Northwest as shown in the following image.



3. At the time of sunrise, if a man stands facing the East, his shadow will form to the west.
4. At the time of sunrise, if a man stands facing the North, his shadow will form to his left.
5. At the time of sunrise, if a man stands facing the South, the shadow will form to his right.
6. At the time of sunrise, if a man stands facing the West, the shadow will form to the West.
7. At the time of sunset, if a man stands facing the North, his shadow will form to his right.
8. At the time of sunset, if a man stands facing the East, his shadow will form to the East.
9. At the time of sunset, if a man stands facing the sun, towards West, his shadow will form to the East.
10. At the time of sunset, if a man stands facing the South, his shadow will form to his left.

Question 1: A is 40 m south-west of B. C is 40 m south-east of B. Then, C is in which direction of A?

Answer: C lies to the East of A

Question 2: Gaurav walks 20 metres towards North. He then turns left and walks 40 metres. He again turns left and walks 20 metres. Further, he moves 20 metres after turning to the right. How far is he from his original position”?

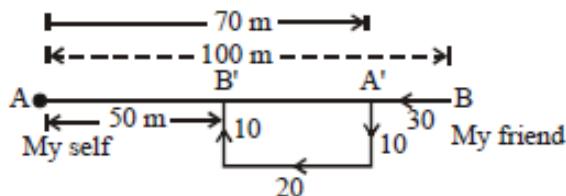
Answer: Gaurav is at a distance of 60 metres from his original distance.

Question 3: After walking 6 km, I turned right and covered a distance of 2 km, then turned left and covered a distance of 10 km. In the end. I was moving towards the north. From which direction did I start my journey?"

Answer: The man started his journey from the south and moved northwards.

Question 4: My Friend and I started walking simultaneously towards each other from two places 100 m apart. After walking 30m, my friend turns left and goes 10m, then he turns right and goes 20m and then turns right again and comes back to the road on which he had started walking. If we walk with the same speed, what is the distance between us at this point of time?

Answer: Distance between us is ($70\text{m} - 50\text{m} = 20\text{ m}$)



Question 5: Facing towards South, Ram started walking and turned left after walking 30m, he walked 25m and turned left and walked 30 m .How far is he from his starting position and in which direction?

- A. At the starting point only
- B. 25m, west
- C. 25m, East
- D. 30m, East

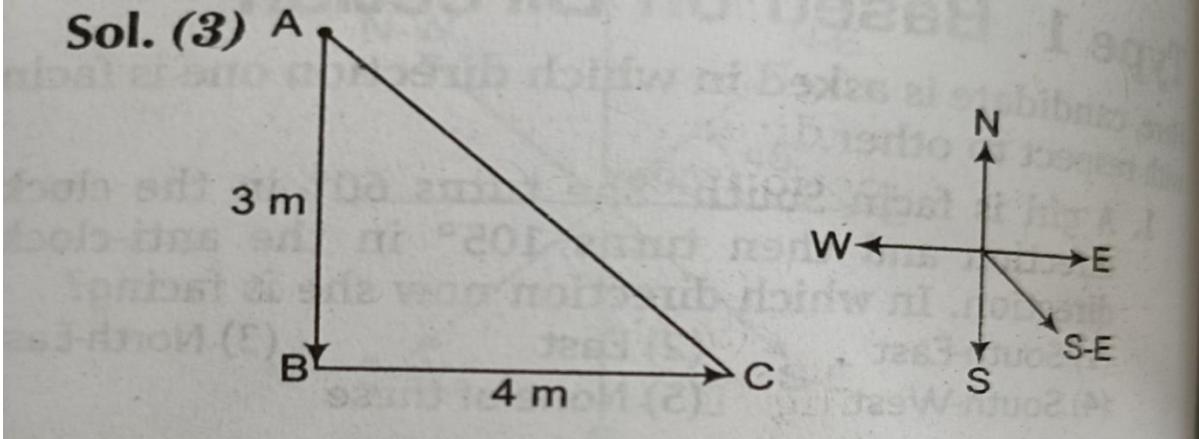
Answer: (B)

Question 6: Starting from Point A, Richa walked 3m South. Then, she turned left and walked 4 m. How far is she now from the starting point and in which direction?

- A. 5m, South-West
- B. 5m, North-East
- C. 5m, South-East
- D. 5m, North-West

Answer: (C)

Sol. (3)



By Pythagoras theorem,

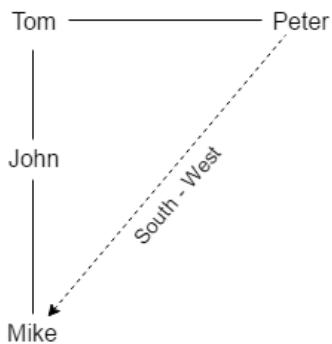
$$AC = \sqrt{4^2 + 3^2} \Rightarrow AC = \sqrt{25}$$

AC = 5 m in South-East

Question 7: Peter is in the East of Tom and Tom is in the North of John. Mike is in the South of John then in which direction of Peter is Mike?

- A. South-East
- B. South-West
- C. South
- D. North-East

Answer: (B)



Question 8: Mukesh walks 6 km toward the South and then walks 3 km to his left. Finally, he turns to his right and walks 6 km. In which direction is he from the starting point?

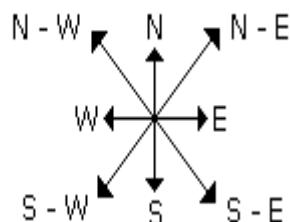
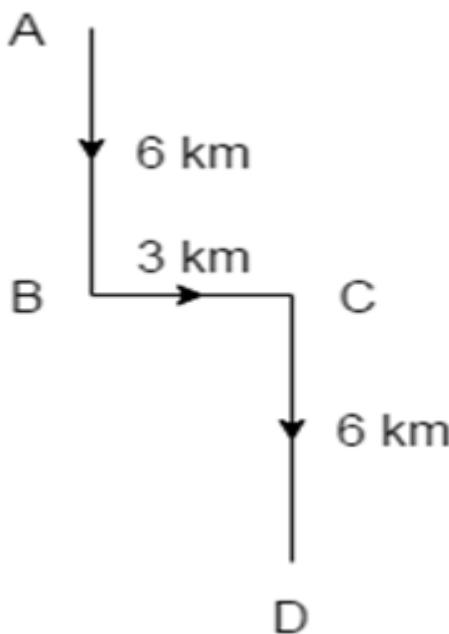
- A. South
- B. South-West

C. South-East

D. West

Answer: (C)

Mukesh



Question 9: Deepak placed his watch on the table in such a way that at 6 pm the hour hand points to the South. In which direction the minute hand will point at 9 pm?

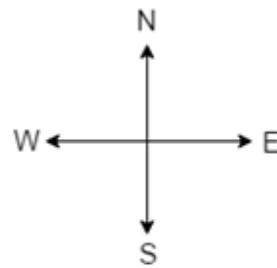
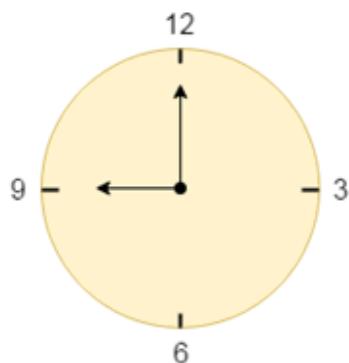
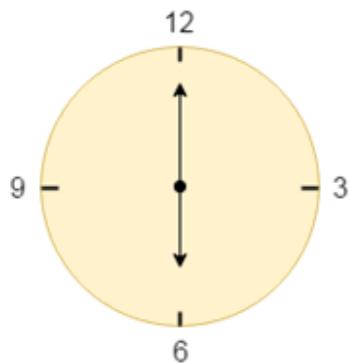
A. North

B. West

C. South

D. East

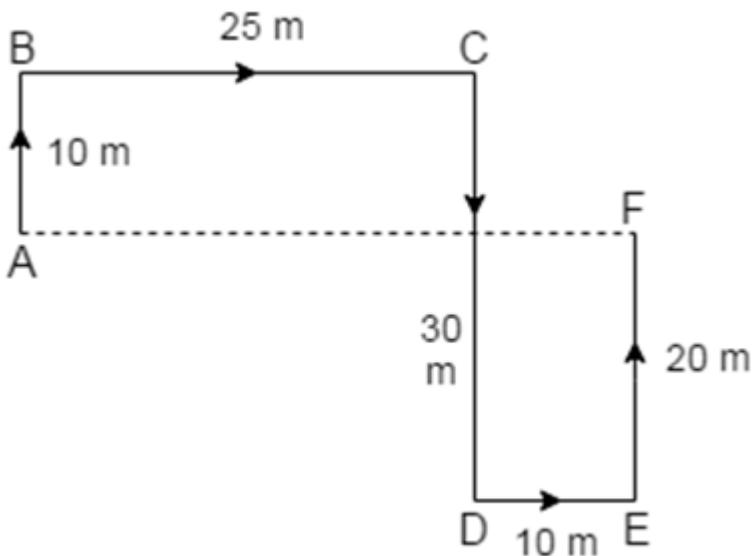
Answer: (A)



Question 10: Tom walked 10 m towards north then turned right and walked 25 m. Then he turned right and walked 30 m. Now he turned left and walked 10 m. Finally, he turned left and walked 20 m. How far and in which direction is he from the starting point?

- A. 50 m East
- B. 30 m North
- C. 40 m North
- D. 35 m East

Answer: (D)



Distance between the initial and final position = AF = BC + DE

$$AF = 25 + 10 = 35 \text{ m}$$

Tom is in the east direction from the starting point.

Venn Diagram/Syllogisms

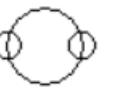
Question 1: Which of the following diagrams indicates the best relation between Travelers, Train and Bus?

- (A) 
- (B) 
- (C) 
- (D) 

Answer: (C)

Bus and Train are different from each other but some travellers travel by bus and some travel by train.

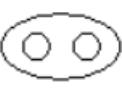
Question 2: Which of the following diagrams indicates the best relation between Profit, Dividend and Bonus?

- (A) 
- (B) 
- (C) 
- (D) 

Answer: (B)

Bonus and Dividend are different from each other. But both these are parts of profit.

Question 3: Which of the following diagrams indicates the best relation between Women, Mothers and Engineers?

- (A) 
- (B) 
- (C) 
- (D) 

Answer: (A)

All mothers are women and some mothers and some women may be engineers.

Question 4: Which of the following diagrams indicates the best relation between Factory, Product and Machinery?

- (A) 
- (B) 
- (C) 
- (D) 

Answer: (D)

Product and Machinery are different from each other but both are found in Factory.

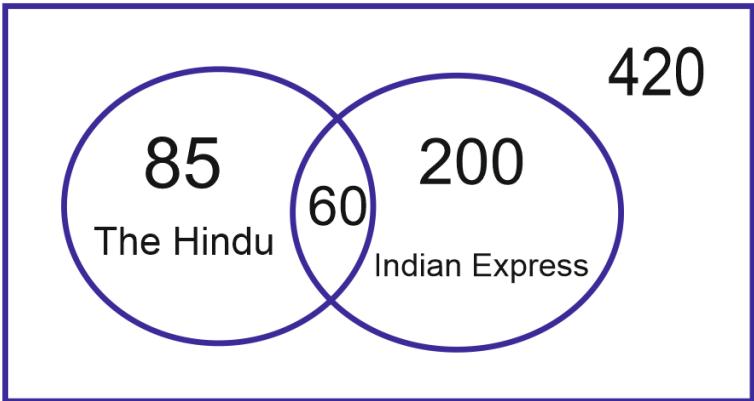
Question 5: Which of the following diagrams indicates the best relation between Author, Lawyer and Singer?

- (A) 
- (B) 
- (C) 
- (D) 

Answer: (B)

All the three are different professions.

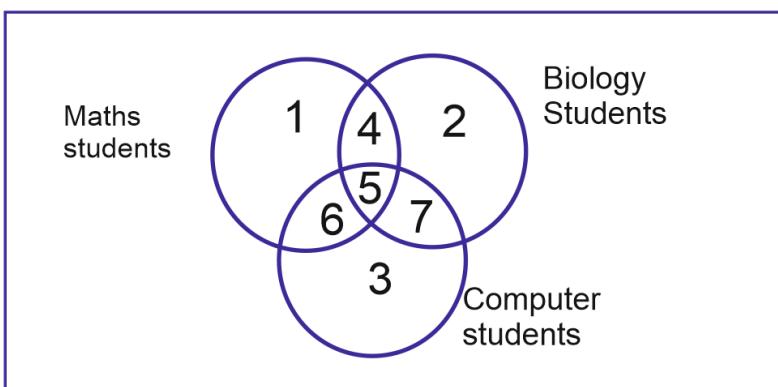
Question 6: From the information given below, find out the number of people who do not read any newspaper.



- A. 195
- B. 135
- C. 175
- D. 75

Answer: (D)

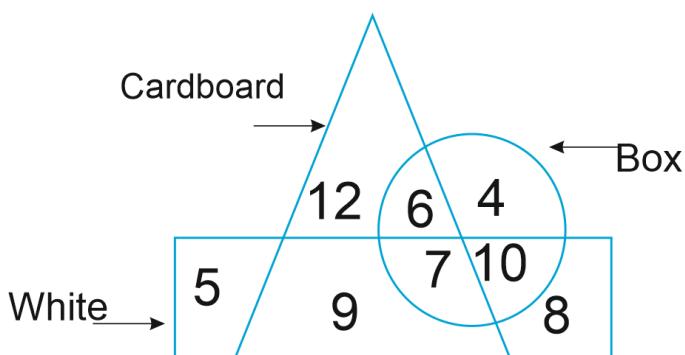
Question 7: Find the area which shows students studying biology and computer but not mathematics.



- A. 2
- B. 7
- C. 4
- D. 6

Answer: (B)

Question 8: In the given figure, how many cardboard boxes are not white?



- A. 6
- B. 13
- C. 7
- D. 9

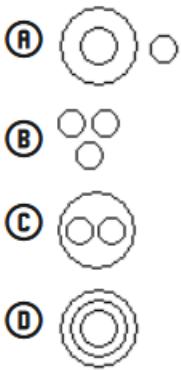
Answer: (A)

Question 9: Which of the following diagrams indicates the best relation between Judge, Thieves and Criminals?

- (A)
- (B)
- (C)
- (D)

Answer: (B) All the thieves are criminals while judge is different from these.

Question 10: Which of the following diagrams indicates the best relation between India, Karnataka and World



Answer: (D)Karnataka is in India and India is in the World.

Alphabet Test

Question1. What is the next alphabet of the series G,H,J,M,?

- A)R B) S C) Q D) P

Solution: C

Question 2. Find the Missing Term of the series BF, CH ? HO, LT

- A)FG B) EK C) CE D) FJ

Solution: B

Question3. Find the next Term DCXW, FEVU, HGTS, ?

- A)LKPO B) ABYZ C) JIRQ D) LMRS

Solution: C

Question 4. Find the missing term. 2Z5, 7Y7, 14X9, 23W11, 34V13, ?

- A)47T15 B) 47U17 C) 47U15 D) 48U15

Solution: C

Question 5 Complete the series: Z,L,X,J,V,H,T,F,?,?

- A)D,R B) R,D C) D,D D) R,R

Solution: (B)

Question6.. Find missing alphabets b a a b – a b a – b b a – –

- A)bbaab B) ababa C) bbabb D)aaaba

Solution: B

Question 7: PMK, MPK, MKP, KMP, ?

- A. PMK
- B. KMP
- C. MPK
- D. KPM

Answer: (D)

Question 8: PRIMARILY, RIMARILY, RIMARIL, ?

- A. IMAR
- B. RIMARI
- C. IMARIL
- D. RIMA

Answer: (C)

Question 9: Arrange these words in alphabetical order and tick the one that comes last

1. Abandon 2. Actuate 3. Accumulate 4. Acquit 5. Achieve

- A. Actuate
- B. Accumulate
- C. Acquit
- D. Achieve

Answer: (A)

Question 10: JAF, JEF, JIF, JOF, ?

- A. PIG
- B. PET
- C. JUF
- D. POT

Answer: (C)The middle letters which are vowels have an increasing trend of A, E, I, O, U and remaining letters have been retained as it is. So, answer would be JUF.

Arithmetical Reasoning

Question 1: If 'x' means '-', ' \div ' means '+', ' \cdot ' means ' \div ' and '+' means 'x', then $24 - 4 \div 6 \times 3 + 4 = ?$

- A. 2
- B. 1

- C. 3
- D. 0

Answer: (D)

Question 2: The total of the ages of Amar, Akbar and Anthony is 80 years. What was the total of their ages three years ago?

- A. 71 Years
- B. 72 Years
- C. 74 Years
- D. 77 Years

Answer: (A) Required sum = $(80 - 3 \times 3)$ years = $(80 - 9)$ years = 71 years.

Question 3: A pineapple costs Rs. 7 each. A watermelon costs Rs. 5 each. X spends Rs. 38 on these fruits. The number of pineapples purchased is

- A. 2
- B. 3
- C. 4
- D. None of the above

Answer: (C)

Let the number of pineapples and watermelons be x and y respectively.

$$\text{Then, } 7x + 5y = 38 \text{ or } 5y = (38 - 7x) \text{ or } y = \frac{38 - 7x}{5}.$$

Clearly, y is a whole number, only when $(38 - 7x)$ is divisible by 5.

This happens when $x = 4$.

Question 4: A man has Rs. 480 in the denominations of one-rupee notes, five-rupee notes and ten-rupee notes. The number of notes of each denomination is equal. What is the total number of notes that he has?

- A. 45
- B. 60
- C. 75
- D. 90

Answer: (D)

Let number of notes of each denomination be x .

$$\text{Then, } x + 5x + 10x = 480 \Leftrightarrow 16x = 480 \Leftrightarrow x = 30.$$

Hence, total number of notes = $3x = 90$.

Since one of the numbers on the dial of a telephone is zero, so the product of all the numbers on it is 0.

Question 5: 12-year-old Manick is three times as old as his brother Rahul. How old will Manick be when he is twice as old as Rahul?

- A. 14 Years
- B. 16 Years
- C. 18 Years
- D. 20 Years

Answer: (B)

Manick's present age = 12 years, Rahul's present age = 4 years.

Let Manick be twice as old as Rahul after x years from now.

Then, $12 + x = 2(4 + x)$ $12 + x = 8 + 2x$ $x = 4$.

Hence, Manick's required age = $12 + x = 16$ years.

Question 6: If you write down all the numbers from 1 to 100, then how many times do you write 3?

- A. 11
- B. 18
- C. 20
- D. 21

Answer: (C)

Clearly, from 1 to 100, there are ten numbers with 3 as the unit's digit- 3, 13, 23, 33, 43, 53, 63, 73, 83, 93; and ten numbers with 3 as the ten's digit - 30, 31, 32, 33, 34, 35, 36, 37, 38, 39.

So, required number = $10 + 10 = 20$.

Question 7: A farmer built a fence around his square plot. He used 27 fence poles on each side of the square. How many poles did he need altogether?

- A. 100
- B. 104
- C. 108
- D. None of these above

Answer: (B)

Since each pole at the corner of the plot is common to its two sides, so we have:

Total number of poles needed = $27 \times 4 - 4 = 108 - 4 = 104$.

Question 8: The sum of the ages of 3 people A, B and C is 90 years. What would be the total of their ages 4 years back?

- A. 74 years
- B. 78 years
- C. 86 years
- D. 80 years

Answer: (B)

Question 9: A man has Rs. 480 in the denominations of one-rupee notes, five-rupee notes and ten-rupee notes. The number of notes of each denomination is equal. What is the total number of notes that he has?

- A. 45
- B. 60
- C. 75
- D. 90

Answer: (D)

Let number of notes of each denomination be x .

$$\text{Then, } x + 5x + 10x = 480 \quad 16x = 480 \quad x = 30.$$

Hence, total number of notes = $3x = 90$

Question 10: The 30 members of a club decided to play a badminton singles tournament. Every time a member loses a game he is out of the tournament. There are no ties. What is the minimum number of matches that must be played to determine the winner?

- A. 15
- B. 29
- C. 61
- D. None of these

Answer: (B)

Clearly, every member except one (i.e. the winner) must lose one game to decide the winner. Thus, minimum number of matches to be played = $30 - 1 = 29$

Input/Output

Input: 79 create history 88 imagined 94 every 63 leader 96

Step I: 88 79 create history imagined 94 63 leader 96 every
Step II: 88 79 96 history imagined 94 63 leader every create
Step III: 88 79 96 history imagined 94 63 every create leader
Step IV: 88 79 96 94 imagined 63 every create leader history
Step V: 88 79 96 94 63 every create leader history imagined
Step V is the last step of the arrangement.

Following the same pattern solve the given input.

Input: never 42 leaved 39 important object 53 46 anyplace 74

Question 1: How many steps will be required to complete the given input?

- A. Three
- B. Seven
- C. Six
- D. Five

Answer: (D)

Question 2: Which of the following steps will be last but one of the given input?

- A. 39 74 46 53 important 42 never leaved object anyplace
- B. 39 74 46 53 42 important never leaved object anyplace
- C. 39 74 46 42 53 never leaved object anyplace important
- D. 39 74 46 53 42 important never object leaved anyplace

Answer: (B)

Question 3: Which of the following will be on the immediate right of ‘Important’ in step III?

- A. Object
- B. Never
- C. 42
- D. 53

Answer: (D)

Question 4: How many element(s) will be there between ‘74’ and ‘leaved’ in Step IV?

- A. Six
- B. Four
- C. Seven
- D. Five

Answer: (D)

Question 5: What is the position of ‘Object’ in step V?

- A. Third from right end
- B. Second from left end
- C. Seventh from left end
- D. None of these

Answer: (A)

https://www.smartkeeda.com/Reasoning_Aptitude/Verbal_Reasoning/Sequential_Output_Tracing_Quiz/newest/all/passage/Set_32/

Series

Question 1: 30, 42, 56 ,72 ?

- A. 80
- B. 110
- C. 90
- D. 82

Answer: (C)

Question 2: 8, 16, 48, 192 ?

- A. 960
- B. 886
- C. 990
- D. 740

Answer: (A)

Question 3: 4, 8, 6 ,10, 8, ?

- A. 6
- B. 14
- C. 10
- D. 12

Answer: (D)

Question 4: 2, 7, 11, 37, ?

- A. 44

- B. 47
- C. 55
- D. 57

Answer: (B)

Question 5: 15, 45, 75, 105, ?

- A. 125
- B. 145
- C. 135
- D. 175

Answer: (C)

Question 6: H, L, P, T, ?

- A. V
- B. Z
- C. X
- D. Y

Answer: (C)

Question 7: AB, EF, IJ, MN, ?

- A. PQ
- B. QR
- C. ST
- D. GH

Answer: (B)

Question 8: EAZ, FBY, ?, HDW, IEV

- A. CHX
- B. GDU
- C. DCT
- D. GCX

Answer: (D)

Question 9: DF, GI, JL, MO, ?

- A. PR
- B. QR

- C. PQ
- D. OP

Answer: (A)

Question 10: TT, MM, OO, RR, ?

- A. BB
- B. AA
- C. FF
- D. ZY

Answer: (B)

Seating Arrangement

Question 1: Five friends are sitting in a bench, facing north, but necessarily in the same order. Sushma is to the immediate left to Raksha and immediate right to Bindia. Meena is right to Raksha Tina is exactly between Raksha and Meena Who is sitting at the right most?

- A. Teena
- B. Meena
- C. Sushma
- D. Raksha

Answer: (B)

Question 2: M, N, O, P, R are sitting together. P is at extreme right. N is to the immediate left to O. R is in between M and N. Who is sitting to the left to P?

- A. M
- B. R
- C. N
- D. O

Answer: (D)

Question 3: A, B, C, D, E, F, G are sitting in a row, facing north. D is at the immediate left of C. E and A are the neighbours of F. B is to the immediate right of C. G is at right most. Who is to the extreme left?

- A. B
- B. C

- C. D
- D. E

Answer: (C)

Question 4: Chethan, Roopesh, Rohan and Bipin are sitting in a row in the same order from left to right. Radha, Ramya, Sneha and Swathi are sitting facing towards the boys, but need not be in same order. Sneha is at left to Radha. Swathi is in between Ramya and Radha. Who is directly facing Swathi?

- A. Roopesh
- B. Chethan
- C. Roshan
- D. Bipin

Answer: (C)

Question 5: Four friends are sitting in front of a round table in clockwise. Pinky is on north and Jyothisna is on south. Maya is to the left side of Jyothisna and opposite to Nayana. In which direction Nayana is sitting?

- A. South
- B. East
- C. West
- D. None of the above

Answer: (B)

Question 6: In a school library, five books are placed in a row. Mathematics book is in between Science and English books. Kannada book is to the extreme left. Where the Science book is placed?

- A. Middle of the Row
- B. Left to the Kannada Book
- C. Extreme Right
- D. Between Mathematics and English books

Answer: (C)

Question 7: P, Q, R, S, T, U are the students studying from First standard to Sixth standard. P is studying in Third standard and U is not studying in Second standard. Q is in his first stage of education. R is one class above Q. P is two class below T. S is in senior most class. In which class U is studying?

- A. Second Standard
- B. First Standard
- C. Fourth Standard

D. Sixth Standard

Answer: (C)

Question 8: Four cups are kept in each corner of a rectangular table. Red cup is at north left corner. White cup is at south right corner. Blue cup is at north, facing white cup. Where the orange cup is placed in?

- A. South Right
- B. South Left
- C. North Right
- D. None of the above

Answer: (B)

Question 9: Five people A, B, C, D, E of different heights are standing in a line. A, who is the tallest, is in the middle. B, with the second most height is to the extreme left. C, who is shorter than B, is to the immediate right of A. The shortest E is to the extreme right. Where D is standing in?

- A. Between C and E
- B. Between A and B
- C. Between A and E
- D. None of the above

Answer: (B)

Question 10: Four motor cars of different colours are parked in a line. Red colour car is in between maroon and white cars. Black colour car is to the immediate right of white car. In which place, the maroon colour car is parked in the order from left?

- A. First Place
- B. Second Place
- C. Fourth Place
- D. None of the above

Answer: (A)

Analogy

Question 1: $4 : 16 :: 3 : 9 :: 8 : 64 ?$

- A. $9 : 45$
- B. $6 : 36$
- C. $12 : 60$

D. None of the above

Answer: (B)

Question 2: 60 : 1 :: 24 : 1 :: 7 : 1 ?

- A. 12 : 1
- B. 5 : 1
- C. 10 : 1
- D. 8 : 1

Answer: (A)

Question 3: 2 : 10 :: 4 : 20 :: 7 : 35 ?

- A. 1 : 16
- B. 10 : 50
- C. 3 : 27
- D. 6 : 48

Answer: (B)

Question 4: 5 : 36 :: 6 : ?

- A. 46
- B. 49
- C. 56
- D. 52

Answer: (B)

Question 5: GATE : HBUF :: TAIL : ?

- A. SBHQ
- B. UBJM
- C. RCTH
- D. BNVS

Answer: (B)

Question 6: CHECK : DJHGP :: PHONE : ?

- A. QJRRJ
- B. OGSSG
- C. QJSSJ
- D. None of the above

Answer: (A)

Question 7: CDFE : HIKJ :: MNPO : ?

- A. PQRS
- B. NMOP
- C. STVU
- D. KJIH

Answer: (C)

Question 8: Dog: Puppy: : Cat : ?

- A. Chick
- B. Kitten
- C. Foal
- D. Colt

Answer: (B)

Question 9: Tiger: Cage: :Dog : ?

- A. Stable
- B. Dens
- C. Kennel
- D. Sheds

Answer: (C)

Question 10: Bank:Interest: : School : ?

- A. Medicine
- B. Education
- C. Food
- D. Plants

Answer: (B)

Water Images

Question 1: Choose the alternative which is closely resembles the water-image of the given combination.

US91Q4M5W3

(1) 3WM4Dresu

(3) 3WM4Dresu

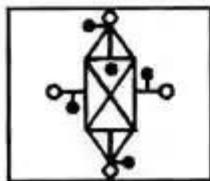
(2) 3WM4Dresu

(4) 3WM4Dresu

Answer: (4)

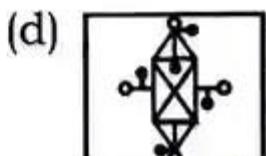
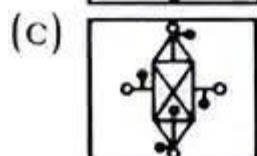
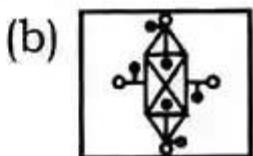
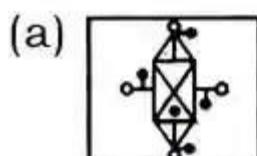
Question 2: Find the correct Water Image of the Figure.

Question Figure:-



L ————— M

Answer Figures:-



Answer: (C)

Question 3: Choose the alternative which is closely resembles the water-image of the given combination.

NhRqSy

(1) λSPRN

(2) ΗΛPBN

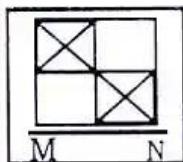
(3) λSPRN

(4) λSPRN

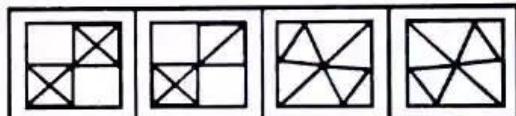
Answer: (4)

Question 4: Find the Water Image of Given Figure below

Question Figure:-



Answer Figures:-



(a) (b) (c) (d)

Answer: (A)

Question 5: From the following choose the alternative that correctly represents the water image of the word N U C L E A R

- | | |
|-------------|-------------|
| (1) БАЕГСИИ | (2) ИПОЛЯВИ |
| (3) ИУСГЕАВ | (4) ИПОГЕАВ |

Answer: (4)

Mirror Images

Question 1: Choose the alternative which is closely resembles the water-image of the given combination.

ANS43Q12

- (1) **ANS43Q12** (2) **ANS43Q12**
(3) **ANS43Q12** (4) **ANS43Q12**

Answer: (2)

Question 2: Find the mirror image of the word "LOGIC."

- A. CIGOL
- B. CGIOL
- C. CILGO
- D. CIGLO

Answer: (A)

Question 3: Choose the alternative which is closely resembles the water-image of the given combination.

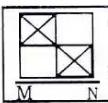
EFFECTIVE

- (1) **EFFECTIVE** (2) **EVITCEFFE**
(3) **EVITCEFFE** (4) **EFFECTIVE**

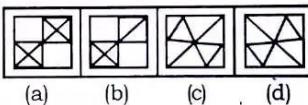
Answer: (1)

Question 4: Find the Mirror Image, when Mirror placed is MN

Question Figure:-



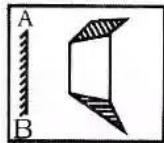
Answer Figures:-



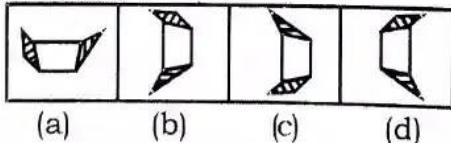
Answer: (A)

Question 5: Choose the correct mirror image from the given question

Question Figure:-



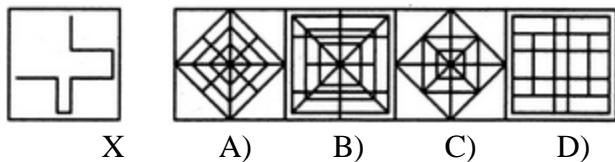
Answer Figures:-



Answer: (B)

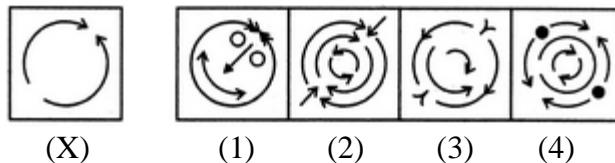
Embedded Figures

Question 1: Find out the alternative figure which contains figure (X) as its part.



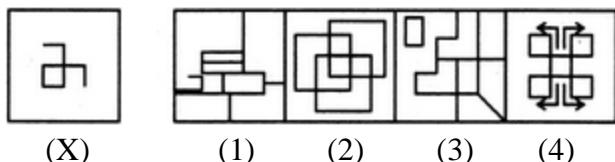
Answer: (D)

Question 2: Find out the alternative figure which contains figure (X) as its part.



Answer: (1)

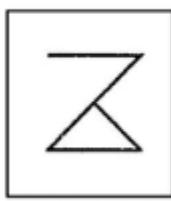
Question 3: Find out the alternative figure which contains figure (X) as its part.



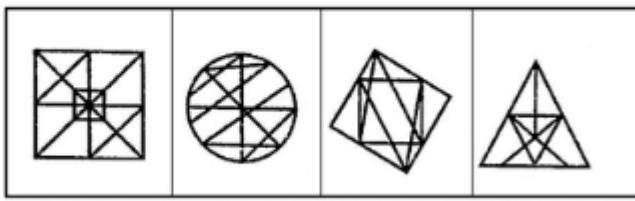
Answer: (2)

Question 4: Find out the answer figure in which the given question figures is embedded.

Question Figure



Answer Figures



(a)

(b)

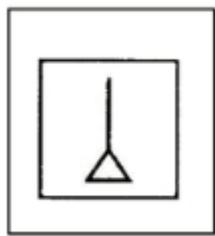
(c)

(d)

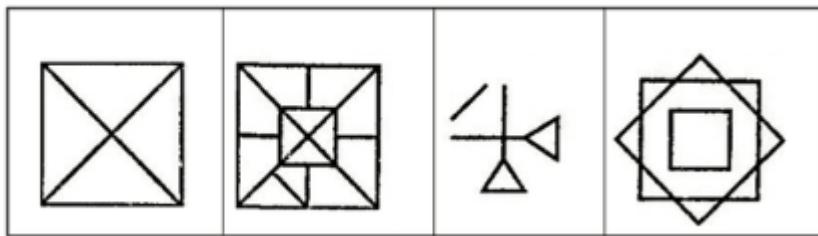
Answer: (A)

Question 5: Find out the answer figure in which the given question figures is embedded.

Question Figure



Answer Figures



(a)

(b)

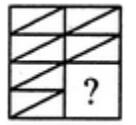
(c)

(d)

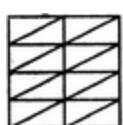
Answer: (C)

Completion of Pattern

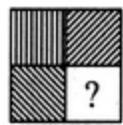
Question 1: Identify the figure that completes the pattern



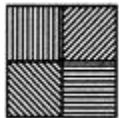
Answer: (4)



Question 2: Identify the figure that completes the pattern



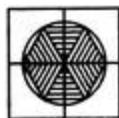
Answer: (2)



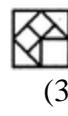
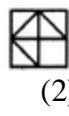
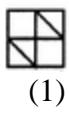
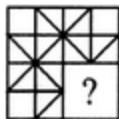
Question 3: Identify the figure that completes the pattern



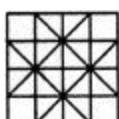
Answer: (3)



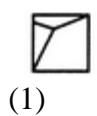
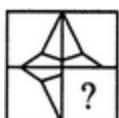
Question 4: Identify the figure that completes the pattern



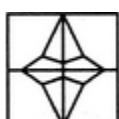
Answer: (2)



Question 5: Identify the figure that completes the pattern

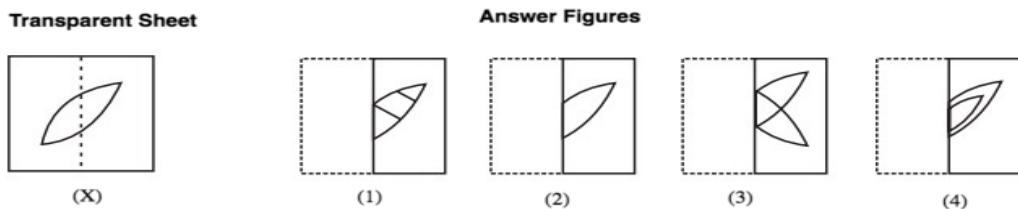


Answer: (4)



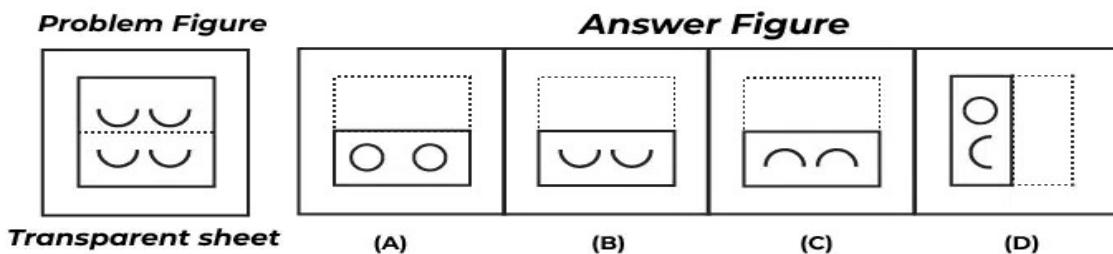
Paper Folding

Question 1: Find the pattern which will appear on the transparent sheet after it is folded along the dotted line



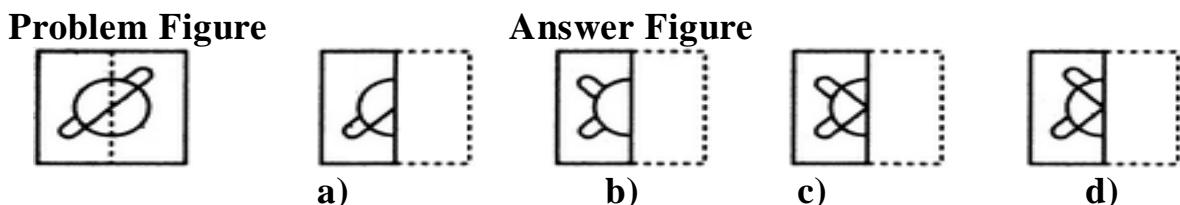
Answer: (3) If you fold the paper from left to right from dotted line, the left part figure will go in opposite direction. Thus, figure (3) is the correct figure.

Question 2: Figure out from amongst the four alternatives how the pattern would appear when the transparent sheet is folded at the dotted line.



Answer: (A) The first half of the paper will complete the circle in the second half. When the upper part of the square sheet is folded downward part of the semi-circle gets inverted and both form a circle.

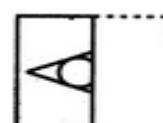
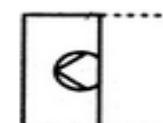
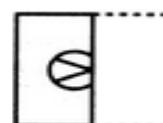
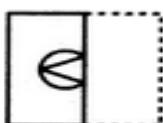
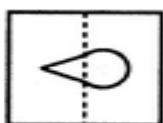
Question 3: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



Answer: (D)

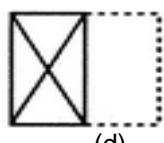
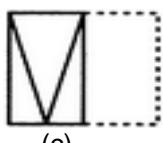
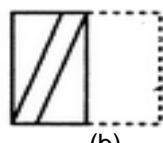
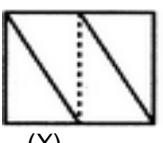
Question 4: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.

Problem Figure **Answer Figure**



Answer: (A)

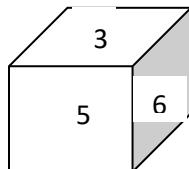
Question 5: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



Answer: (D)

Cubes and Dice

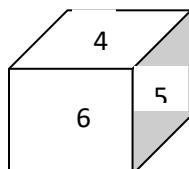
Question 1: Find the number opposite to 3



- A. 2
- B. 4
- C. 1
- D. None of the above

Answer: (B) sum of opposite side in standard dice must be equal to 7 ($3+4=7$)

Question 2: Find the number opposite to 3

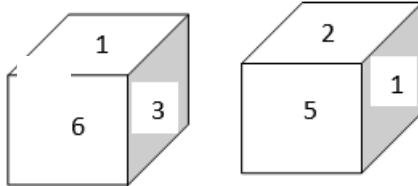


- A. 5
- B. 4
- C. 6

- D. None of the above

Answer: (A) sum of opposite side in standard dice must be equal to 7 ($2+5=7$)

Question 3: What number will be opposite to 6



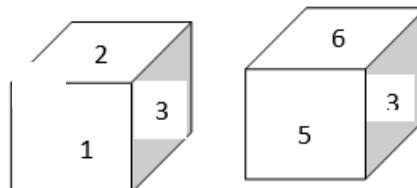
- A. 2
- B. 4
- C. 6
- D. None of the above

Answer: (A)

1 is common in both the dices, so putting 1 as constant we have to rotate two dices by clock wise / anticlockwise direction.

1 3 6
1 5 2 We get opposite side as 2

Question 4: What number will be opposite to 3



- A. 2
- B. 4
- C. 6
- D. None of the above

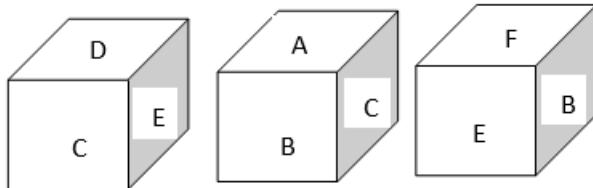
Answer: (B)

3 is common in both the dices, so putting 3 as constant we have to rotate both the dice by clock wise / anticlockwise direction.

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3 5 6 we get opposite side as 4 because 4 is not visible

Question 5: Find the alphabet opposite to ‘C’



- A. F
- B. C
- C. D
- D. A

Answer: (A) Compare any two dice

When we compare 1st and 2nd dice C is common in both the dices, so putting C as constant we have to rotate both the dice by clock wise anticlockwise direction.

C D E
C B A we get opposite side as F because F is not visible

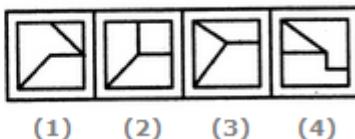
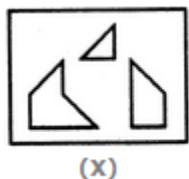
OR

When we compare 2nd and 3rd dice B is common in both the dices, so putting B as constant we have to rotate both the dice by clock wise anticlockwise direction.

B A C
B E F we get opposite side as F

Figure Formation and Analysis

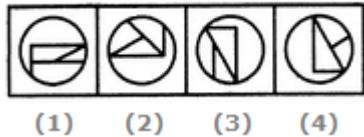
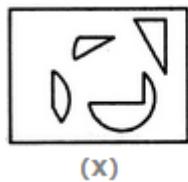
Question 1: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

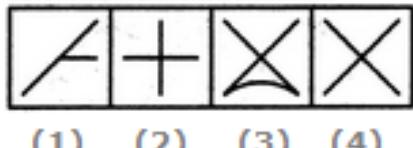
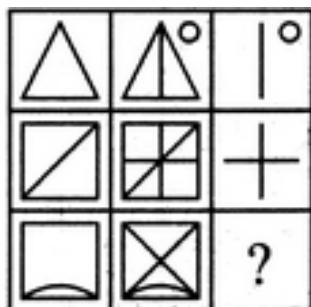
Question 2: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (C)

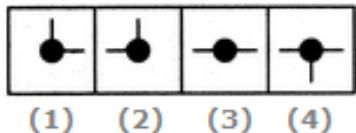
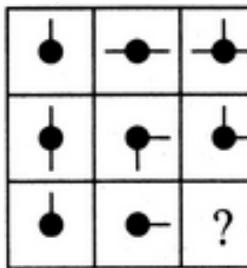
Question 3: Select a suitable figure from the four alternatives that would complete the figure matrix.



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (D)

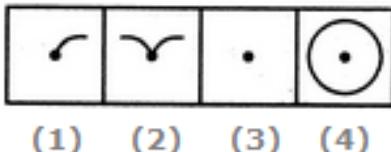
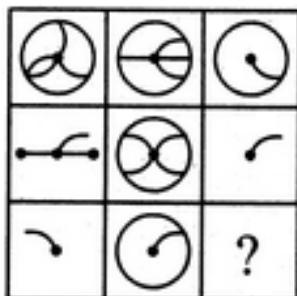
Question 4: Select a suitable figure from the four alternatives that would complete the figure matrix.



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

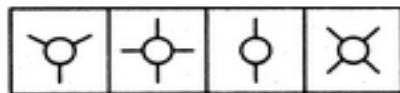
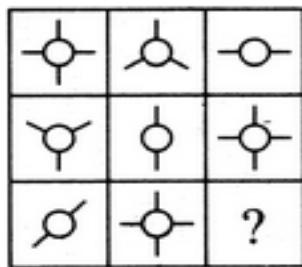
Question 5: Select a suitable figure from the four alternatives that would complete the figure matrix.



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (C)

Question 6: Select a suitable figure from the four alternatives that would complete the figure matrix.

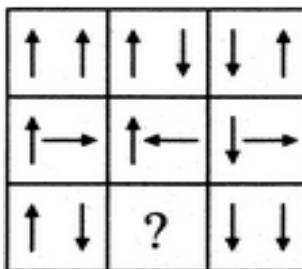


(1) (2) (3) (4)

- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

Question 7: Select a suitable figure from the four alternatives that would complete the figure matrix.

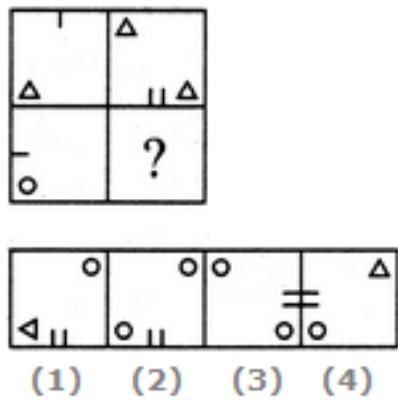


(1) (2) (3) (4)

- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

Question 8: Select a suitable figure from the four alternatives that would complete the figure matrix.



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (C)

Analytical Ability Unit IV

ENGLISH GRAMMAR

I. Choose the right answers from the options given.

1. Please,stop -----so many mistakes.
A. To make B. make C. making D. makes
2. I don't really know how to the problem.
A. Tackle B. Cope C. Draw D. Erase.
- 3 Ravi behaves strangely at times and, therefore, nobody gets with him.
A. About B. Through C. Along D. Up
4. ---- birds, can we fly.
A. Before B. Like C. As D. Without
5. There are two brothers but ----- of them is hardworking.
A. either B. neither C. none D. every
6. How money do you have in your pocket?
A. Many B. Few C. Much D. Some
7. That is interesting book.
A. Have B. A C An D. None of the above
8. Which of the following sentences is in the present perfect tense?
A. I will go to the store later. B. I went to the store yesterday. C. I have gone to the store many times. D. I am going to the store now.
9. You didn't see that movie, _____?
A. did you? B. didn't you? C do you? D. will you?
10. Explain how you would describe in five years' time.
A. You B. Your C. Yours D. Yourself

Answers

1. C- ---making
2. A --- Tackle
3. C---Along
4. C.---As
5. B---Neither
6. C---Much
7. C---An
8. C---I have gone to the store many times.
- .9. A. - - did you?
10. D. --Yourself Last modified: 4:05 pm

UNDER VERBAL ABILITY

1.Light:Blind

- a. speech:dumb
- b. language:deaf
- c. tongue:sound
- d. voice:vibration

(Ans: a)

Explanation :Blind is related to light. Speech is related to dumb.

2.Pain:Sedative

- a. comfort:stimulant
- b. grief:consolation
- c. trance:narcotic
- d. ache:extraction

(Ans: b)

(Explanation: Sedative relieves pain.Consolation relieves grief)

3.Mundane : Spiritual

- a.common:ghostly
- b.worldly:unworldly
- c.routine:novel
- d.secular:clerical

(Ans :b)

Expln:Spiritual concerns with spirit or soul(not existence-unworldly).

Mundane = existence(worldly).

4.Hope : Aspires

- a. love:elevates
- b. film:flam
- c. fib:lie

d. fake:ordinary

(Ans: c)

Expln: Fib means a small lie; very minor thing similarly hope means aspiring (want or desire) something.

5. Army : Logistics

a .business:strategy

b. soldier:students

c. war:logic

d. team:individual

(Ans: a)

Expln: Army optimize their operations through logistics and Business get maximum output through Good Strategy.

6. Symphony : Composer

a. Leonardo:music

b. Fresco:painter

c. colours:pallet

d. art:appreciation

(Ans: b)Expln: composer composes music, so painter paints fresco*

7.Paw : Cat :: Hoof : ?

a. Donkey

b. Lion

c. Elephant

d. Horse

(Ans: d)

Expln: The cat's foot is called a paw. The horse's foot is called a hoof.

8. Exhibit : display :: send : ?

- a. Stamp
- b. Receive
- c. Show
- d. Emit

(Ans: d) Expln: both the words are synonyms)

9. Kolkata:Mumbai:Mangalore:?

- a. Hyderabad
- b. Delhi
- c. Cochin
- d. Jaipur

(Ans: c) Expln: All port cities of India

10. Yard is to Fence as Cell is to

- a. Mitochondria
- b. Cytoplasm
- c. Membrane
- d. Nucleus

Ans: c) Expln: Fence protects the Yard & Membrane protects the Cell

11. Transition : Change :: Immobility : ?

- a. Stillness b) Liveliness c) Action d) Busyness

Ans: a) Expln: both the words are synonyms

12. Develop is to assess as train is to

- a) Change b) Educate c) Analyze d) Recruit

(Ans: c) Expln: When a product is developed its performance is assessed and when a person is trained his performance is analyzed

13. Bill : Law :: ? : Insect

- a) Pupa b) Stage c) Larva d) Bird

(Ans: c) Expln: A Bill turns into a Law : Larva turns into Insect

14. Fossil : Extinction :: Puddle : ?

- a) Wet b) Rain c) Lake d) Dry

(Ans: b)Expln: fossils are evidence of an extinction, puddles are evidence of rain.

15. Man : Biography :: Nation : ?

- a) History b) Leader c) Story d) Nationalism

(Ans: a)Expln: Detailed description of a man's life is Biography, detailed description of a Nation is called

SENTENCES

A) Sentence Completion

1. Some verb needs a _____ to convey the full.
 - a) Complimentary b) Complement c) Component d) Compliment**Ans. (b)**
2. She set up the institutions of international _____.
 - a) Repute b) renown c) famous d) reputation**Ans. (a)**
3. The police have _____ a complaint against four persons.
 - a) entered b) lodged c) registered d) noted**Ans. (c)**
4. He is too _____ to be deceived easily.
 - a) Strong b) modern c) kind d) intelligent**Ans. (d)**
5. You must _____ your career with all seriousness.
 - a) Direct b) complete c) follow d) pursue**Ans. (d)**

B) Sentence Improvement – *A sentence /a part of the sentence is underlined. Below are given alternatives to the underlined part which may improve the sentence. Choose the correct alternative. Incase no improvement is needed choose 'No improvement.'*

1. The main part of **his speech** was well understood.
 - a) That he spoke b) in the speech of his c) made when he spoke d) no improvement
Ans. (d)
2. He plays cricket and tennis **also**.
 - a) Both b) besides c) too d) No improvement
Ans. (c)
3. Old habits **die hardly**.
 - a) Die much hardly b) die hard c) die too hard d) No improvement
Ans. (b)
4. They have stopped **from constructing** new buildings.
 - a) to construct b) at constructing c) constructing (d) No improvement
Ans. (c)
5. I **think in my opinion** that all those who claim to be honest are not so.
 - a) In my opinion, I believe b) It seems to me c) It is my believing (d) No improvement
Ans. (a)

SPOT THE ERROR

1. The spectacles is missing. (Incorrect)

The spectacles are missing. (Correct)

Certain nouns take the plural verb because of their plural form.

Example: Clothes, Scissors, trousers, amends, spectacles, thanks.

2. One must help his siblings. (Incorrect)

One must help one's siblings. (Correct)

When the pronoun 'one' is used, it should be maintained throughout the whole sentence.

3. It's a bit early, is it? (Incorrect)

It's a bit early, isn't it? (Correct)

Sentences are always opposite to question tags, for example, if the question tag is positive then the sentence is negative and vice versa.

4. These are the best which he could get. (Incorrect)

These are the best that he could get. (Correct)

Instead of ‘who’ or ‘which’, the relative pronoun ‘that’ is used after adjectives in the superlative degree.

5. I can write as fast, if not faster than her. (Incorrect)

I can write as fast as, if not faster than her. (Correct)

‘As’ is used both before and after the adjective to show equality.

6. I will be there in a hour. (Incorrect)

I will be there in an hour. (Correct)

In articles, the words starting with vowel sounds are preceded with ‘An’. Hour is pronounced as ‘our’. Hence, it becomes an hour.

7. Would you like to have some **desert**? (Incorrect)

Would you like to have some **dessert**? (Correct)

When the word 'desert' is used to refer to a land filled with sand, then it's used as a noun, but when it's used to refer to abandonment, it's used as a verb. On the other hand, the word 'dessert' simply refers to a sweet dish that people enjoy after meals.

8. Divide the apple **between** you three. (Incorrect)

Divide the apple **among** you three. (Correct)

‘Among’ is used when something is with a group of a few, several, or many things. The use of ‘between’ is when something is in the middle of two things or two groups of things.

9. People has left. (Incorrect)

People have left. (Correct)

Certain nouns being a singular form represent plurality and therefore, take a plural verb in a sentence.

Example: police, clergy, people, peasantry, cattle.

10. Unless you do not pay the fine, you will not be excused. (Incorrect)

Unless you pay the fine, you will not be excused. (Correct)

‘Not’ is never used with ‘unless’ as ‘unless’ expresses a condition that is always used in the negative sense.

EXERCISE

1. I hope you’ll come **in** New York soon.
2. I’ll stay here **to** next month.
3. Have anyone seen my phone?
4. I like tea, but she gave me too many.
5. They are working very hardly.

PASSAGES

1) Directions: Read the passage carefully and answer the questions given below:

Working women, who are earning cash and having access to mobile phones, perpetrate more spousal violence on husbands in India, revealed research conducted by health experts at the International Institute for Population Sciences (IIPS), Mumbai. This could be for several reasons. "For instance, as women gain economic autonomy, men may feel that their masculinities are being challenged, and may indulge in controlling wife, or indulging in alcoholic behaviour, leading to experience of spousal violence by cash-earning women," according to the research titled 'Prevalence and risk factors of physical violence against husbands: evidence from India' (2023), published by Cambridge University Press.

The research was conducted by Aparajita Chattopadhyay, Deepanjali Vishwakarma, Suresh Jungari (all IIPS), and Santosh Kumar Sharma (The George Institute for Global Health, New Delhi). They observed that 'access to mobile phones helps empower women, and this could be a threat to a husband, leading to restricting wife in communication, leading to spousal violence'. With the tremendous increase in mobile usage, they found that 'improved social network of a wife, who gets support to indulge in violent acts for varying reasons, reporting of husband's behavioural traits to peers or relatives through mobile phones by wife, exposure to violent media content, could be possible reasons for perpetration of violence of women on men'.

A stirring finding of the study was that with increase in wife's age, spousal violence on husband increased. Older women gained authority with age, leading to more violence on husbands with increasing age of wife. It revealed that in India, spousal violence against men stands at 29 per 1,000. The proportion of currently married women committing spousal violence against their husband varied from 2 per 1,000 in Sikkim to 90 per 1,000 in Tamil Nadu in NFHS-4. It was observed that the prevalence of spousal violence against husbands increased rapidly in the majority of the States, except Sikkim, Goa, and Mizoram, during 2005-06 to 2015-16.

The prevalence of violence against husband was higher in nuclear family (34/1,000) compared to non-nuclear family (28/1,000); higher among those who live in poorest household; who were exposed to TV (31.4/1,000), or working and getting paid in cash (43/1,000) than those who were not working.

The researchers noted that the prevalence of violence against husbands was higher among those women whose - husbands consumed alcohol (56.1/1,000), when women were afraid of their husbands (31.4/1,000), who had childhood exposure of parental violence (66.9/1,000), husbands displayed increasing marital control behaviour. Overall prevalence of violence was low in India as compared to other countries following low levels of reported violence against men, or societal pressure to prove masculinity, and remain silent about abuse for the fear of shame, and limited awareness.

1. Which of the following is not a reason for spousal violence on husbands in India?
 - a) Economic freedom of women

- b) Threat on masculinity of men
 - c) Women indulging in controlling her husband
 - d) Alcoholic behaviour of men
2. Spousal violence on husbands is more by-
- a) Working women
 - b) Women having access to mobile phones
 - c) Both the above
 - d) None of the above
3. Which of the following statement is correct:
- I. Violence on husband increases with increase in women's age
 - II. Spousal violence is more among older women
- a) Only I is correct
 - b) Only II is correct
 - c) Both are correct
 - d) None of the above is correct
4. Which state has the lowest rate of spousal violence on men in India?
- a) Tamil Nadu
 - b) Andhra Pradesh
 - c) Rajasthan
 - d) Sikkim
5. Prevalence of violence against husbands increased rapidly in-
- a) Sikkim
 - b) Tamil Nadu
 - c) Goa
 - d) Mizoram
6. What according to the author is the reason for low prevalence of violence against husbands in India as compared to other countries?
- a) Violence against men is not reported
 - b) Societal pressure to prove masculinity
 - c) Remain silent due to fear of shame
 - d) All the above

2) Read the passage carefully and answer the questions given below.

IT billionaire and Infosys founder NR Narayana Murthy recently remarked on the work culture in India and said that if India is to match up its better-developed peers in the world like China, Japan and Germany, the youth must consider working 70 hours a week. Murthy said, "India's work productivity is one of the lowest in the world. Unless we improve our work productivity, unless we reduce corruption in the government at some level, unless we reduce the delays in our bureaucracy in taking this decision, we will not be able to compete with those countries that have

made tremendous progress. He added, "This is exactly what the Germans and Japanese did after the Second World War."

Dr. BipeenchandraBhamre, Consultant Cardiac Surgeon at Sir HN Reliance Foundation Hospital and Research Centre in Mumbai, shared, "As a cardiologist, I find Murthy's comment on the 70-day work week thought-provoking. Undoubtedly there are certain demanding fields/careers and the commitment of professionals to deliver their best is commendable. Most busiest of us work 12 to 14 hours a day. However, it's crucial to strike a balance between dedication to our profession and the well-being of our own selves." The heart expert highlighted, "If you work in the field of your passion then working excessively long hours, such as a 70-hour work week, is not that stressful but if you are working in stressful environments can lead to burnout. In my opinion, we should focus on optimizing work hours, improving productivity and providing support systems to prevent burnout and ensure that both skilled and unskilled professionals can continue to deliver the best results in their respective fields. It's about how well you utilise most productive years in your life. It's a choice."

Shilpi Saraswat, Clinical - Psychologist at Sakra World Hospital in Bengaluru, revealed, "Nowadays in our OPD, young people at the age range of 25-48 are getting referred from different departments due to underlying stress, anxiety and mental health problems. When we encounter the details about the work-life imbalance, lack of boundaries and long working hours without any break impact major health concerns. The spikes in blood pressure due to anxiety, stress is very common, many are asymptomatic as well and struggle with cardiovascular issues at very early stage."

She pointed out, "Commonly they have more anxiety problems and lack of skills to deal with bad stress. Most common disorders are GAD (generalised anxiety disorder), illness anxiety disorder, panic disorder, phobias etc. Long working hours put pressure and impacts quality of work and increase absenteeism at workplace which leads another issue for organisations as well as employees. The health concern is definitely raising due to stress which is increased due to long work hours poor support facilities and no work-life balance."

The mental health expert suggested the following precautions— Taking short break b/w work, Mindfulness relaxation, Stress management techniques, Increased workplace flexibility, Set boundaries at workplace, Enhance time management skills, Healthy diet, Healthy social support, Setting priorities for health, Start seeking help for mental health for improving yourself not your problem, Explore your me time, Follow simple basic routine, Set realistic short term goals.

1. Which of the following is not a reason mentioned by Mr. Murthy for lower work productivity in India?
 - a) Lack of resources
 - b) Corruption in government
 - c) Delays in bureaucracy
 - d) Less working hours
2. Which are the developed countries mentioned in the passage by Mr. Murthy?
 - a) China & Japan

- b) USA & China
 - c) China, Germany & Japan
 - d) Germany, USA & Japan
3. What is the opinion of heart experts about the impact of long working hours on the employees?
- a) They are always stressful
 - b) They are not stressful
 - c) They are stressful if you work in your passionate field
 - d) They are not stressful if you work in your passionate field.
4. What should we balance our profession with, according to the cardiologists?
- a) Long working hours
 - b) Well-being of our own selves
 - c) Family
 - d) Social life
5. Why employees suffer from anxiety and stress in a very young age?
- I. Work-life balance
 - II. Cardiovascular issues
 - III. Long working hours
- a) Only I is correct
 - b) Only II is correct
 - c) I & II are correct
 - d) I & III are correct
6. What precautions are suggested by the health experts to reduce work stress?
- a) Adopt stress management techniques
 - b) Improve time management skills
 - c) Mindfulness relaxation
 - d) All the above

3) Directions: Read the passage carefully and answer the questions given below:

Artificial Intelligence (AI) has emerged as one of the most transformative technologies of the 21st century, reshaping industries and influencing nearly every aspect of our daily lives. AI refers to the development of computer systems capable of performing tasks that typically require human intelligence, such as problem-solving, learning, decision-making, and even creative thinking. Over the years, AI has made significant strides, and its impact on various sectors is undeniable.

AI's influence is especially evident in healthcare, where it aids in diagnosis, treatment, and drug discovery. Algorithms can analyze medical data more rapidly and accurately than humans, potentially saving lives and reducing healthcare costs. AI-powered robotics also play a crucial role in surgeries, making them less invasive and more precise.

In the field of finance, AI is revolutionizing how we manage and invest money. It powers chatbots for customer service, detects fraudulent transactions, and predicts market trends, aiding both consumers and financial institutions in making informed decisions. Another area where AI is creating waves is in autonomous vehicles. Self-driving cars, drones, and even ships rely on AI to navigate, avoid obstacles, and make decisions on the road or in the sky. These advancements promise to improve safety, reduce traffic congestion, and lower emissions.

AI-driven chatbots and virtual assistants are now commonplace in customer service and support. They provide quick and efficient responses to inquiries, enhancing customer satisfaction while reducing the workload on human support agents. In education, AI personalizes learning experiences by adapting content to individual student needs. It can assess a student's strengths and weaknesses and offer tailored lessons and practice materials, making education more accessible and effective.

However, the rapid integration of AI into society raises ethical and societal questions. Issues related to privacy, job displacement, and algorithmic bias demand careful consideration. As AI systems increasingly make critical decisions, transparency and accountability become essential.

1. How does AI impact the healthcare industry?
 - a) It reduces the need for medical professionals.
 - b) It improves the accuracy and speed of data analysis.
 - c) It increases healthcare costs.
 - d) It has no influence on healthcare.
2. In the financial sector, how does AI benefit both consumers and institutions?
 - a) By predicting market trends
 - b) By increasing fraudulent transactions
 - c) By reducing customer satisfaction
 - d) By promoting risky investments
3. Which industry is significantly affected by the use of AI-driven autonomous vehicles?
 - a) Agriculture
 - b) Manufacturing
 - c) Transportation
 - d) Education
4. What is the role of AI in customer service and support?
 - a) Increasing the workload on human support agents
 - b) Reducing customer satisfaction
 - c) Providing quick and efficient responses to inquiries
 - d) Making customers wait for long periods
5. What are some ethical concerns associated with the rapid integration of AI into society?
 - a) Increased transparency and accountability
 - b) Algorithmic bias, job displacement, and privacy issues
 - c) Enhanced societal harmony
 - d) AI-powered decision-making is flawless and unbiased.

6. What role does AI play in the field of education?
 - a) It eliminates the need for teachers in classrooms.
 - b) It personalizes learning experiences and adapts content to individual student needs.
 - c) It standardizes education, making it the same for all students.
 - d) It increases the cost of education for students.

4) Read the following passage carefully and answer the questions given below:

Story telling is not in our genes. Neither it is an evolutionary history. It is the essence of what makes us Human. Human beings progress by telling stories. One event can result in a great variety of stories being told about it. Sometimes those stories differ greatly. Which stories are picked up and repeated and which ones are dropped and forgotten often determines how we progress. Our history, knowledge and understanding are all the collections of the few stories that survive. This includes the stories that we tell each other about the future. And how the future will turn out depends partly, possibly largely, on which stories we collectively choose to believe. Some stories are designed to spread fear and concern. This is because some story-tellers feel that there is a need to raise some tensions. Some stories are frightening, they are like totemic warnings : “Fail to act now and we are all doomed.” Then there are stories that indicate that all will be fine so long as we leave everything upto a few especially able adults. Currently, this trend is being led by those who call themselves “rational optimists”. They tend to claim that it is human nature to compete and to succeed and also to profit at the expense of others. The rational optimists however, do not realize how humanity has progressed overtime through amiable social networks and how large groups work in less selfishness and in the process accommodate rich and poor, high and low alike. This aspect in story-telling is considered by the ‘Practical Possibles’, who sit between those who say all is fine and cheerful and be individualistic in your approach to a successful future, and those who ordain pessimism and fear that we are doomed. What the future holds for us is which stories we hold on to and how we act on them.

1. Our knowledge is a collection of:
 - a) all stories that we have heard during our life-time
 - b) some stories that we remember
 - c) a few stories that survive
 - d) some important stories
2. Story telling is:
 - a) an art
 - b) a science
 - c) in our genes
 - d) the essence of what makes us human
3. How the future will turn out to be, depends upon the stories?
 - a) We collectively choose to believe in
 - b) Which are repeatedly narrated

- c) Designed to spread fear and tension
 - d) Designed to make prophecy
4. Rational optimists:
- I. Look for opportunities.
 - II. Are sensible and cheerful.
 - III. Are selfishly driven.
- Identify the correct answer from the codes given below :
- a) I, II & III
 - b) I only
 - c) I & II only
 - d) II & III only
5. Humans become less selfish when:
- a) they work in large groups
 - b) they listen to frightening stories
 - c) they listen to cheerful stories
 - d) they work in solitude
6. 'Practical Possibles' are the ones who:
- a) follow Midway Path
 - b) are doom-mongers
 - c) are self-centred
 - d) are cheerful and carefree

STATEMENT AND ASSUMPTIONS

1. **Statement:** Do not copy our software without our permission - A notice.

Assumptions:

- (I) It is possible to copy the software.
 - (II) Such warning will have some effect.
- A. Only assumption I is implicit
 - B. Only assumption II is implicit
 - C. Either I or II is implicit
 - D. Neither I nor II is implicit
 - E. Both I and II are implicit

Solution: Option E

If it were not possible to copy the software, there would be no need for the notice. Hence, (I) is implicitly true. Similarly, if the warning would have no impact, the notice would not be posted. Hence, (II) is also implicit. So, the correct answer is E.

2. Statement: Detergents should be used to clean clothes.

Assumptions:

- (I) Detergents form more lather.
- (II) Detergents help to dislodge grease and dirt.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option B

Nothing is mentioned about lather formation by the detergent. So, I is not implicit. Also, detergents should be used as they clean clothes better and more easily. So, II is implicit.

3. Statement: Everybody loves reading adventure stories.

Assumptions:

- (I) Adventures stories are the only reading material.
- (II) Nobody loves reading any other material.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option D

Neither (I) nor (II) can be reasonably drawn from the given statement. Thus, correct answer will be D.

4. Statement: If you are an engineer, we have a challenging job for you.

Assumptions:

- (I) We need an engineer.
- (II) You are an engineer.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option A

An engineer is needed, hence the advertisement. So, assumption I is implicit.

Assumption II is not implicit, even if the reader is an engineer.

Hence the correct option is A.

Directions(): In each of following questions, a statement is given followed by two assumptions numbered I and II. Consider the statement and the following assumptions and decide which of the assumptions is implicit. Give answer:

- a) If only assumption I is implicit.
- b) If only assumption II is implicit.
- c) If either I or II is implicit.
- d) If both I and II are implicit.
- e) If neither I nor II is implicit.

Example 5:

Statement:

India must earn a lot of foreign exchange to achieve her target of economic development.

Assumptions:

- I. India desires to achieve the target of economic development.
- II. It is possible for India to earn more foreign exchange.

Solution:

d) I is implicit. Tools for an objective are talked about only when the desire for such an objective exists. II is implicit because it makes no sense to talk of something without the existence of its possibility.

Example 6:

Statement:

An advertisement: If you want to follow the footprints of an ideal leader, wear ‘X’ brand of shoes.

Assumptions:

- I. Most people like to become ideal leaders.
- II. One can’t become ideal leader unless one wears ‘X’ brand of shoes.

Solutions:

a) I is implicit; that is why the advertisement has been given. Second one is absurd.

Example 7:

Statement:

Central Bank, which is the largest bank in the country, has decided to reduce its workforce by 30 percent so that its banks may work efficiently.

Assumptions:

- I. The Bank can perform all its activities after the reduction in workforce.
- II. The surplus employees may be asked to adopt early retirement scheme before leaving the bank.

Solution:

I is not implicit because of the word ‘all’. II may or may not be a method of reducing the workforce. Hence, II is not implicit.

Directions In each of following questions, a statement is given followed by two assumptions numbered I and II. Consider the statement and the following assumptions and decide which of the assumptions is implicit. Give answer:

- a) If only assumption I is implicit.
- b) If only assumption II is implicit.
- c) If either I or II is implicit.
- d) If neither I nor II is implicit.

Example 8:

Statement:

“Private Property, trespassers will be prosecuted”- A notice on a plot of land.

Assumptions:

- I. the passerby may read the notice and maynot trespass.
- II. The people are scared of prosecution and, therefore, never trespass.

Solution:

a) Whenever such notices are displayed it is assumed that those who are concerned with the notice will read the notice and follow the messages in it. Hence I is implicit. The notice has been placed making the intention of prosecution clear. But it cannot be said certainly. Hence II is not implicit.

Example 9:

Statement:

The nutritional status of children in India is better compared to that in other developing countries.

Assumptions:

- I. It is not possible to estimate nutritional requirement of children in other countries.
- II. India can become a developed country.

Solution:

d) Assumption I contradicts the statement. Nothing can be assumed about the scale of becoming developed. Hence II is not implicit.

Example 10:

Statement:

Please do not use lift while going down- an instruction on the top floor of a five-storey building.

Assumptions:

- I. While going down, the lift is unable to carry any load.
- II. Provision of lift is a matter of facility and not of right.

Solution:

d) Both I and II are not implicit as they are out of context. Nothing has been mentioned in the statement.

CRITICAL REASONING QUESTIONS

A. Statement & Argument:

Question 1:

Statement: "All citizens above the age of 18 should be allowed to vote in the elections."

Argument: "Lowering the voting age to 16 will encourage political awareness and participation among the youth."

Is the argument valid based on the statement?

- A) Yes, the argument is valid.
- B) No, the argument is not valid.

Answer:

- B) No, the argument is not valid.

Explanation:

The argument introduces a new idea of lowering the voting age to 16, which is not directly supported by the statement. The statement only talks about citizens above the age of 18 being allowed to vote, not about lowering the voting age.

Question 2:

Statement: "Regular exercise is essential for maintaining good health."

Argument: "Exercise equipment and gym memberships should be made tax-free to encourage people to adopt a healthy lifestyle."

Is the argument valid based on the statement?

- A) Yes, the argument is valid.
- B) No, the argument is not valid.

Answer:

- A) Yes, the argument is valid.

Explanation:

The argument is directly related to the statement, suggesting a measure (tax exemption) to promote regular exercise, which aligns with the statement's idea that exercise is essential for good health.

Question 3:

Statement: "Due to rising pollution levels, the city is facing a health crisis."

Assumption: "The health crisis is directly caused by pollution."

Is the assumption implicit in the statement?

- A) Yes, the assumption is implicit.
- B) No, the assumption is not implicit.

Answer:

- A) Yes, the assumption is implicit.

Explanation:

The statement directly links the health crisis to the rising pollution levels, assuming that pollution is the primary cause of the crisis.

Question 4:

Statement: "The workshop on time management is fully booked."

Assumption: "People are interested in improving their time management skills."

Is the assumption implicit in the statement?

- A) Yes, the assumption is implicit.
- B) No, the assumption is not implicit.

Answer:

- A) Yes, the assumption is implicit.

Explanation:

The statement implies that people are interested in improving their time management skills as the workshop is fully booked, indicating a demand for such sessions.

C. Statement & Conclusion:

Question 5:

Statement: "All employees who meet their monthly targets receive a performance bonus."

Conclusion: "John will receive a performance bonus this month."

Is the conclusion valid based on the statement?

- A) Yes, the conclusion is valid.
- B) No, the conclusion is not valid.

Answer:

- B) No, the conclusion is not valid.

Explanation:

The statement only establishes a condition for receiving a performance bonus, but it doesn't provide any information about whether John has met his monthly targets or not. Thus, the conclusion cannot be valid based on the given statement alone.

COMPREHENSION

1) Read the given comprehension and answer the questions that follow.

Elections were in the air of the world's youngest democracy when I arrived in Thimphu. This was for a by-election in the capital city, that dominated the conversation at dinners, even in Thimphu's most fun night-spot Mojo Park (the best music in town). Bhutan has taken to democracy with ease ever since 2008 when the first proper elections were held, a process India has helped out with, sending officials from the Election Commission travelling to check arrangements, explain electronic voting machine (EVM) technology and procedures. However, there are many things uniquely Bhutanese:

Monks and nuns in this deeply religious Buddhist majority are not allowed to vote, so as to avoid mixing religion and politics. All voters must wear their national dress on polling day, but no one—candidate, campaigner or voter—is allowed to wear the kabney silk and gyentag (scarf of honour, for men and women respectively, bestowed only by the King), patang (ceremonial sword), or any other sign of rank or royal patronage to avoid a misuse of influence. And, in deference to the environment, no posters can be put up on any public property, including trees, and are mostly restricted to a community billboard for all. Maybe a thing or two the world's largest democracy could learn from the youngest?

Royal textiles

If you're in Thimphu, put the Textile Museum on your must-do list. The museum, run by the Royal Textile Academy is the project of Ashi Sangay Choden Wangchuck, one of the Queen

Mothers of Bhutan (the former King had four Queens, all sisters). The museum is dedicated to preserving the oldest and rarest woven fabrics worn in Bhutan and used in their religious **scrolls** and Thangkhas. As you walk in, it is the ‘Thongdrel’ or massive silk work of the Zhabdrung Phuensum Tshogpa (in honour of a sacred meal served to Bhutan’s political and spiritual founder in 1637) that greets you. The thongdrel stands 34 feet tall, running 23 feet across and is set against a glass window that runs three stories high.

Another on your must-see list is the relatively new Tara Lakhang and Pangrizampa monastery on the **outskirts** of Thimphu. This is Bhutan’s only monastery dedicated to 21 Taras, the female Bodhisattva and it is a powerful display of ancient feminism. Compared to the rest of the subcontinent, women have a status more equal to men in Bhutan. There isn’t the obvious preference for the male child, girls and boys go to school in equal numbers.

Not so equal

While polygamy is practiced in some parts, so is polyandry, and divorce settlements are equal and even-handed. Even so, Bhutanese women lag behind in one place that it counts: parliament. In the last National Assembly elections, 3/4ths of the 47 seats had only male candidates (nine had females), and four women were elected as MPs. “**Misogyny** plays only one part of it,” explains the only leader of a party (DCT) Lily Wangchuk, who runs a hotel in downtown Thimphu. “Women just don’t vote for women, and the lack of women role models in modern Bhutan becomes a vicious cycle.”

While Bhutan’s government and people tell you they are devoted to preserving the country and its beauty, it is plain to see Bhutan is changing everyday in little ways. Less youngsters adhere to the traditional and once mandatory national dress (Goh and Kira), more and more buildings now get permission to rise above the originally regulated two stories, and glass and granite is seen more in Thimphu where once only wood and paint were allowed. Some modernities are welcome, and the abundance of hydropower electricity means many Bhutanese (including the very dashing U.S.-educated Prime Minister Tshering Tobgay) drive hybrid cars. The countryside is still pristine, and not covered with the plastic waste ubiquitous in India, even as Bhutan explores more ‘non-wood’ uses for its 70% forest cover that is also mandated in the constitution. There is, however, one place that doesn’t change, and it is always my first stop when I land in Paro: the Kyichu Lhakhang. This is one of Bhutan’s oldest and simplest monasteries, believed to be constructed in 659 CE, by Tibetan king Songtsen Gampo and has a link to the Jokhang temple in Lhasa.

All year round, one is welcomed into Kyichu with a spectacular and miraculous orange tree **laden** with fruit. It is here that you know the truth of Bhutan Tourism’s catchy slogan, ‘Happiness is a place.’

(1) Which of the following statements is/are correct regarding the 2008 Elections of Bhutan?

- I. India helped Bhutan in elections by sending officials from Election Commission of India.
- II. Monks and nuns were not allowed to vote.
- III. Wearing National Dress on Election day was compulsory.

- (a) All are Correct
- (b) II and III only
- (c) I and III only
- (d) I and II only

(2) Who is 'Ashi Sangay Choden Wangchuck' as mentioned in the passage?

- (a) The elected Prime Minister of Bhutan
- (b) The elected President of Bhutan
- (c) Queen Mother of Bhutan
- (d) None is Correct

(3) Consider the following statements regarding the 'Mojo Park' as mentioned in the passage.

- I. It is situated in the Northeast India.
- II. It is famous for its Music Shows.
- III. It is situated in the City of Thimphu.

 - (a) All are Correct
 - (b) II and III only
 - (c) I and III only
 - (d) I and II only

(4) Which of the following statements is correct as given in the Passage?

- (a) Polyandry is not practiced in Bhutan.
- (b) Polygamy is practiced in Bhutan.
- (c) There is not a single Female Member in Bhutan's Parliament.
- (d) None is Correct

(5) Why was candidate, campaigner or voter not allowed to wear any sign of rank or royal patronage in the 2008 Elections of the country?

- (a) Due to some kind of superstition.
- (b) To neglect the misuse of influence of wealthy and famous people.
- (c) Both are Correct
- (d) None is Correct

(6) Consider the following statements regarding the 'Kyichu Lhakhang' as given in the passage:

- I. He was the first Prime Minister of Bhutan.
- II. It is one of Bhutan's oldest monasteries.
- III. It was built in 7th Century.

 - (a) I and II only

- (b) All are Correct
- (c) I and III only
- (d) II and III only

(7) Choose the word which is Most Similar to the word printed in bold in the passage.

Scrolls

- (a) Document
- (b) Aimless
- (c) Rolling
- (d) None is Correct

(8) Choose the word which is Most Similar to the word printed in bold in the passage.

Outskirts

- (a) Downtown
- (b) Away
- (c) Center
- (d) Periphery

(9) Choose the word which is Most Opposite to the word printed in bold in the passage.

Laden

- (a) Empty
- (b) Full
- (c) Charged
- (d) Encumbered

(10) Choose the word which is Most Opposite to the word printed in bold in the passage.

Misogyny

- (a) Woman-hater
- (b) Sexist
- (c) Feminist
- (d) None is Correct

DATA INTERPRETATION

Direction: Refer the following table for Question numbers 1,2 and 3

State	Total number of male & female employees	Ratio of number of males to that of female employees	Percentage of post-graduate among total employees
A	20,000	13 : 7	60
B	30,000	8 : 7	50
C	25,000	5 : 5	64
D	40,000	14 : 6	72
E	10,000	6 : 4	42

1. Find the number of male employees in state D :

- a. 14,000 b. 6,000 c. 28,000 d. 20,000

Answer : Option C

Solution :

Total number of employees in state D 40,000. Out of 20(14+6), 14 are male.

$$\text{So number of male employees} = 40,000 * \frac{14}{20} = 28,000.$$

2. Find the number of post graduate female employees in state B

- a. 8,000 b. 15,000 c. 2,800 d. 7,000

Answer : Option D

Solution :

Total number of employees in state B is 30,000.

$$\text{Number of female employees} = 30,000 * \frac{7}{15} = 14,000$$

Number of female post graduate employees is 50% of number of employees=50% of 14,000=7,000

3. Find the number of post graduate male employees in state A and B

- a. 15000 b. 15800 c. 18000 d. 16800

Answer : Option B

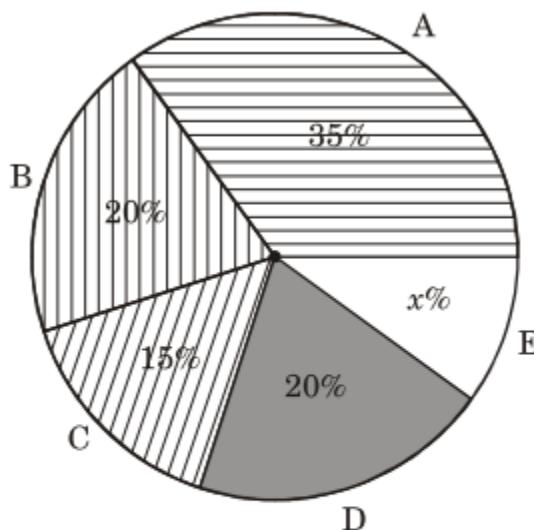
Solution:

Post graduate male employees in state A = $20,000 * \frac{13}{20} * 60\% = 13,000 * \frac{60}{100} = 7,800$

Post graduate male employees in state B = $30,000 * \frac{8}{15} * 50\% = 16,000 * \frac{50}{100} = 8,000$

Number of post graduate male employees in state A and B = $7,800 + 8,000 = 15,800$.

Direction : Question numbers 4,5 and 6 are based on the following pie diagram



- A : Printing cost
- B : Cost of paper
- C : Royalty
- D : Advertisement charges
- E : Other charges

4. If the cost of paper is Rs. 16,000, then find the amount of other charges in Rs is

- a. 16,000
- b. 10,000
- c. 8,000
- d. 12,000

Answer: Option C

Solution:

Cost of paper, B is 20% of total expenditure = Rs. 16,000.

Total expenditure = $16,000 * 100 / 20 = \text{Rs. } 80,000$

Then other charges = $100 - (20 + 15 + 20 + 35) = 10\%$ will be Rs. 8,000.

5. The tax deducted at source is 10% of the royalty amount. Then the amount of tax paid is

- a. Rs. 1200
- b. Rs. 800
- c. Rs. 1000
- d. Rs. 8000

Answer: Option A

Solution:

Total expenditure is Rs. 80,000. Royalty, C, is 15% of total = $80,000 * \frac{15}{100} = \text{Rs. } 12,000$

Tax is 10% of Royalty=12,000*10%=Rs. 1,200.

6. What is the central angle of the sector corresponding to the expenditure incurred on Royalty?

- a. 30° b. 36° c. 54° d. 60°

Answer : Option C

Solution :

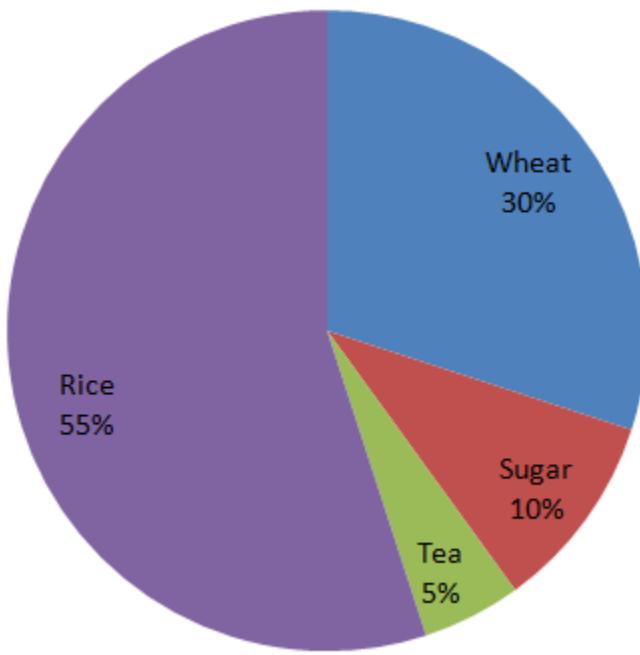
$$\text{angle}=15\% \text{ of } 360=360 \times \frac{15}{100}=54^\circ$$

7. The ratio of printing cost to royalty is

- a. 3:1 b. 7:3 c. 4:3 d. 2:1

Answer : Option B

Direction : In the given pie- chart , the comparative study of the production of rice, wheat, sugar and tea of a country is given. Study the pie- chart and answer the questions 8-10



8. The Production of the Rice, Wheat, Sugar and Tea is 50000 Kg. Find the production of Rice

- a. 17500 kg b. 39500 kg c. 27500 kg d. 2750 kg

Answer: Option C

Solution:

$$\begin{aligned}\text{Rice} + \text{Wheat} + \text{Sugar} + \text{Tea} &= 50000 \\ 55\% + 30\% + 10\% + 5\% &= 50000 \\ \text{then rice } 55\% &= 50000 \times 55/100 = 27500 \text{ kg}\end{aligned}$$

9. The production of rice and tea is more/greater than production of wheat by

- a. 50% b. 100% c. 75% d. 66.6%

Answer: Option B

Solution:

$$\begin{aligned}\text{Rice} + \text{Tea} &= 55\% + 5\% = 60\% \\ \text{Wheat} &= 30\%. \text{ So more by } \frac{30}{30} \times 100 = 100\%\end{aligned}$$

10. From this diagram, the ratio of sum of wheat and sugar production to the difference in production of rice and tea is :

- a. 4 : 5 b. 5 : 4 c. 6 : 1 d. 1 : 6

Answer: Option A

Solution:

(Wheat + Sugar) : (Rice - Tea)

$$\begin{array}{rcl} (30 + 10) & : & (55 - 5) \\ 40 & : & 50 \\ 4 & : & 5 \end{array}$$



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UNIT 3 and 4
PRACTICE QUESTIONS
October 2023**

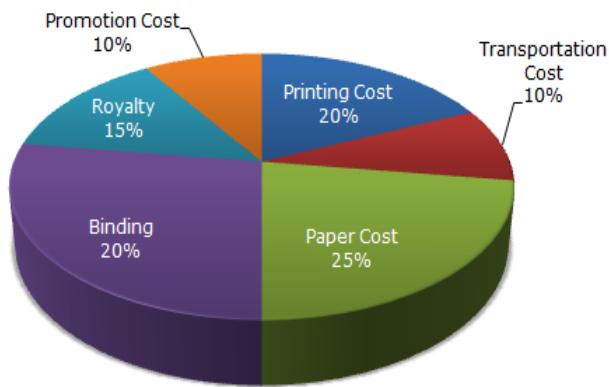
UNIT 3 LOGICAL REASONING

DATA ANALYSIS

Directions (1-5): The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it.

Various Expenditures (in percentage)

Incurred in Publishing a Book



Question 1: If for a certain quantity of books, the publisher has to pay Rs. 30,600 as printing cost, then what will be the amount of royalty to be paid for these books?

- A. Rs. 19,450
- B. Rs. 21,200
- C. Rs. 22,950
- D. Rs. 26,150

Answer: (C)

Question 2: What is the central angle of the sector corresponding to the expenditure incurred on Royalty?

- A. 15^0
- B. 24^0
- C. 54^0
- D. 48^0

Answer: (C)

Question 3: The price of the book is marked 20% above the C.P. If the marked price of the book is Rs. 180, then what is the cost of the paper used in a single copy of the book?

- A. Rs. 36
- B. Rs. 37.50
- C. Rs. 42
- D. Rs. 44.25

Answer: (B)

Question 4: If 5500 copies are published and the transportation cost on them amounts to Rs. 82500, then what should be the selling price of the book so that the publisher can earn a profit of 25% ?

- A. Rs. 187.50
- B. Rs. 191.50
- C. Rs. 175
- D. Rs. 180

Answer: (A)

Question 5: Royalty on the book is less than the printing cost by:

- A. 5%
- B. 35%
- C. 20%
- D. 25%

Answer: (D)

DATA SUFFICIENCY

Directions for data sufficiency questions (1-10):

- F. Data in the statement I alone is sufficient to answer the question.
- G. Data in the statement II alone is sufficient to answer the question.
- H. Data either in the statement I alone or statement II alone are sufficient to answer the question.
- I. Data given in both I & II together are not sufficient to answer the question.
- J. Data in both statements I & II together are necessary to answer the question.

Question 1: How is ‘face’ written in that code language?

Statement I: In a certain code language, ‘no one with face’ is coded as ‘fo to om sop’ and ‘no one has face’ is coded as ‘om sit fo sop’

Statement II: In a certain code language, ‘face of no light’ is coded as ‘om mot fokiz’ and ‘no one is smart’ is coded as ‘sop fo sip lik’.

ANS A

Question 2: In which month is Meena’s Birthday?

Statement I: Shikha remembers that Meena’s birthday was 4 months ago.

Statement II: Raj remembers that after 2 months from now, Meena’s birthday will be 6 months back.

Answer: (D)

Question 3: In which year was Rahul born?

Statement I: Rahul at present is 25 years younger to his mother.

Statement II: Rahul’s brother, who was born in 1964, is 35 years younger to his mother.

Answer: (E)

Question 4: How many children are there between P and Q in a row of children?

Statement I: P is fifteenth from the left in the row.

Statement II: Q is exactly in the middle and there are ten children towards his right.

Answer: (E)

From II, Q being in the middle, there are 10 children to his right as well as to his left. So, Q is 11th from the left. From I, P is 15th from the left.

From I, we conclude that weight of each pole = (4×5) kg = 20 kg.

So, total weight of 10 poles = (20×10) kg = 200 kg.

From II, we conclude that:

Weight of each pole = (weight of 3 poles) - (weight of 2 poles) = 20 kg.

So, total weight of 10 poles = (20×10) kg = 200 kg.

Question 5: On which day of the week was birthday of Sahil?

Statement I:Sahil celebrated his birthday the very next day on which Arun celebrated his birthday.

Statement II:The sister of Sahil was born on the third day of the week and two days after Sahil was born.

Answer: (B)

I does not mention the day of the week on the birthday of either Arun or Sahil.

According to II, Sahil's sister was born on Wednesday and Sahil was born two days after Wednesday i.e. on Friday.

Question 6: How many New Year's greeting cards were sold this year in your shop?

Statement I:Last year 2935 cards were sold.

Statement II:The number of cards sold this year was 1.2 times that of last year.

Answer: (E)

From both I and II, we find that the number of cards sold this year = $(2935 \times 1.2) = 3522$.

Question 7: How is Tanya related to the man in the photograph?

Statement I:Man in the photograph is the only son of Tanya's grandfather.

Statement II:The man in the photograph has no brothers or sisters and his father is Tanya's grandfather.

Answer: (C)

From I, we conclude that the man is the only son of Tanya's grandfather i.e. he is Tanya's father or Tanya is the man's daughter.

From II, we conclude that the man's father is Tanya's grandfather. Since the man has no brothers or sisters, so he is Tanya's father or Tanya is the man's daughter.

Decision Making

Directions for questions 1 to 4: Krishnapuram's town council has exactly three members: Arjun, Karn, and Bhim. During one week, the council members vote on exactly three bills: a recreation bill, a school bill, and a tax bill. Each council member votes either for or against each bill. The following is known:

- Each member of the council votes for at least one of the bills and against at least one of the bills.
- Exactly two members of the council vote for the recreation bill.
- Exactly one member of the council votes for the school bill.
- Exactly one member of the council votes for the tax bill.
- Arjun votes for the recreation bill and against the school bill.
- Karn votes against the recreation bill.

- Bhim votes against the tax bill.

Question 1: If the set of members of the council who vote against the school bill are the only ones who also vote against the tax bill, then which one of the following statements must be true?

- A. Arjun votes for the tax bill.
- B. Karn votes for the recreation bill.
- C. Bhim votes against the recreation bill.
- D. Bhim votes against the school bill.

Answer: (D)

Question 2: If Karn votes for the tax bill, then which one of the following statements could be true?

- A. Arjun and Karn each vote for exactly one bill.
- B. Karn and Bhim each vote for exactly one bill.
- C. Arjun votes for exactly two bills.
- D. Karn votes for the recreation bill.

Answer: (A)

Question 3: Karn votes for exactly two of the three bills, which one of the following statements must be true?

- A. Arjun votes for the tax bill.
- B. Karn votes for the school bill.
- C. Karn votes against the tax bill.
- D. Bhim votes for the school bill.

Answer: (B)

Question 4: If one of the members of the council votes against exactly the same bills as does another member of the council, then which one of the following statements must be true?

- A. Arjun votes for the tax bill
- B. Kam votes for the recreation bill.
- C. Kam votes for exactly one bill.
- D. Bhim votes for exactly one bill.

Answer: (D)

Directions for questions 5 to 9: Study the given information & answer the following questions:

Following are the criteria to recruit a professor in an organisation:

The Applicant must

- a) be graduate in any discipline with min. 67% marks.
- b) have his/her age in between 28 to 33 years as on 26-09-2023.
- c) have a PG degree/ 3 years diploma or must have completed B.Ed. with more than 55% marks.
- d) have minimum 3 years' experience in Teaching.
- e) be ready to join 1 year probation.

If a candidate satisfies all the criteria except

- i) at (c) above, but is an Arts with Maths graduate with minimum 72% marks and has an experience of more than 4 years and more her/his case is to be referred to the principal.
- ii) at (d) above, but master degree's with minimum 60% marks, her/his is to be referred to the Vice Principal.

Details of applicants are given below in the questions. On the basis of the following course of action which is based on the data given above, mark the answer.

Question 5: Manika is a B.Sc. Graduate with 70% marks and has completed PG in M.Sc. She completed 27 years of age in 2021 and has 3 years' experience as a Maths Faculty. She is ready to join probation period of one year.

- A. The case is to be referred to Principal.
- B. The case is to be referred to Vice Principal.
- C. The candidate is to be selected.
- D. The information is inadequate to take a decision.
- E. The candidate is not to be selected.

Answer: (C)Clearly Manika will be selected as she meets all the requirements

Question 6: Mamata is a graduate in B.A. and B.Ed. with 75% and 70% respectively. She has been working as a professor in Math for 5 years and has freelancing experience of 2 years. Mamta's age is 30 years and she is ready to join 2-year probation.

- A. The case is to be referred to Principal.
- B. The case is to be referred to Vice Principal.
- C. The candidate is to be selected.
- D. The information is inadequate to take a decision.
- E. The candidate is not to be selected.

Answer: (C)Mamta will be selected for the post as she meets all the requirements

Question 7: Shobha, a 29-year-old science graduate with 70% marks in her graduation has 53% marks in her B.Ed. and she also has an Arts with Maths graduation securing 80% marks. She also worked with Satyam for a span of 5 years and she is willing to join the probation period for 1 year.

- A. If the case is to be referred to the principal.
- B. If the case is to be referred to the Vice Principal.
- C. If the candidate is to be selected.
- D. If information is inadequate to make a decision.
- E. If the candidate is not to be selected.

Answer: (A) Since she has 53% marks in B.Ed. but did Arts with Maths graduation securing 80% marks, her case must be referred to the principal.

Question 8: Abhishek is a graduate in B.Sc. and postgraduate in M.Sc. with 78% marks and has been working for the past 7 years during which he worked as a teacher in a coaching institute for two years. He was born on 07.11.1986 and is ready to join a probation period of 1 year.

- A. If the case is to be referred to the principal.
- B. If the case is to be referred to the Vice Principal.
- C. If the candidate is to be selected.
- D. If information is inadequate to make a decision.
- E. If the candidate is not to be selected.

Answer: (D)

Question 9: Aman has been working as an Assistant Professor for the past 5 years. She has completed her MA and graduation with 73% marks each and is ready to join one-year probation. She was born on 22 Aug 1987.

- A. If the case is to be referred to the Executive Head.
- B. If the case is to be referred to the Vice President.
- C. If the candidate is to be selected.
- D. If information is inadequate to make a decision.
- E. If the candidate is not to be selected.

Answer: (C) Explanation: Clearly, the candidate will be selected.

CODING AND DECODING

Question 1: If in a certain code language “BEAUTIFUL” is coded as “MVGJUVBFC”, then how will “PHENOMENON” be coded in the same code language?

- A. OPOFSPOFIQ
- B. OPOFNPOFIQ
- C. OPOXNPOFIQ
- D. OPOFNPLFIQ

Answer: (B)

Question 2: If in a certain code language “RAMESH” is written as “HSEMAR”, then how will “CREATE” be written in that language?

- A. TEACRE
- B. ETAECR
- C. ETAERC
- D. ETACRE

Answer: (C)

Question 3: In a certain code “GONE” is written as 5%2# and “MEDAL” is written as 4#3\$@, then how will “GOLD” be written in that code?

- A. 5@%3
- B. 5%@3
- C. 5#@3
- D. 5%#3

Answer: (B)

Question 4: If “Green” is called “Red”, “Red” is called “Blue”, “Blue” is called “White”, “White” is called “Yellow”, “Yellow” is called “Violet”, then what is the colour of grass?

- A. Blue
- B. Yellow
- C. Red
- D. White

Answer: (C)

Question 5: If “Blue” means “Green”, “Green” means “White”, “White” means “Yellow”, “Yellow” means “Black”, “Black” means “Red” and “Red” means “Brown”, then what is the colour of milk?

- A. Black
- B. White
- C. Green
- D. Blue

Answer: (C)

Question 6: If ‘Road’ is called ‘Car’, ‘Car’ is called ‘Train’, ‘Train’ is called ‘School’, ‘School’ is called ‘House’, ‘House’ is called ‘Office’, then where do children go to study?

- A. House
- B. Train
- C. Office
- D. School

Answer: (A)

Question 7: If “REASON” is coded as 5 and “BELIEVED” as 7, what is the code number for “GOVERNMENT”?

- A. 10
- B. 6
- C. 9
- D. 7

Answer: (C)

Question 8: If in a certain language “BOAT” is written as ‘5937’ and “TIME” is written as ‘7826, then how will “BEAM” be written in that language?

- A. 5632
- B. 5362
- C. 5862
- D. 7632

Answer: (A)

Question 9: In a certain code language “MADRAS” is written as “DAMSAR”, how can “MUMBAI” be written in that code language?

- A. MUMIAB
- B. IABMUM
- C. IMUMBAA
- D. MBIAUM

Answer: (A)

Question 10: If in a certain code language “PUT” is written as ‘57’, then how will “BAT” be written in that language?

- A. 25
- B. 23
- C. 60
- D. 28

Answer: (B)

Question 11: If in a certain language, NOIDA is coded as OPJEB, how is DELHI coded in that language?

- A. CDKGH
- B. EFMIJ
- C. FGNJK
- D. IHLED

Answer: (B)

Question 12: If HOT is coded as GNS, how is COLD coded?

- A. BNKC
- B. DPME
- C. EQNF
- D. FROG

Answer: (A)

Question 13: In a certain code, TREE is written as UQFD. How is LEAF written in that code?

- A. MFBG
- B. KDZE
- C. MDBE
- D. MBZE

Answer: (C)

Question 14: In a certain code, PAPER is written as QPARE. How is TABLE written in that code?

- A. UBALE
- B. UBCMF
- C. UZAKD
- D. UBAEL

Answer: (D)

Question 15: In a certain code, ARMY is written as ASOB. How is JUDGE written in that code?

- A. KVEHF
- B. JVFI
- C. ITCFD
- D. JWGKJ

Answer: (B)

Question 16: In a certain code, 'REACTION' is written as 'RAETCOIN'. How is 'BEAUTY' written in that code?

- A. BAETUY
- B. BTUAEY
- C. BTAUEY
- D. None of These

Answer: (A)

Question 17: In a certain code 'LION' is written as LMGJ. How is 'MILK' written in that code?

- A. JKFL
- B. IJGK
- C. KLIM
- D. KILM

Answer: (B)

Question 18: In a certain code 'WRITER' is written as 'SFUJSX'. How is 'DOCTOR' written in that code?

- A. SUPPDE
- B. SPPUDE
- C. SPUDPE
- D. SPUPDE

Answer: (C)

Question 19: In a certain code 'BILLION' is written as IBLLOIN. How is MILTON written in that code?

- A. IMTLNO
- B. IMLTNO
- C. NOTLIM
- D. None of These

Answer: (A)

Question 20: If every alternate letter from B onwards is written in small letters, whereas the other letters are written in capitals, how will the 3rd month from May be coded?

- A. JuLy
- B. jULY
- C. AuGuSt
- D. AUGUSt

Answer: (D)

BLOOD RELATIONS

Question 1: Introducing a girl, Vipin said "Her mother is the only daughter of my mother-in-law". How is Vipin related to that girl?

- A. Uncle
- B. Father
- C. Brother
- D. Husband

Answer: (B)

Question 2: 'PxQ' means P is the brother of Q. 'P-Q' means P is the sister of Q. 'P+Q' means P is the father of Q. 'P÷Q' means P is the mother of Q. Which of the following option is the presentation of M is the nephew of N?

- A. N-K+M
- B. NxK+M
- C. N+KxM

D. N-K+MxT

Answer: (D)

Directions for questions 3 to 6: Read the following information and answer the questions that follow.

I. A,B,C,D,E and F are 6 members of a family.

II. F is the granddaughter of E.

III. D is the grandmother of A.

IV. C is the mother of F and wife of B.

V. B's mother is D.

VI. There are two married couples in the family.

Question 3: How many males are there in the family?

A. 4

B. 3

C. 2

D. Can't be determined

Answer: (D)

Question 4: What is C's relation with A?

A. Mother

B. Grandmother

C. Daughter

D. None of these

Answer: (A)

Question 5: Take out the true statement.

A. A is sister of F

B. A is F's brother

C. D has two grandsons

D. Cannot be determined

Answer: (D)

Question 6: Who among the following is one of the couples?

A. EB

B. DE

C. CD

D. None of these

Answer: (B)

Question 7: Pointing to a photograph, a man said, "I have no brother, and that man's father is my father's son." Whose photograph, was it?

- A. His son
- B. His own
- C. His father
- D. His nephew

Answer: (A)

The narrator has no brother, so he is the only son of his father, and his father's son is he himself. Hence, the narrator is the father of the man in the photograph, so the man in the photograph is his son.

Question 8: Pointing to a photograph of a man, Pooja said, "He is the only son of the mother of my sister's brother." How is that person related to Pooja?

- A. Father
- B. Maternal Uncle
- C. Cousin
- D. None of these

Answer: (D)

The person in the photograph is the only son of the mother of Pooja's sister's brother. So, he is the brother of Pooja.

Question 9: Pointing to a woman, a man said, "Her father is the only son of my father." How is the man related to the woman?

- A. Brother
- B. Grandfather
- C. Father
- D. Son

Answer: (C)

Only son of my father = the man himself. Therefore, the man is the father of this woman.

Question 10: Looking at the portrait of a man, Mohan said, "His mother is the wife of my father's son and I have no brother and sister." at whose portrait was Mohan looking?

- A. His nephew
- B. His son

- C. His cousin
- D. None of these

Answer: (B)

Mohan has no brother and sister, so he is the only son of his father.

Now, wife of my father's son = Mohan's wife. And, Mohan's wife is the mother of the man, so the man is Mohan's son.

Question 11: Pointing to a photograph, a lady tells Sohan, "I am the only daughter of this woman, and her son is your maternal uncle." How is the lady related to Sohan's father?

- A. Wife
- B. Sister-in-law
- C. Sister
- D. None of these

Answer: (A)

The lady's brother is Sohan's maternal uncle. So, the lady is Sohan's mother and wife of his father.

Question 12: Pointing to a photograph of a boy Suresh said, "He is the son of the only son of my mother." How is Suresh related to that boy?

- A. Brother
- B. Uncle
- C. Cousin
- D. Father

Answer: (D)

The boy in the photograph is the only son of the son of Suresh's mother i.e., the son of Suresh. Hence, Suresh is the father of boy.

Question 13: Pointing to a photograph Lata says, "He is the son of the only son of my grandfather." How is the man in the photograph related to Lata?

- A. Brother
- B. Uncle
- C. Cousin
- D. None of the above

Answer: (A)

The man in the photograph is the son of the only son of Lata's grandfather i.e., the man is the son of Lata's father. Hence, the man is the brother of Lata.

Question 14: Deepak said to Nitin, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife." How is the boy playing football related to Deepak?

- A. Son
- B. Brother
- C. Cousin
- D. Brother-in-law

Answer: (B)

Father's wife → mother. Hence, the daughter of the mother means sister and sister's younger brother means brother. Therefore, the boy is the brother of Deepak.

Question 15: Pointing to a woman, Abhijit said, "Her granddaughter is the only daughter of my brother." How is the woman related to Abhijit?

- A. Sister
- B. Grand Mother
- C. Mother-in-law
- D. Mother

Answer: (D)

Daughter of Abhijit's brother → niece of Abhijit. Thus, the granddaughter of the woman is Abhijit's niece.

Question 16: Amit said - "This girl is the wife of the grandson of my mother". How is Amit related to the girl?

- A. Brother
- B. Grand father
- C. Husband
- D. Father-in-law

Answer: (D)

The girl is the wife of grandson of Amit's mother i.e., the girl is the wife of son of Amit. Hence, Amit is the father-in-law of the girl. Hence, the woman is the mother of Abhijit.

PUZZLES

Question 1: In a row of trees, a tree is 7th from the left end and 14th from the right end. How many trees are there in a row?

- A. 18
- B. 19
- C. 20
- D. 21

Answer: (C)

$$\text{Total number of trees} = 7 + 14 - 1 = 20$$

Question 2: Three friends, Sam, Alex, and Lisa, have different ages. Use the following information to determine who is the youngest.

Clues:

- Lisa is older than Sam.
- Alex is older than Lisa.

Who is the youngest?

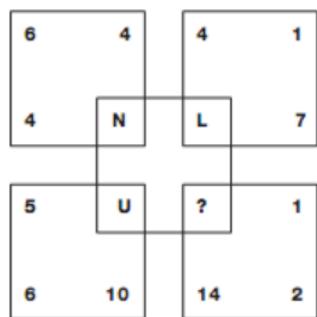
- A. Sam
- B. Alex
- C. Lisa
- D. None

Answer: (A)

From clue 1, Lisa is older than Sam. From clue 2, Alex is older than Lisa. Therefore, Sam is the youngest.

So, the answer is A) Sam.

Question 3: Which letter replaces the question mark?



- A. P
- B. Q
- C. X
- D. M

Answer: (B)

As in alphabet order $14+2+1 = Q$

Question 4: In a shop, there are 4 dolls of different heights P,Q,R and S. S is neither as tall as P nor as short as R. Q is shorter than S but taller than R. If Kittu wants to purchase the tallest doll, which one should she purchase?

- A. Only P
- B. Only S
- C. Either P or S
- D. Either Q or S

Answer: (A)

(S is not as tall as P, means S is shorter than P, So $S < P$.

S is not as short as R, S is taller than R, So $S > R$.

Q is shorter than S but taller than R. So we get, $R < Q < S$. So P is tallest from the above conditions. Hence answer is (a) option.)

Direction Sense Test

Directions for questions 1 to 3: Read the information given below to answer these questions:

A, B, C,D,E,F,G,H and I are nine houses. C is 2km east of B. A is 1km north of B and H is 2km south of A. G is 1km west of H while D is 3 km east of G and F is 2km north of G. I is situated just in the middle of B and C while E is just in middle of H and D.

Question 1: Distance between E and G is

- A. 2 km
- B. 1 km
- C. 5 km
- D. 1.5 km

Answer: (A)

Question 2: Distance between A and F is

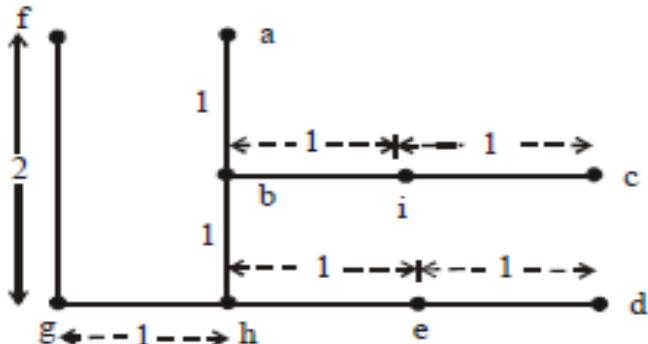
- A. 1.41 km
- B. 3 km
- C. 2 km
- D. 1 km

Answer: (D)

Question 3: Distance between E and I is

- A. 4 km
- B. 2 km
- C. 1 km
- D. 3 km

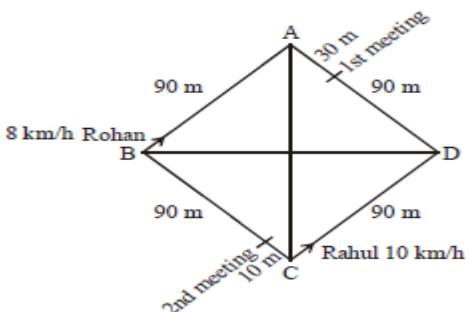
Answer: (C)



Question 4: A square field ABCD of side 90 m is so located that its diagonal AC is from North to South and the Corner B is to the West of D. Rohan and Rahul start walking along the sides from B and C respectively in the clockwise and anti-clockwise directions with speeds of 8km/hr and 10km/hr. Where will they cross each other the second time?

- A. On AD at a distance of 30m from A
- B. On BC at a distance of 10m from B
- C. On AD at a distance of 30m from D
- D. On BC at a distance of 10m from C

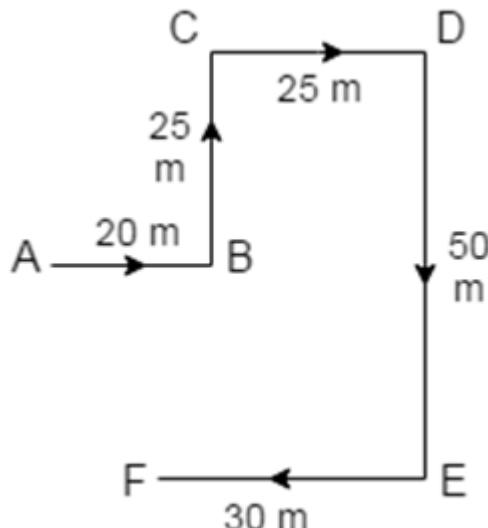
Answer: (D)



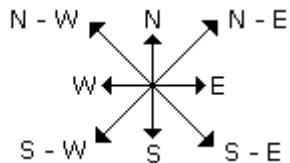
Speeds of Rohan and Rahul are in the ratio 4 : 5.

Question 5: Peter is facing north. He turns to his right and walks 20 m and then turns to his left and walks 25 m. He then walks 25 m to his right. Next, he walks 50 m to his right. Finally, he turns to his right and walks 30 m. In which direction is he from the starting point?

- A. South-East
- B. South
- C. South-West
- D. West



Answer: (A)

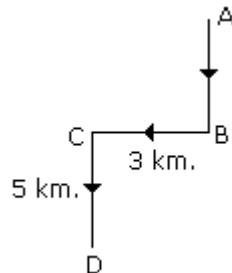


The point F is towards South-East of the starting point A

Question 6: A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?

- A. West
- B. South
- C. North- East
- D. South- West

Answer: (D)

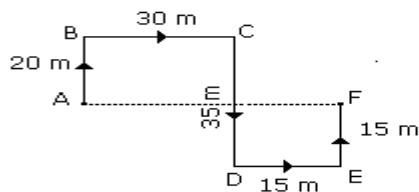


Hence required direction is South-West.

Question 7: Rasik walked 20 m towards north. Then he turned right and walks 30 m. Then he turns right and walks 35 m. Then he turns left and walks 15 m. Finally, he turns left and walks 15 m. In which direction and how many metres is he from the starting position?

- A. 15 m West
- B. 30 m East
- C. 30 m West
- D. 45 m East

Answer: (D)



$$\begin{aligned}\text{Required distance} &= AF \\ &= 30 + 15 \\ &= 45 \text{ m.}\end{aligned}$$

From the above diagram, F is in East direction from A.

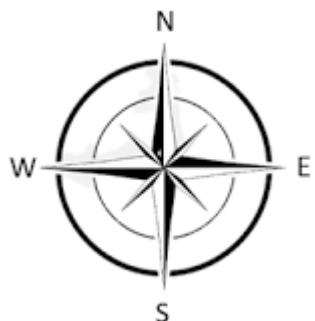
Hence the required answer is '45 m East'.

Question 8: If you are facing north and turn right, which direction will you be facing?

- A. East
- B. West
- C. South

D. North

Answer: (A)



Question 9: If you are facing south and turn 180 degrees, which direction will you be facing?

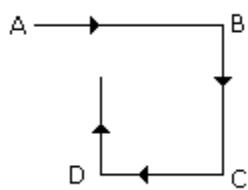
- A. East
- B. West
- C. North
- D. South

Answer: (C)

Question 10: One morning sujata started to walk towards the Sun. After covering some distance she turned to right then again to the right and after covering some distance she again turns to the right. Now in which direction is she facing?

- A. North
- B. South
- C. North-East
- D. South- West

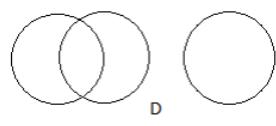
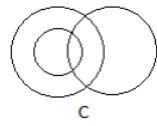
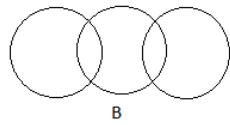
Answer: (A)



Hence finally Sujata will face towards North

Venn Diagram

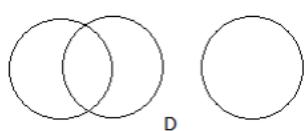
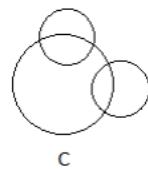
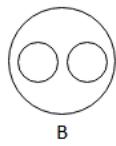
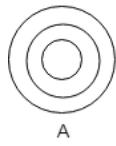
Question 1: Which of the following diagrams correctly represents lions, elephants, and animals?



Answer: (A) Lions and elephants have no relationship to each other, but both are animals

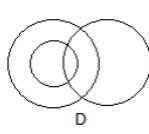
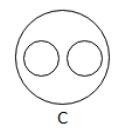
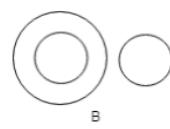
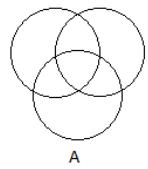


Question 2: Which of the following diagrams correctly shows the relationship between potato, food, and vegetables?



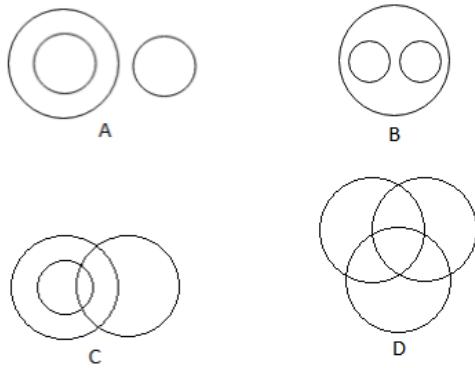
Answer: (A) Potato is a vegetable, and all vegetables are food

Question 3: Which of the following diagrams correctly shows the relationship between tea, coffee, and beverages?



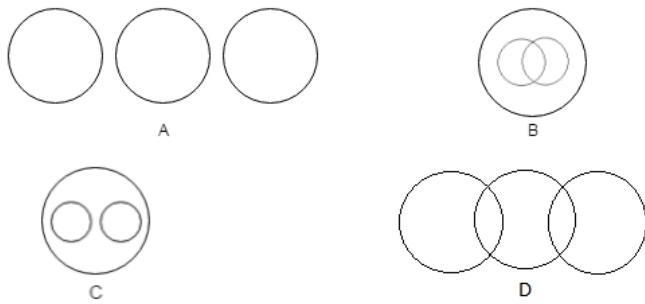
Answer: (C) Tea and coffee are different from each other, but both are beverages

Question 4: Which of the following diagrams correctly shows the relationship between boys, athletes, and students?



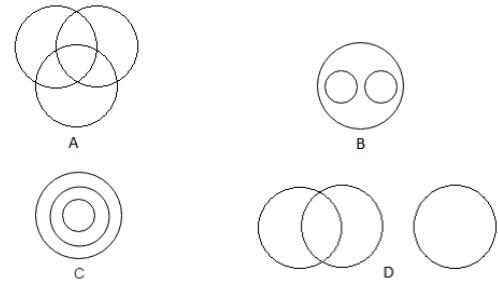
Answer: (D) Some boys are athletes, and some boys are students. Also, some students are athletes. So, they are partly related to one another

Question 5: Select the diagram which best illustrates the relationship between truck, ship, and goods.



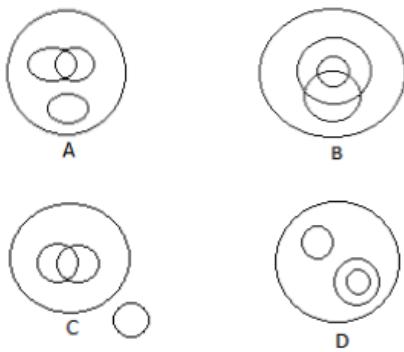
Answer: (D) Truck and ship are entirely different, and both are used to carry or transport different types of goods

Question 6: Select the diagram which best illustrates the relationship between girls, dancers, and singers.

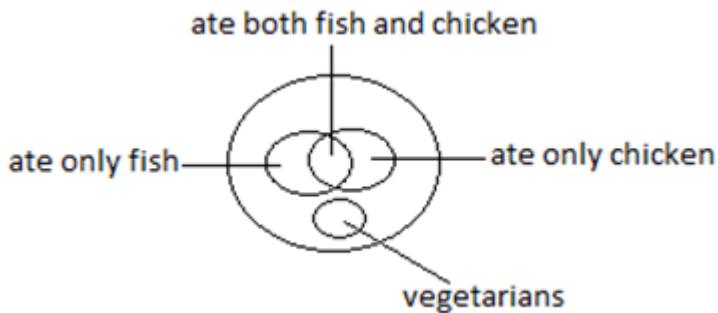


Answer: (A) Some girls can be dancers. Some dancers can be singers. Some girls can be singers

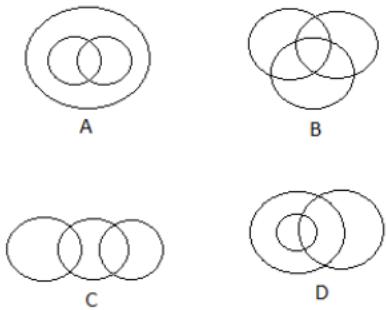
Question 7: In a party, both chicken and fish were served. Some ate only fish and some only chicken. Some people were vegetarians who did not eat either. The rest of the people ate both chicken and fish. Which of the following Venn-diagrams correctly represent this situation?



Answer: (A)



Question 8: Which of the following Venn-diagram illustrates the relationship between football fans, cricket players, and students?



Answer: (B) Some students can be football fans. Some football fans can be cricket players. Some students can be cricket players.

Question 9: Select the diagram that best illustrates the relationship between Sun, Earth, and Oceans.

Answer: (A) An ocean is a part of the Earth, and both are different from the Sun

Alphabet Test

Question 1: _ _ xyx _ _ yx _ xy

- A. xyyyx
- B. xyxyx
- C. yxxyy
- D. yyxyx

Answer: (B)The series is xy/xy/xy/xy/xy. Thus, the pattern 'xy' is repeated

Question 2: APK, BQL, CRM, DSN,

- A. TEO
- B. ETO
- C. EOT
- D. TOE

Answer: (B)The first letter of every group is in alphabetical order, i.e. ABCDE Same is the case with II and III letters of the group. Such as PQRST and KLMNO

Question 3: xy _ _ yxx _ _ xy _

- A. xxxxx
- B. xxyxx
- C. xxyxy
- D. yxxyy

Answer: (B)The series is xxy/xyx/xyx/xyx. Thus, the pattern 'xyx' is repeated

Question 4: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z.

Which letter is in the middle of 13th letter from the left and 4th letter from the right?

- A. R
- B. I
- C. J
- D. S

Answer: (A)

Find out the positions of both the letters from the left and divide the sum of the positions of both the letters from the left by 2. Here $13+23=36$. Now divide 36 by 2 , i.e 18. Hence R is the required letter.

Question 5: Find the missing alphabet in the given sequence?

A, Z, Y, B, C, ?, W, D

- A. E

- B. Z
- C. X
- D. F

Answer: (C)

First letter A with last letter Z, similarly 2nd last letter Y with 2nd letter B, Now 3rd letter C with 3rd last letter X, 4th last letter W with 4th letter D and so on.... Therefore the missing letter is X

Question 6: If the following five names which name will come in the last in a telephone directory?

- a) Mahinder b) Mahender c) Mahindra d) Mahendra e) Mohinder
- A. Mahinder
- B. Mahindra
- C. Mohinder
- D. Mahender

Answer: (C)

Question 7: If you skip every second letter in the sequence, which letter comes next?

- A, C, E, G, __
- A. I
- B. H
- C. J
- D. F

Answer: (A)

Arithematic Reasoning

Question 1: What is the product of all the numbers in the dial of a telephone?

- A. 1,58,480
- B. 1,59,450
- C. 1,59,480
- D. None of the above

Answer: (D)

Question 2: In a garden, there are 10 rows and 12 columns of mango trees. The distance between the two trees is 2 metres and a distance of one metre is left from all sides of the boundary of the garden. The length of the garden is

- A. 20
- B. 22
- C. 24
- D. 26

Answer: (C)

Each row contains 12 plants. There are 11 gaps between the two corner trees (11×2) metres and 1 metre on each side is left. Therefore Length = $(22 + 2)$ m = 24 m

Question 3: A is 3 years older to B and 3 years younger to C, while B and D are twins. How many years older is C to D?

- A. 2
- B. 3
- C. 6
- D. 12

Answer: (C)

Since B and D are twins, so B = D.

Now, A = B + 3 and A = C - 3.

Thus, B + 3 = C - 3 D + 3 = C - 3 C - D = 6.

Question 4: A man wears socks of two colours - Black and brown. He has altogether 20 black socks and 20 brown socks in a drawer. Supposing he has to take out the socks in the dark, how many must he take out to be sure that he has a matching pair?

- A. 3
- B. 20
- C. 39
- D. None

Answer: (A)

Since there are socks of only two colours, so two out of any three socks must always be of the same colour

Question 5: A motorist knows four different routes from Bristol to Birmingham. From Birmingham to Sheffield he knows three different routes and from Sheffield to Carlisle he knows two different routes. How many routes does he know from Bristol to Carlisle?

- A. 4
- B. 8
- C. 12
- D. 24

Answer: (A)

Total number of routes from Bristol to Carlisle = $(4 \times 3 \times 2) = 24$

Seating Arrangement

Question 1: A, P, R, X, S and Z are sitting in a row. S and Z are in the centre. A and P are at the ends. R is sitting to the left of A. Who is to the right of P?

- A. A
- B. X
- C. S
- D. Z

Answer: (B)

The seating arrangement is as follows:



Therefore, right of P is X

Question 2: A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?

- A. Between B and D
- B. Between B and C
- C. Between E and D
- D. Between C and E

Answer: (B)

• • • • •
E B A C D

Therefore, A is sitting in between B and C

Question 3: Five girls are sitting on a bench to be photographed. Seema is to the left of Rani and to the right of Bindu. Mary is to the right of Rani. Reeta is between Rani and Mary. Who is sitting immediate right of Reeta?

- A. Bindu
- B. Rani
- C. Mary
- D. Seema

Answer: (C)

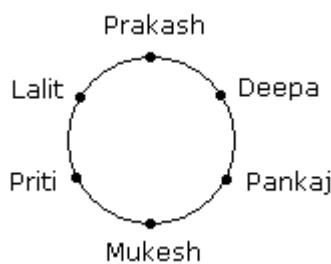
• • • • •
Bindu Seema Rani Reeta Mary

Mary is sitting immediate right to Reeta

Question 4: Six friends are sitting in a circle and are facing the centre of the circle. Deepa is between Prakash and Pankaj. Priti is between Mukesh and Lalit. Prakash and Mukesh are opposite to each other. Who is sitting right to Prakash?

- A. Mukesh
- B. Deepa
- C. Pankaj
- D. Lalit

Answer: (D)



Question 5: Five friends, A, B, C, D, and E, are sitting in a row. A is to the right of B but to the left of D. C is to the left of E. Who is sitting in the middle?

- A. B
- B. A

C. C

D. E

Answer: (C)

A is to the right of B but to the left of D: This means the order from left to right is B, A, D.

C is to the left of E: This means the order from left to right is C, E.

Now, the full arrangement from left to right is C, E, B, A, D. In this arrangement, C is sitting in the middle.

Question 6: In a classroom, there are four students: Amy, Ben, Chloe, and Dave. They are sitting in a row.

Ben cannot sit next to Chloe. Who can sit at one of the ends of the row?

A. Amy

B. Ben

C. Chloe

D. Dave

Answer: (A)

Given that Ben cannot sit next to Chloe, Amy and Dave can sit next to Ben. Since we only have four students and one of them is Ben, the only student who can sit at one of the ends of the row is A

Water Images

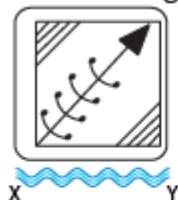
Question 1: G R 9 8 A P 7 6 E S Mirror Image will be _____

- (1) G9A8P76ES (2) S9619A88RS
(3) S9619A88RS (4) G98A88RS

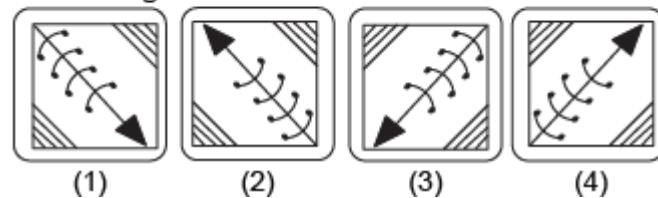
Answer: (3)

Question 2: Choose the correct water image of the question figure, from the given answer figures (assume that water is along XY)

Question figure:



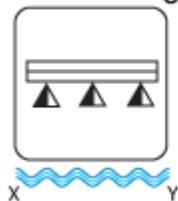
Answer figures:



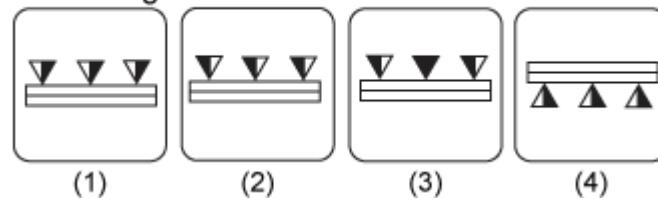
Answer: (1)

Question 3: Choose the correct water image of the question figure, from the given answer figures (assume that water is along XY)

Question figure:



Answer figures:



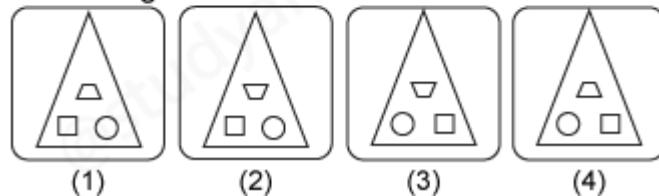
Answer: (2)

Question 4: Choose the correct water image of the question figure, from the given answer figures (assume that water is along XY)

Question figure:



Answer figures:



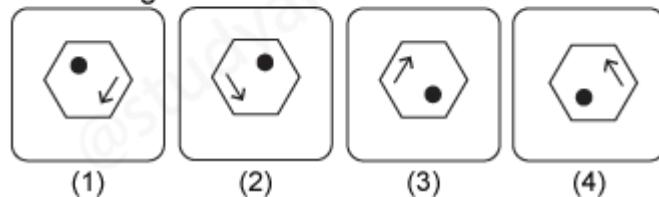
Answer: (4)

Question 5: Choose the correct water image of the question figure, from the given answer figures (assume that water is along XY)

Question figure:



Answer figures:



Answer: (1)

Question 6: Choose the alternative which is closely resembles the water-image of the given combination.

b r i d g e

- | | |
|----------------------|----------------------|
| (1) p i q g e | (2) p i q g e |
| (3) p i q g e | (4) p i p g e |

Answer: (2)

Question 7: Choose the alternative which is closely resembles the water-image of the given combination.

A 1 M 3 b

(1) **D E M 1 A**
(3) **D E M T A**

(2) **D E M 1 A**
(4) **D 3 M T A**

Answer: (3)

Question 7: Choose the alternative which is closely resembles the water-image of the given combination.

ACOUSTIC

(1) **D I T S U O C A**
(3) **D I T S U O A**

(2) **D I T S U O C A**
(4) **D I T S U O T C**

Answer: (2)

Question 8: Choose the alternative which is closely resembles the water-image of the given combination.

monday

(1) **yadnom**
(3) **monday**

(2) **wonday**
(4) **ysbnom**

Answer: (4)

Question 9: Choose the alternative which is closely resembles the water-image of the given combination.

RECRUIT

(1) **T I U R C R**
(3) **R E C R U I T**

(2) **T I U C R A**
(4) **T I R C U E A**

Answer: (2)

Question 10: Choose the alternative which is closely resembles the water-image of the given combination.

w r o t e

(1) **w i o t e**
(3) **w l o t e**

(2) **w i o t e**
(4) **w l o t e**

Answer: (3)

Question 11: Choose the alternative which is closely resembles the water-image of the given combination.

FROG

(1) EBOG 20EB

(3) FROG (E)

(2) GORF

(4) EORF

Answer: (1)

Question 12: Choose the alternative which is closely resembles the water-image of the given combination.

rise

(1) rise e

(3) r i se e

(2) esir

(4) esie

Answer: (1)

Mirror Images

Question 1: Choose the alternative which is closely resembles the mirror image of the given combination.

PAINTED

(1) PAINTED (2) PAINTED

(3) PAINTED (4) PAINTED

Answer: (2)

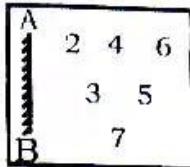
Question 2: What is the mirror image of the arrow ?

- A)  B)  C)  D) 

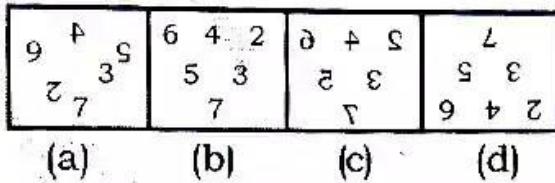
Answer: (A)

Question 3: Choose the mirror Image of following figure, when Mirror is placed to left side(AB)

Question Figure:-



Answer Figures:-



Answer: (C)

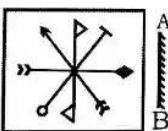
Question 4: Find the mirror image of the word "ELEVEN"

- A. NEVELE
- B. NEVLEE
- C. ELEVEN
- D. NEELEV

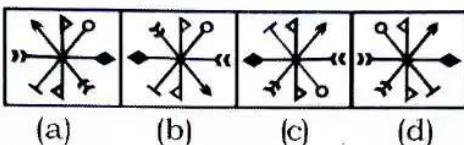
Answer: (A)

Question 5: Choose the correct mirror image from the given options

Question Figure:-



Answer Figures:-



Answer: (C)

Question 6: Choose the alternative which is closely resembles the mirror image of the given combination.

TARA IN 1014 A

- (1) AA 1014 IN TARA
(3) A 1014 TARA IN

(2) A 1014 IN TARA
(4) A 1014 IN TARA

Answer: (4)

Question 7: Choose the alternative which is closely resembles the mirror image of the given combination.

1965 INDOPAK

- (1) 1965 INDOPAK (5)
(3) 1965 INDOPAK (6)

(2) 56910NDIKA P (2)
(4) 1965 INDOPAK (1)

Answer: (4)

Question 8: Choose the alternative which is closely resembles the mirror image of the given combination.

UTZFY6KH

- (1) U TZFY6KH (2)
(3) U TZFY6KH (4)

(2) KH6YFZTU (2)
(4) U TZFY6KH

Answer: (4)

Question 9: Choose the alternative which is closely resembles the mirror image of the given combination.

AN54WMG3

(1) **AN54WMG3**

(3) **ANS4WMG3**

(2) **ANS4WMG3**

(4) **ANS4WMG3**

Answer: (2)

Question 10: Choose the alternative which is closely resembles the mirror image of the given combination.

SUPERVISOR

(1) **SUPERVISOR**

(3) **VIRASUOSA**

(2) **ROSIVALEBORA**

(4) **RSOIVALEBORA**

Answer: (1)

Question 11: Choose the alternative which is closely resembles the mirror image of the given combination.

MAGAZINE

(1) **ENIZAGAM**

(3) **ENIZAGAM**

(2) **MAGAZINE**

(4) **MAGAZINE**

Answer: (4)

Question 12: Choose the alternative which is closely resembles the mirror image of the given combination.

DL9CG4728

(1) **82746CALD**

(3) **DL9CG4728**

(2) **DLaCG4728**

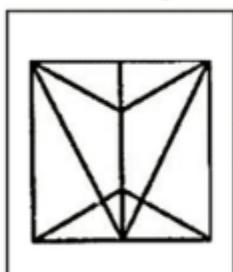
(4) **DLaCG4728**

Answer: (3)

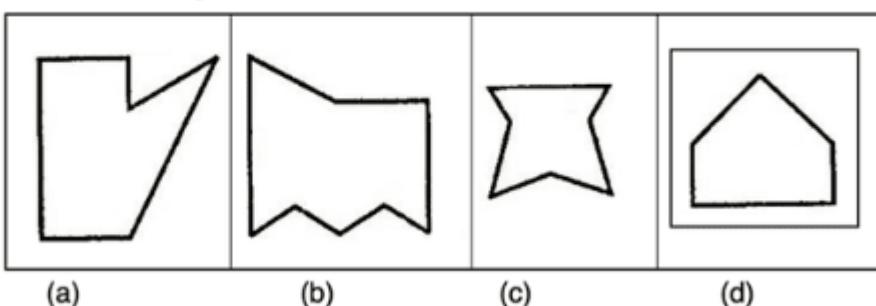
Embedded Figures

Question 1: Select the correct answer figure that is embedded in the question figure.

Question Figure



Answer Figures

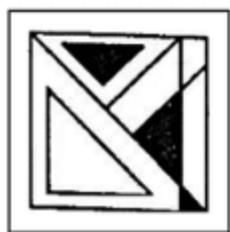


Answer: (A)

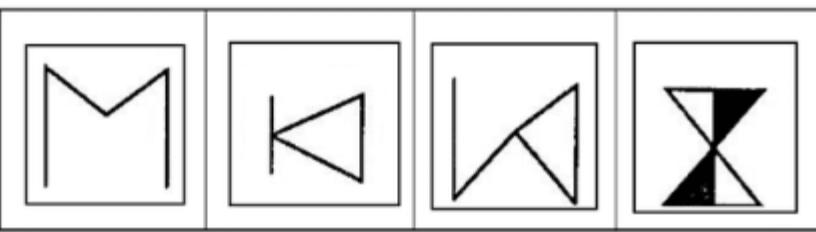


Question 2: Select the correct answer figure that is embedded in the question figure.

Question Figure



Answer Figures



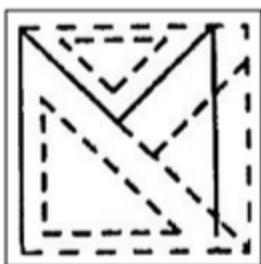
(a)

(b)

(c)

(d)

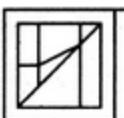
Answer: (A)



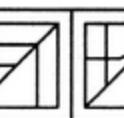
Question 3: Find out the alternative figure which contains figure (X) as its part.



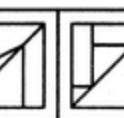
(X)



(1)



(2)

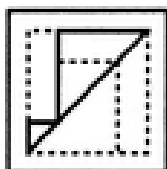


(3)

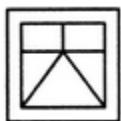


(4)

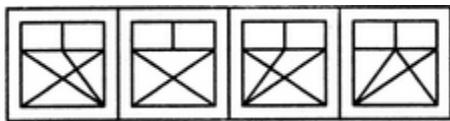
Answer: (4)



Question 4: Find out the alternative figure which contains figure (X) as its part.



(X)



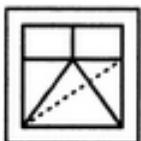
(1)

(2)

(3)

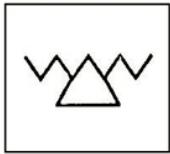
(4)

Answer: (4)

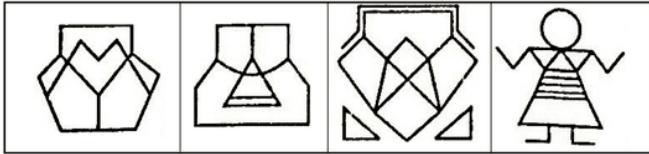


Question 5: Find out that answer figure in which the question figure is embedded.

Question Figure



Answer Figures



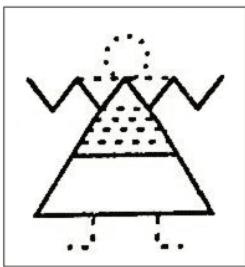
(a)

(b)

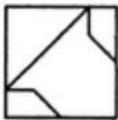
(c)

(d)

Answer: (D)



Question 6: Find out the alternative figure which contains figure (X) as its part.



(X)



(1)

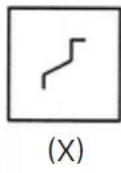
(2)

(3)

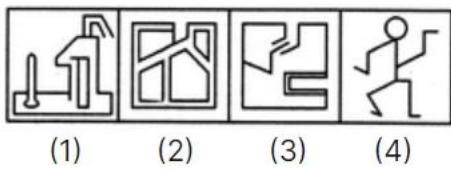
(4)

Answer: (4)

Question 7: Find out the alternative figure which contains figure (X) as its part.



(X)



(1)

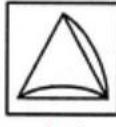
(2)

(3)

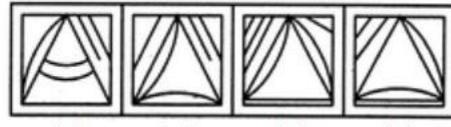
(4)

Answer: (4)

Question 8: Find out the alternative figure which contains figure (X) as its part.



(X)



(1)

(2)

(3)

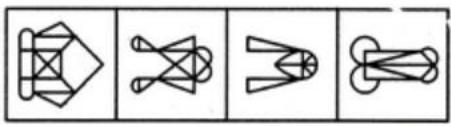
(4)

Answer: (4)

Question 9: Find out the alternative figure which contains figure (X) as its part.



(X)



(1)

(2)

(3)

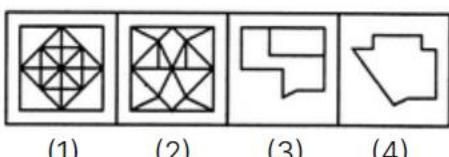
(4)

Answer: (2)

Question 10: Find out the alternative figure which contains figure (X) as its part.



(X)



(1)

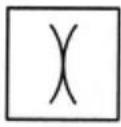
(2)

(3)

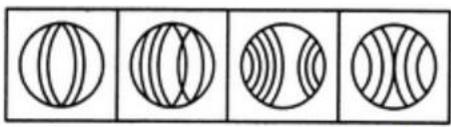
(4)

Answer: (4)

Question 11: Find out the alternative figure which contains figure (X) as its part.



(X)



(1)

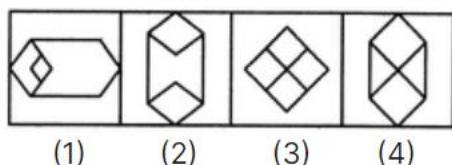
(2)

(3)

(4)

Answer: (4)

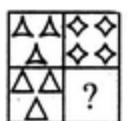
Question 12: Find out the alternative figure which contains figure (X) as its part.



Answer: (2)

Completion of Pattern

Question 1: Identify the figure that completes the pattern



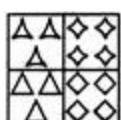
(1)

(2)

(3)

(4)

Answer: (4)



Question 2: Identify the figure that completes the pattern



(1)

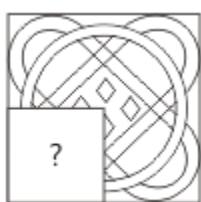
(2)

(3)

(4)

Answer: (4)

Question 3: Identify the figure that completes the pattern



1.

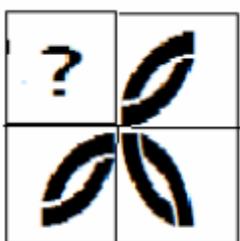
2.

3.

4.

Answer: (3)

Question 4: Complete the pattern in fig. (X) by selecting one of the figures from the four alternatives.



(X)



(a)



(b)



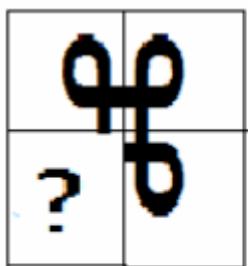
(c)



(d)

Answer: (D)

Question 5: Complete the pattern in fig. (X) by selecting one of the figures from the four alternatives.



(X)



(a)



(b)



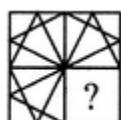
(c)



(d)

Answer: (A)

Question 6: Identify the figure that completes the pattern.



(X)



(1)



(2)



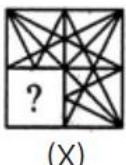
(3)



(4)

Answer: (4)

Question 7: Identify the figure that completes the pattern.



(X)



(1)



(2)



(3)



(4)

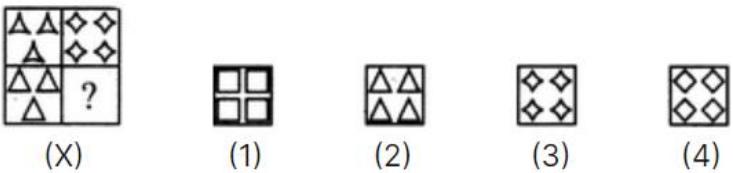
Answer: (4)

Question 8: Identify the figure that completes the pattern.



Answer: (4)

Question 9: Identify the figure that completes the pattern.



Answer: (4)

Question 10: Identify the figure that completes the pattern.



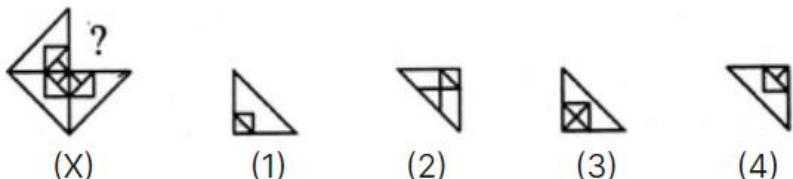
Answer: (3)

Question 11: Identify the figure that completes the pattern.



Answer: (4)

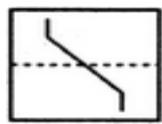
Question 12: Identify the figure that completes the pattern.



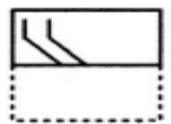
Answer: (4)

Paper Folding

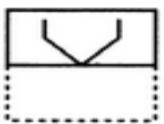
Question 1: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



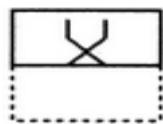
(X)



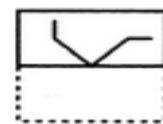
(a) (b)



(c)

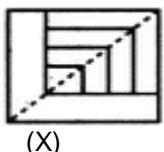


(d)

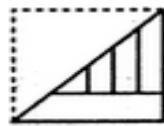


Answer: (B)

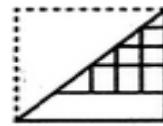
Question 2: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



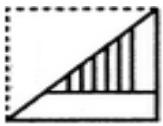
(X)



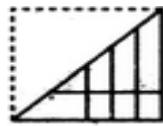
(a)



(b)



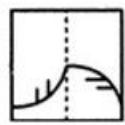
(c)



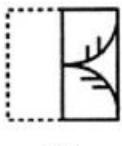
(d)

Answer: (A)

Question 3: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



(X)



(1)



(2)



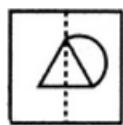
(3)



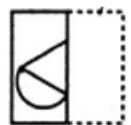
(4)

Answer: (4)

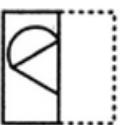
Question 4: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



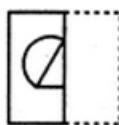
(X)



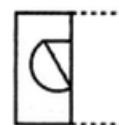
(1)



(2)



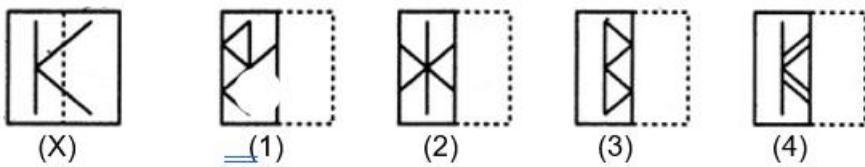
(3)



(4)

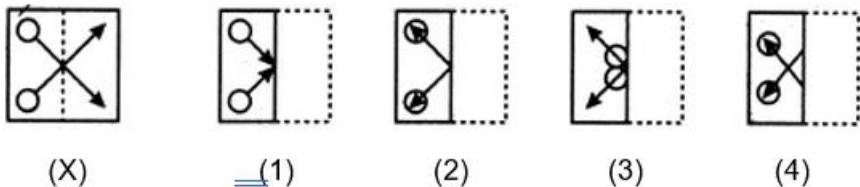
Answer: (3)

Question 5: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



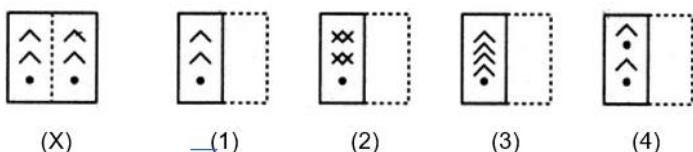
Answer: (3)

Question 6: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



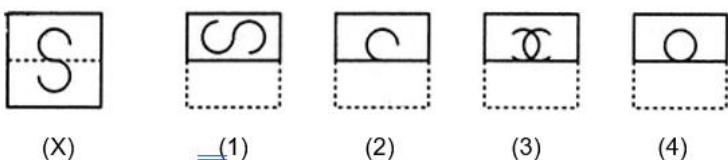
Answer: (2)

Question 7: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



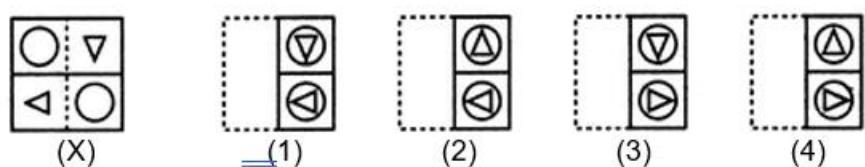
Answer: (1)

Question 8: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



Answer: (4)

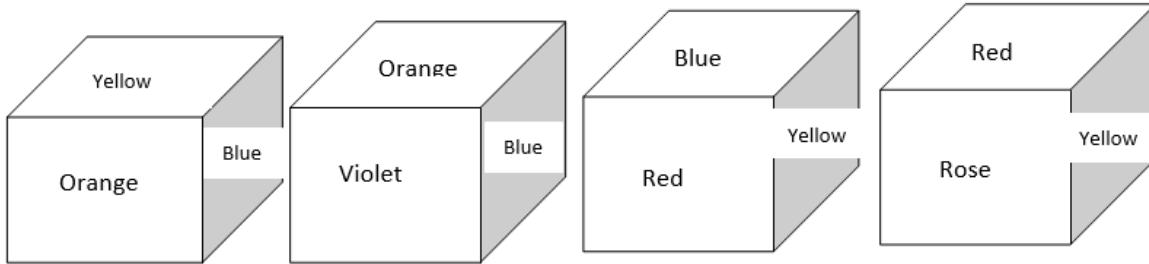
Question 9: Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.



Answer: (3)

Cubes And Dice

Question 1: Which colour is opposite to Yellow colour



- A. Violet
- B. Orange
- C. Blue
- D. Red

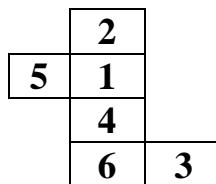
Answer: (A) Compare any two dice

Can put constant colour and follow previous procedure

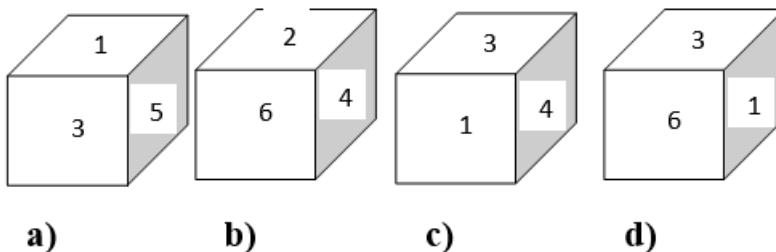
OR

As there are two colour common in 1st and 2nd dice (Orange and Blue) they get cancel so opposite of yellow will be violet

Question 2: Possible combination of dice. Observe the open die



The number of a possible combination is:



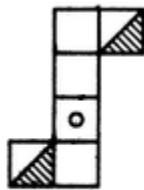
Answer: (C)

Option 1 is not possible as 3 is not opposed to 5. The second option is also wrong as 2 is not adjacent to 4. Option 3 is possible. And option 4 is not possible as 1 is not adjacent to 6. Hence the correct answer is option 3.

	2
5	1
4	
6	3

2 is opposite to 4.
1 is opposite to 6.
5 is opposite to 3.

Question 3: Choose the die that is similar to the die, formed from the open die.



(X)



(1)



(2)



(3)



(4)

- A. Only 1
- B. Only 2
- C. 1 and 3
- D. 1, 2 and 3

Answer: (C)

The figure number 1 is possible as the top face is shaded and adjacent faces are blank. Figure 2 is not possible as the surface with a dot should lie between shaded one, but here it is blank. Figure 3 is possible but the 4th one is impossible as the two shaded faces cannot be adjacent to each other. Hence, the correct answer is option C.

Question 4: All the faces of a cube are painted with blue colour. Then it is cut into 125 small equal cubes. How many small cubes will be formed having no face coloured?

- A. 27
- B. 8
- C. 16
- D. 24

Answer: (A)

$$125 = (5)^3 \quad (n-2)^3 = (5-2)^3 = 27$$

Following steps must be kept in mind while solving the problems related to painted cubes

- Number of cubes with 0 / no side painted= $(n-2)^3$
- Number of cubes with 1 sides painted = $6(n - 2)^2$
- Number of cubes with 2 sides painted= $12(n-2)$
- Number of cubes with 3 sides painted= 8(always)

*A cube has 6 square faces or sides
A cube has 8 points (vertices)
A cube has 12 edges*

Question 5: All the faces of a cube are painted with blue colour. Then it is cut into 125 small equal cubes.

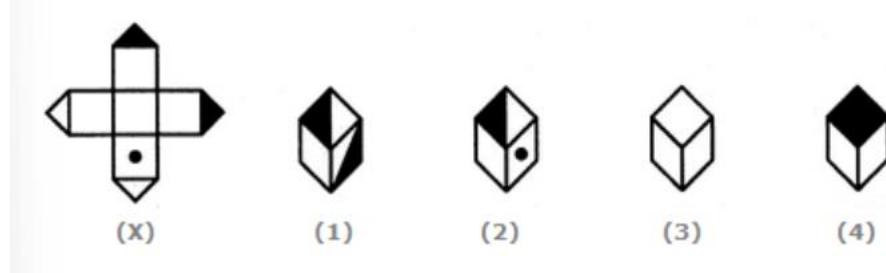
How many small cubes will be formed having one face coloured?

- A. 36
- B. 8
- C. 54
- D. 24

Answer: (C)

$$125 = (5)^3 \quad 6(n - 2)^2 = 6(5-2)^2 = 6 \times (9) = 54$$

Question 6: Choose the die that is similar to the die, formed from the open die.

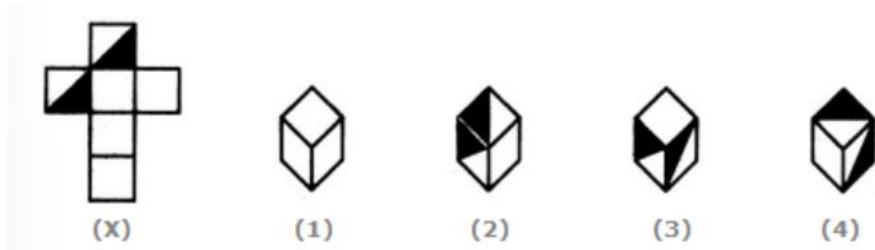


- A. 1 and 2 only
- B. 2 and 4 only
- C. 2 and 3 only
- D. 1 and 4 only

Answer: (C)

The fig. (X) is similar to the Form VI. So, when a cube is formed by folding the sheet shown in fig. (X), then is one of the faces of the cube. However, the cube in fig. (1) has two such faces and fig. (4) has a face which is completely shaded. So, these two cubes cannot be formed. Hence, only the cubes in figures (2) and (3) can be formed.

Question 7: Choose the die that is similar to the die, formed from the open die.

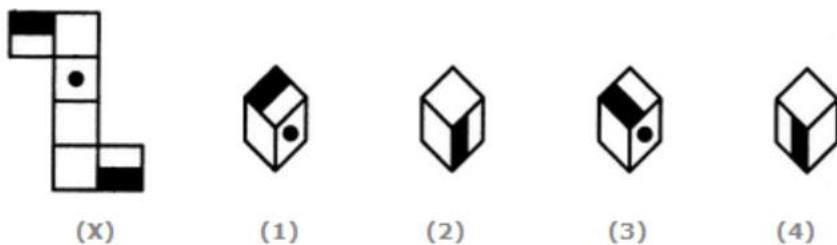


- A. 1 and 4 only
- B. 3 and 4 only
- C. 1 and 2 only
- D. 2 and 3 only

Answer: (A)

The fig. (X) is similar to the Form I. So, when the sheet shown in fig. (X) is folded to form a cube then one of the two half-shaded faces lies opposite to one of the blank faces and the other half-shaded face lies opposite to another blank face. The two remaining blank faces lie opposite to each other. Thus, both the cubes shown in figures (1).and (4) can be formed when the sheet shown in fig. (X) is folded. Also, though the cubes shown in figures (2) and (3) have faces that can appear adjacent to each other but the cube formed by folding the sheet in fig. (X) cannot be rotated to form either of the two. Hence, the cubes in figures (2) and (3) cannot be formed

Question 8: Choose the box that is similar to the box formed from the given sheet of paper (X).



- A. 1 and 2 only
- B. 2 and 3 only
- C. 2 and 4 only
- D. 1, 2, 3 and 4

Answer: (D)

The fig. (X) is similar to Form II. So, when a cube is formed by folding the sheet shown in fig. (X), then the two half-shaded faces lie opposite to each other and one. of the three blank faces appears opposite to the

face bearing a dot. Clearly, each one of the four cubes shown in figures (1), (2), (3) and (4) can be formed by folding the sheet shown in fig. (X)

Question 9: Choose the box that is similar to the box formed from the given sheet of paper (X).

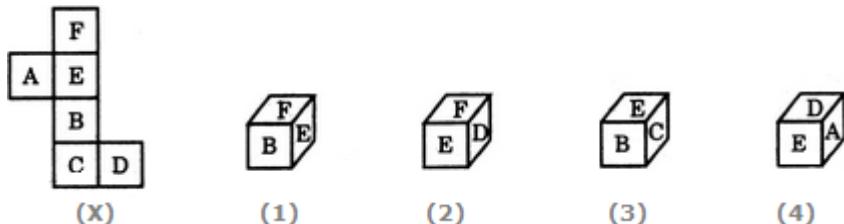


- A. 1 only
- B. 1 and 3 only
- C. 1,3 and 4 only
- D. 1,2,3 and 4

Answer: (C)

When the sheet in fig. (X) is folded, then one of the faces of the cube formed will be of the form and this face will lie opposite the face bearing a square. Also, one of the blank faces lies opposite another blank face and the third blank face lies opposite the face bearing an '=' sign. Clearly, all the three blank faces cannot appear adjacent to each other. So, the cube shown in fig. (2) which has all the three blank faces adjacent to each other cannot be formed. Hence, only the cubes shown in figures A, C and D can be formed

Question 10: Choose the box that is similar to the box formed from the given sheet of paper (X).



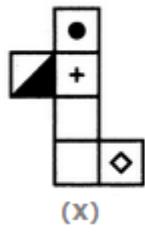
- A. 1 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2, 3 and 4 only

Answer: (B)

The fig. (X) is similar to the Form III. So, when the sheet in fig. (X) is folded to form a cube, then 'F' appears opposite 'B', 'E' appears opposite 'C' and 'A' appears opposite 'D'. Therefore, the cube in fig. (1)

which shows 'F' adjacent to 'B' the cube in fig. (3) which shows 'E' adjacent to 'C' and the cube in fig. (4) which shows 'A' adjacent to 'D' cannot be formed. Hence, only the cube in fig.(2) can be formed.

Question 11: Choose the box that is similar to the box formed from the given sheet of paper (X).

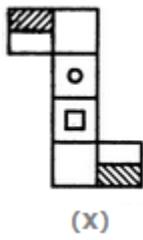


- A. 1 only
- B. 2 only
- C. 3 only
- D. 4 only

Answer: (B)

The fig. (X) is similar to the Form III. So, when the sheet in fig. (X) is folded to form a cube, then the half-shaded face appears opposite to the face bearing a rhombus, the face with a black circle appears opposite to one of the two blank faces and the face with a '+' sign appears opposite to the other blank face. Clearly, the cubes shown in figures (1) and (4) cannot be formed since they have the half-shaded face adjacent to the face bearing the rhombus. Also, though the cube shown in fig. (3) has faces that can appear adjacent to each other but the cube formed by folding the sheet in fig. (X) cannot be rotated to form fig. (3). Hence, the cube in fig. (3) cannot be formed. Thus, only the cube shown in fig. (2) can be formed.

Question 12: Choose the box that is similar to the box formed from the given sheet of paper (X).

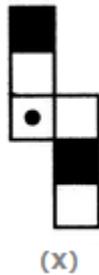


- A. 1 only
- B. 2 only
- C. 3 only
- D. 4 only

Answer: (A)

The fig. (X) is similar to the Form II. So, when the sheet shown in fig. (X) is folded to form a cube then the two half-shaded faces lie opposite to each other, the face bearing a square lies opposite to one of the two blank faces and the face bearing a circle lies opposite to the other blank face. Therefore, the cubes shown in figures (2) and (3) which have the two half-shaded faces adjacent to each other, cannot be formed by folding the sheet shown in fig. (X). Also, though the cube shown in fig. (4) has faces that can appear adjacent to each other but the cube formed by folding the sheet in fig. (X) cannot be rotated to form the cube in fig. (4). Hence, only the cube in fig. (1) can be formed.

Question 13: Choose the box that is similar to the box formed from the given sheet of paper (X).



(X)



(1)



(2)



(3)



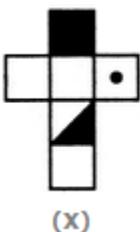
(4)

- A. 2 and 3 only
- B. 1, 3 and 4 only
- C. 2 and 4 only
- D. 1 and 4 only

Answer: (B)

The fig. (X) is similar to the Form V. So, when the sheet in fig. (X) is folded to form a cube, then the face bearing a dot lies opposite to one of the shaded faces. Therefore, the cube shown in fig. (2) which has both the shaded faces adjacent to the face bearing the dot, cannot be formed. Hence, the cubes shown in figures (1), (3) and (4) can be formed.

Question 14: Choose the box that is similar to the box formed from the given sheet of paper (X).



(X)



(1)



(2)



(3)



(4)

- A. 1 and 3 only
- B. 2, 3 and 4 only

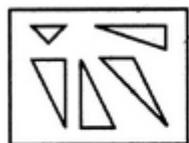
- C. 2 only
- D. 3 and 4 only

Answer: (C)

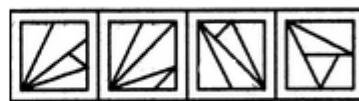
The fig. (X) is similar to the Form I. So, when the sheet in fig. (X) is folded to form a cube, then the completely shaded face lies opposite to the half-shaded face. Therefore, the cubes shown in figures (1) and (3) which have the completely shaded face adjacent to the half-shaded face cannot be formed. Since Fig 4 doesn't have at-least one shaded face, it cannot be formed. Hence, only the cubes in figure (2) can be formed.

Figure Formation

Question 1: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)

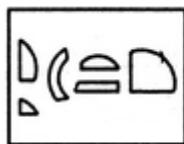


(1) (2) (3) (4)

- A. 1
- B. 2
- C. 3
- D. 4

Answer: (C)

Question 2: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)

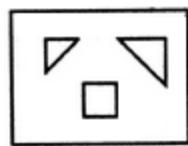


(1) (2) (3) (4)

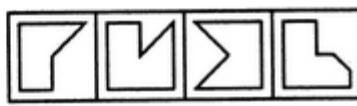
- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

Question 3: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)

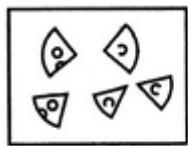


(1) (2) (3) (4)

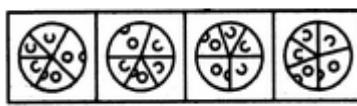
- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

Question 4: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)

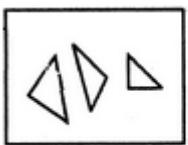


(1) (2) (3) (4)

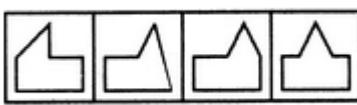
- A. 1
- B. 2
- C. 3
- D. 4

Answer: (C)

Question 5: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)



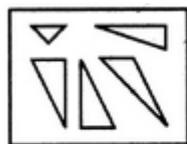
(1) (2) (3) (4)

- A. 1
- B. 2
- C. 3

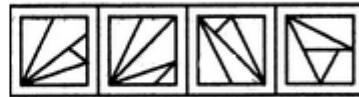
D. 4

Answer: (B)

Question 6: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)



(1) (2) (3) (4)

E. 1

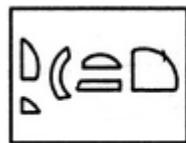
F. 2

G. 3

H. 4

Answer: (C)

Question 7: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)



(1) (2) (3) (4)

E. 1

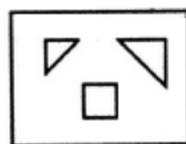
F. 2

G. 3

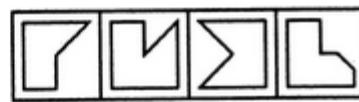
H. 4

Answer: (A)

Question 8: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)



(1) (2) (3) (4)

E. 1

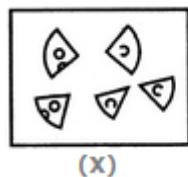
F. 2

G. 3

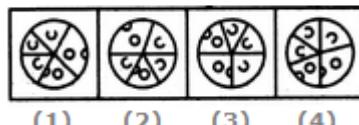
H. 4

Answer: (A)

Question 9: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)



(1)

(2)

(3)

(4)

E. 1

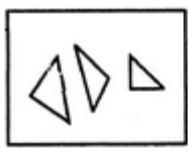
F. 2

G. 3

H. 4

Answer: (C)

Question 10: Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



(X)



(1)

(2)

(3)

(4)

E. 1

F. 2

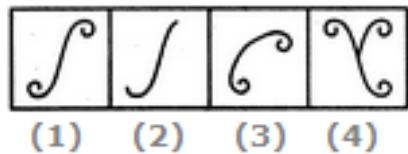
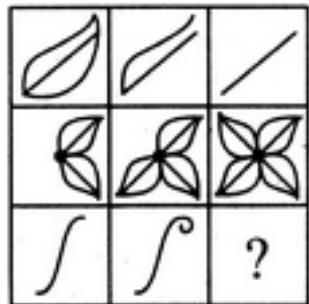
G. 3

H. 4

Answer: (B)

Answer: (C)

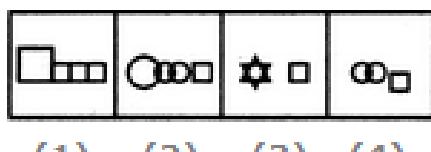
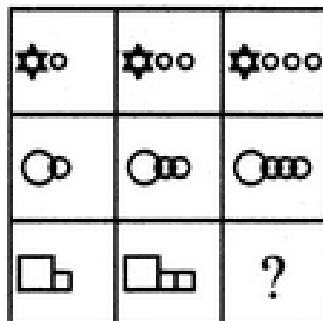
Question 11: Select a suitable figure from the four alternatives that would complete the figure matrix.



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

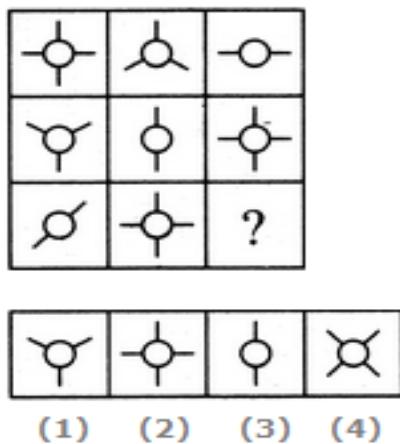
Question 12: Select a suitable figure from the four alternatives that would complete the figure matrix.



- A. 1
- B. 2
- C. 3
- D. 4

Answer: (A)

Question 13: Select a suitable figure from the four alternatives that would complete the figure matrix.



- E. 1
- F. 2
- G. 3
- H. 4

Answer: (A)

UNIT 2 PASSAGES

5) Directions: Read the passage carefully and answer the questions given below:

Replacing natural gas consumption with bio gas and biomethane incrementally to 20% by 2030 can help India cut liquefied natural gas import bills by \$29 billion between financial years 2025 and 2030, according to a new report. The report from the Institute for Energy Economics and Financial Analysis (IEEFA), underscores the environmental advantages of expanding biogas projects, including waste management, reduction of greenhouse gas (GHG) emissions, and enhanced renewable energy production.

According to the report's author Purva Jain, an energy analyst at IEEFA, "Biogas has the potential to replace natural gas and other high-emission fossil fuels. By eliminating carbon dioxide (CO₂) and impurities like hydrogen sulfide, its methane content can be upgraded to 90 percent, making calorifically equivalent to natural gas. This upgraded biogas, known as biomethane, is pipeline-ready and can be integrated into gas grids as a non-fossil gas, she said.

“By adopting appropriate production methods and addressing methane leaks during production, upgrading, and supply stages, biogas can offer India a cleaner alternative to its reliance on important natural gas”, Jain said.

Despite its clear advantages, the biogas sector has struggled to gain traction in India. The report identifies several reasons for this, including the absence of a comprehensive market ecosystem, pricing challenges, complex approval processes, and fragmented government support. Jain said the government has begun to address these issues. In 2021, various types of support were consolidated under the National Bioenergy Scheme. “Moreover, the introduction of the GOBARdhan (Galvanizing Organic Bio-Agro Resources Dhan) scheme as an umbrella initiative of the government will help in this consolidation. It covers the entire gamut of schemes/policies promoting organic waste conversion to biogas or compressed biogas (CBG)”, she says. The report also highlights recent policy developments, such as revising the compressed biogas rate in response to global gas price increases and plans to mandate natural gas marketing companies to procure five percent compressed biogas.

These measures have reignited private sector interest in compressed biogas, with companies like Reliance Industries Limited and the Adani Group showing strong enthusiasm. However, the report emphasizes that the government must do more to fully unlock biogas’s potential in India. This includes encouraging increased investments and private sector involvement, improving market viability for CBG and biogas slurry, increasing financial access for biogas plant development, and promoting feedstock mapping for input availability. Additionally, it is crucial to ensure that energy crops are not used for biogas, as this can lead to indirect land use changes, as seen with ethanol and biodiesel in Brazil, which can have detrimental impact on climate and the environment through increased carbon emissions. The author says, “A key step will be to guarantee the offtake of CBG by various natural gas-using industries to expedite the achievement of decarbonization goals. The introduction of take-or-pay arrangements will be a significant move in this direction”.

1. How India can reduce the liquefied natural gas import bills according to the new report?
 - a) By reducing natural gas consumption
 - b) By increasing consumption of biogas
 - c) By replacing natural gas consumption with biogas & biomethane completely
 - d) By replacing natural gas consumption with biogas & biomethane incrementally
2. To reduce the reliance on natural gas, the author is suggesting to adopt-
 - a) Carbon dioxide
 - b) Hydrogen sulfide
 - c) Biomethane
 - d) Natural gas
3. What is the reason for biogas to gain importance in India despite its advantages?
 - I. Strong support by government
 - II. Simple approval process
 - III. Pricing policies

- a) Only I is correct
 - b) Only II is correct
 - c) Only III is correct
 - d) All of the above is correct
4. What is the impact of introducing GOBARdhan scheme?
- a) It will promote the organic waste conversion to CBG
 - b) It will revise the compressed biogas rate
 - c) It will mandate the natural gas marketing companies to procure compressed biogas
 - d) None of the above
5. Which of these private sector companies has shown interest in compressed biogas?
- a) Tata steel ltd
 - b) Reliance industries ltd
 - c) ITC ltd
 - d) Infosys ltd
6. The author warns that-
- I. Organic waste should not be used for biogas
 - II. Energy crops should not be used for biogas
- a) Only I is correct
 - b) Only II is correct
 - c) Both are correct
 - d) None of the above is correct

6) Directions: Read the passage carefully and answer the questions given below:

In a momentous stride for space exploration, NASA's Perseverance rover has uncovered compelling evidence of ancient life on Mars. This discovery is poised to reshape our understanding of the Red Planet and the potential for extraterrestrial life. The rover's mission, which began in February 2021, has yielded groundbreaking findings, bringing us closer to answering the age-old question: "Are we alone in the universe?"

The evidence of ancient life comes in the form of microfossils and organic compounds found in Martian soil samples. These microfossils are tiny structures that, under careful analysis, appear to be remnants of microbial life. This revelation marks a significant milestone, reinforcing the theory that Mars, in its distant past, might have supported life.

The rover's sample collection and analysis process has been meticulous, involving state-of-the-art instruments like the Scanning Electron Microscope, the Gas Chromatograph-Mass Spectrometer, and the X-ray Diffraction instrument. These tools have provided valuable data, helping scientists ascertain the composition and possible origins of these microfossils.

This discovery not only bolsters the idea that Mars could have harbored life billions of years ago but also adds impetus to future missions seeking signs of past or present life on the planet. In the

search for answers, the scientific community anticipates further breakthroughs and a deeper exploration of Mars's geological and biological history.

1. What is the primary focus of the latest news article?
 - a) The launch of a new Mars rover
 - b) The discovery of ancient life on Mars
 - c) The search for extraterrestrial civilizations
 - d) The challenges of space exploration
2. How does the Perseverance rover's discovery provide evidence of ancient life on Mars?
 - a) It uncovered the remains of alien species.
 - b) It found ancient tools and artifacts.
 - c) It identified microfossils and organic compounds.
 - d) It observed Martian plant life.
3. What are microfossils, as mentioned in the article?
 - a) Small rock formations on Mars
 - b) Fossils of ancient humans on Earth
 - c) Tiny structures that may be remnants of microbial life
 - d) Crystals found in Martian soil
4. How has the Perseverance rover analyzed Martian soil samples?
 - a) Using the Perseverance telescope
 - b) Employing high-resolution cameras
 - c) With state-of-the-art instruments such as a Scanning Electron Microscope
 - d) Through remote sensing from Earth
5. What is the significance of the discovery of ancient life on Mars?
 - a) It proves the existence of intelligent life on Mars.
 - b) It redefines our understanding of the Red Planet and its potential to support life.
 - c) It confirms that humans can live on Mars.
 - d) It demonstrates that Mars has a thriving ecosystem today.
6. How might this discovery influence future Mars missions and scientific endeavors?
 - a) It discourages further exploration of Mars.
 - b) It has no bearing on future missions.
 - c) It accelerates the search for signs of past or present life on the planet.
 - d) It shifts the focus of space exploration away from Mars.

7) Directions: Read the passage carefully and answer the questions given below.

India's role on the international stage was moulded by history rather than by the pomp and circumstance of war. As a separate entity of the British Empire, India became a founder member of the League of Nations in the same way as Australia and Canada, and thus acquired a somewhat unique international status long before independence. During the days of the League when

India's interests were affected, such as in matters of trade or the position of Indians overseas, the Indian delegation did not hesitate to make known its independent position, for what it was worth. Some Indian delegates were in demand for chairing meetings riddled with contention and controversy, because of their reputation for impartiality and talent for mediation.

These were the small beginnings of India's later entry into the United Nations in 1945, again as a founder member before independence. The drafting of chapter IX and X of the UN Charter, which deal with international social and economic co-operation, was entrusted to a group that was presided over by an Indian. It is important, however, to bear in mind the fact that the Government of independent India had no part in the drafting of the UN Charter, although it accepted the obligations contained therein. The UN was primarily the creation of three powers - The USA, UK and USSR.

The size, population, resources and potential of India lent it the weight of a medium power in the functioning of the United Nations. The fact that India was among the first nations to liberate itself from imperialist domination through non-violent means endowed it with a moral obligation to work in and outside the UN for the independence of nations still under colonial rule. India has served on the Security Council for 10 years or 5 terms, on the Trusteeship Council for 12 years or 4 terms, and on the Economic and Social Council for 21 years or 7 terms.

1. The title below that best expresses the ideas of the passage is—
 - a) India's role at the United Nations
 - b) India and Her Neighbours
 - c) India's International Prestige
 - d) The Drafting of the UN Charter
 - e) British Colonial Expansion
2. Which other Commonwealth Countries became founder members of the League of Nations alongwith India?
 - a) Pakistan
 - b) Sri Lanka
 - c) Canada
 - d) Australia
 - e) Both (c) and (d)
3. Though a part of the British Empire, India enjoyed great prestige at the League in as much as Indian delegates were in demand for chairing meetings to consider controversial issues. It was because —
 - (I) Indian delegates were well known for their impartiality.
 - (I) Indian delegates had talent for mediation.
 - (II) India was considered a power to reckon with.
 - a) I and III are correct
 - b) I and II are correct
 - c) II and III are correct
 - d) Only I is correct
 - e) Only III is correct

4. Which of the following is not true?
 - a) During the days of the League Indian delegates there pleaded for India's trade interests
 - b) They espoused the cause of the Indians living overseas
 - c) India acquired unique international prestige because of her immense contribution to the war effort on the side of Britain
 - d) India entered the United Nations in 1945
 - e) Some part of the UN Charter was drafted by a group which was presided over by an Indian
5. Which articles of the UN Charter deal with International, social and economic co-operation?
 - a) Articles IX and X
 - b) Articles XI and XII
 - c) Articles VIII and XIII
 - d) Articles VI and VII
 - e) Only the Preamble of the UN Charter deals with such matter
6. Which country besides India has been mentioned in the passage as having liberated itself from the colonial shackles?
 - a) Australia
 - b) Canada
 - c) Some African countries
 - d) Some temporary members of the Security Council
 - e) None of the above

8) Read the passage carefully and answer the questions given below:

Unhappiness and discontent spring not only from poverty. Man is a strange creature, fundamentally different from other animals. He has far horizons, invincible hopes, creative energies, spiritual powers. If they are left undeveloped and unsatisfied, he may have all the comforts which wealth can give, but will still feel that life is not worthwhile. The great humanist writers, Shaw and Wells, Arnold Bennett and Galsworthy, who are regarded as the prophets of the dawn, expose the foibles, inconsistencies and weaknesses of modern life, but they ignore the deeper currents and sometimes misrepresent them. At any rate, they give nothing in their place. In the void left by the removal of tradition, morality and religion, others are putting in vague sentiments of race and power. The modern mind is shaped by Rousseau's Social Contract, Marx's Capital, Darwin's On the Origin of Species and Spengler's The decline of the West. The outward chaos and confusion of our life reflect the confusion of our hearts and minds. Constitutions, says Plato, "are but the reflections in the outside world of the values which prevail in men's minds." There must be a change in the ideals we cherish, in the values we adopt, before we can give social expression to them. We help to secure the future only to the extent to which we ourselves are changed. What is missing in our age is the soul; there is nothing wrong with the body. We suffer from sickness of spirit. We must discover our roots in the eternal and regain faith in the transcendent truth which will order life, discipline discordant elements, and bring unity and

purpose into it. If not, when the floods come and the winds blow and beat upon our house, it will fall.

1. Unhappiness and discontent spring from-
 - a) Poverty alone
 - b) Ignorance
 - c) Pragmatism
 - d) Poverty and moral and spiritual degradation
 - e) Moral turpitude
2. According to the author in what respects is man different from other animals?
 - a) In power of speech
 - b) In hopes, creative energies and spiritual powers
 - c) In the instinct of gregariousness
 - d) In money and material
 - e) In physical powers
3. The author implies that the humanist writers have ignored-
 - a) The spiritual side of life
 - b) Religion
 - c) Cultural progress
 - d) Material welfare
 - e) Commerce and trade
4. Religion and morality according to the author are being replaced by-I.
I. Trade and commerce
II. Art and literature
III. Vague sentiments of race and power
 - a) I only is correct
 - b) II only is correct
 - c) III only is correct
 - d) I and II are correct
 - e) I and III are correct
5. What do the chaos and confusion of our life reflect?
 - a) The spiritual downfall of man
 - b) The moral turpitude of man
 - c) The abnormality of modern man
 - d) The confusions of our hearts and minds
 - e) Human sorrow and misery
6. The author implies that if the soul is not regained-
 - a) The world will be flooded
 - b) The earth will overturn

- c) Even our material progress will be in jeopardy
- d) Society will be ruined
- e) The sky will fall

9) Read the passage carefully and answer the questions given below:

It is your duty to train and develop your mind and acquire Knowledge, as much Knowledge as you possibly can obtain. Knowledge is like a deep well, fed by perennial springs, and your Mind is the little bucket that you drop into it: you will get as much as you can assimilate. The Brain, which is the physical organ of the mind, is one of the two precious products of the aeons of Evolution: the other is the imponderable 'Social instinct'. This wonderful Brain, whose every convolution represents millions of years of Time, really distinguishes you from the animals. Many animals have very powerful sense organs; the eagle, the ant and the dog have keener sense of sight than Man. But no animal has a more evolved Brain and higher Intelligence. If you do not develop and use this Brain to the utmost of your power, you are more akin to the beasts than to *Homo sapiens*.

Knowledge and mental self-culture will confer untold blessings upon you. You will not be the victim of superstition and demagogery in religion and politics. You will know your duty and do it. To be wise and independent in your religion and your politics, not to be doped and duped by the selfish priests and the scheming politicians of Capitalism and so-called Socialism: is this not a noble aim worth striving for? Most men and women today are not free and wise: they are like kites flown by the priests and politicians who hold the string. They are fleeced and fooled on account of their ignorance. Half the ills of man are due to ignorance.

1. What is our duty in order to be free and happy?
 - a) To study correctly
 - b) To train and develop our mind
 - c) To make ourselves cultured
 - d) To assimilate food
 - e) To digest knowledge
2. Mind has been compared to-
 - b) A bucket
 - c) A deep sea
 - d) A perennial spring
 - e) A deep well
 - f) A shallow lake
3. What is one of the two precious products of the aeons of evolution?
 - a) Mammals
 - b) Reptiles
 - c) Fisheries
 - d) Man
 - e) Human brain

4. What is man like if he does not develop and use his brain?
 - a) He is like a devil
 - b) He is like an angel
 - c) He is akin to the beasts
 - d) He is akin to the motionless statues
 - e) He is greater than gods
5. Who befools majority of people today?
 - b) Teachers
 - c) Selfish priests and scheming politicians
 - d) Guardians
 - e) Administrators
 - f) Bureaucrats
6. The title below that best expresses the ideas of the passage is-
 - a) Knowledge and mental self-culture
 - b) Man's social instinct
 - c) Religion and politics
 - d) The ills of mankind
 - e) The well of knowledge

10) Directions: Read the passage carefully and answer the questions given below:

The fear that Artificial Intelligence (AI) and Robots will automate many jobs has been growing as technological change accelerates. Some studies have predicted that 40-50% of US jobs could be automated in the next 20 years, and many people are worried that they could be forced into retirement. The world has navigated a number of industrial revolutions in the past: First Industrial Revolution - Steam & Mechanical Production - 1700s & 1800s, Second Industrial Revolution - Electricity & Mass Production 1870 to 1914, Third Industrial Revolution - Digital Revolution - 1980s, Fourth Industrial Revolution - AI, Robotics, Networks, Biotechnology, Internet of Things – Today.

Each time many jobs were lost, but we created new ones and overall employment stayed high after the initial disruption. But this time it feels different partly due to the fact that real wage growth has been low to flat for many people meaning their standard of living isn't rising. As we've become more productive through automation and globalization the share of GDP that goes to labor has fallen, while the share to capital has risen. Basically, it's better to be an investor rather than a worker - unless you have special skills.

Is the fear overblown? Some experts say yes. I spoke with Ken Goldberg, a UC Berkeley Robotics Professor and Eric Brewer, a VP at Google and UC Berkeley Computer Science Professor about AI Automation and the Future of Work on a recent **podcast**. Both felt that the fears around AI and Robotics destroying jobs or worse leading to the Singularity where AI takes over are overblown. The Singularity is a term promoted by Ray Kurzweil which predicts that based on Moore's law and the doubling of computing power per dollar every few years that: by

2023 a \$1,000 computer will have the processing power of 1 human brain; by 2030 the Singularity will occur and runaway AI will emerge; by 2050 a \$1,000 computer will have the processing power of all human brains.

Both Professors feel that predictions like self-driving cars will take much longer to play out, and that while some industries may face big disruptions. The jobs that get automated will be the boring **mundane** jobs which will be replaced by more interesting, creative jobs. Ken Goldberg in particular believes “Rather than worrying about an impending Singularity, consider instead the concept of Multiplicity: where diverse combinations of people and machines work together to solve problems and innovate.”

They are both hopeful for the future where we all learn new skills faster and live more diverse rich lives. Eric Brewer shared “I feel like our kids will grow up in a generation that expects that they can do whatever they want at any time. That’s super empowering.”

1. Which of the following statements is/are true with respect to the passage?
 - I. The fourth industrial revolution brought the digital universe to our doorstep.
 - II. Robotics and A.I. are likely to lead to the laying off of many skilled workers.
 - III. 40-50% of jobs in the US could be automated in the next 20 years due to automation.
 - a) Only I
 - b) Only II
 - c) Only III
 - d) Only I and II
 - e) Only II and III
2. Which of the following statements is/are not true with respect to the passage?
 - I. With each industrial revolution, many jobs were lost, but new types of jobs also came into being.
 - II. In the present time, wages of many workers have been going downhill in many cases.
 - III. With the advent of A.I. and faster internet connections, self-driving cars have become a reality.
 - a) Only I
 - b) Only II
 - c) Only III
 - d) Only I and II
 - e) Only II and III
3. Which of the following statements is/are not true with respect to the passage?
 - I. At present a \$1000 computer has processing powers far superior to that of a human brain.
 - II. Due to globalization and automation the share to capital has gone up though, the share of GDP that goes to labor has fallen.
 - III. The job crisis caused by the fourth industrial revolution is very similar to that of previous industrial revolutions.
 - a) Only I
 - b) Only II

- c) Only III
 - d) Only I and III
 - e) Only II and III
4. According to the prediction of Ray Kurzweil, by which year runaway AI will emerge?
- a) 2023
 - b) 2025
 - c) 2030
 - d) 2040
 - e) 2050
5. What kind of jobs are boring according the author?
- a) Creative jobs
 - b) Interesting jobs
 - c) Automated jobs
 - d) All of the above
 - e) None of the above
6. Which of the following statements can be inferred from the passage regarding “Singularity”?
- a) Singularity denotes the shift in evolution when humans become a super-intelligent species.
 - b) Singularity denotes that growth in A.I. intelligence, when the AI can think for themselves without the need for human control.
 - c) Singularity denotes that phase of life when AI takes away all human jobs.
 - d) Singularity will occur when the processing power of a \$1000 computer surpasses the processing power of a human brain.
 - e) All of the above

11) Read the passage carefully and answer the questions given below:

It should be remembered that the nationalist movement in India, like all nationalist movements, was essentially a bourgeois movement. It represented the natural historical stage of development, and to consider it or to criticise it as a working-class movement is wrong. Mahatma Gandhi represented that movement and the Indian masses in relation to that movement to a supreme degree, and he became the voice of Indian people to that extent.

The main contribution of Gandhi to India and the Indian masses has been through the powerful movements which he launched through the National Congress. Through nation-wide action he sought to mould the millions, and largely succeeded in doing so, and changing them from a demoralised, timid and hopeless mass, bullied and crushed by every dominant interest, and incapable of resistance, into a people with self-respect and self-reliance, resisting tyranny, and capable of united action and sacrifice for a larger cause. Gandhi made people think of political and economic issues and every village and every bazaar hummed with argument and debate on the new ideas and hopes that filled the people. That was an amazing psychological change. The time was ripe for it, of course, and circumstances and world conditions worked for this change.

But a great leader is necessary to take advantage of circumstances and conditions. Gandhi was that leader, and he released many of the bonds that imprisoned and disabled our minds, and none of us who experienced it can ever forget that great feeling of release and exhilaration that came over the Indian people.

Gandhi has played a revolutionary role in India which is of the greatest importance because he knew how to make the most of the objective conditions and could reach the heart of the masses, while groups with a more advanced ideology functioned largely in the air because they did not fit in with those conditions and could therefore not evoke any substantial response from the masses. It is perfectly true that Gandhi, functioning in the nationalist plane, does not think in terms of the conflict of classes, and tries to compose their differences. But the action he has indulged and taught the people has inevitably raised mass consciousness tremendously and made social issues vital. Gandhi and the Congress must be judged by the policies they pursue and the action they indulge in. But behind this, personality counts and colours those policies and activities. In the case of very exceptional person like Gandhi the question of personality becomes especially important in order to understand and appraise him. To us he has represented the spirit and honour of India, the yearning of her sorrowing millions to be rid of their innumerable burdens, and an insult to him by the British Government or other has been an insult to India and her people.

1. Which one of the following is true of the given passage?
 - a) The passage is a critique of Gandhi's role in Indian movement for independence.
 - b) The passage hails the role of Gandhi in India's freedom movement.
 - c) The author is neutral on Gandhi's role in India's freedom movement.
 - d) It is an account of Indian National Congress's support to the working-class movement.
2. The change that the Gandhian movement brought among the Indian masses was
 - a) Physical
 - b) Cultural
 - c) Technological
 - d) Psychological
3. To consider the nationalist movement or to criticise it as a working-class movement was wrong because it was a
 - a) historical movement
 - b) voice of the Indian people
 - c) bourgeois movement
 - d) movement represented by Gandhi
4. Gandhi played a revolutionary role in India because he could
 - a) preach morality
 - b) reach the heart of Indians
 - c) see the conflict of classes
 - d) lead the Indian National Congress
5. Groups with advanced ideology functioned in the air as they did not fit in with

- a) objective conditions of masses
 - b) the Gandhian ideology
 - c) the class consciousness of the people
 - d) the differences among masses
6. The author concludes the passage by
- a) criticising the Indian masses
 - b) the Gandhian movement
 - c) pointing out the importance of the personality of Gandhi
 - d) identifying the sorrows of millions of Indians

12) Directions: Read the following passage carefully and answer the questions given below:

Remote sensing and GIS are promising tools for handling spatial and temporal data and help in integrating them for successful planning of natural resources. It is the science of measuring the earth using sensors mounted on high-flying aircrafts or satellites. These sensors collect data in the form of images and provide insights for manipulating, analyzing and visualizing those images. Since natural resources are not uniformly distributed and are spatially varied, it is challenging to capture the correct picture. Management of natural resources calls for scientific tools for timely and accurate dissemination of information. In natural resource management, remote sensing and GIS are mainly used in the mapping process. These techniques are useful in management of land, soil, coastal, watershed, urban and many more.

In India, the agriculture sector alone sustains the livelihood of around 50 percent of the population. Therefore, increase in crop productivity has been a major concern. Since, the scope for increasing area under agriculture is limited, advanced crop production forecasting is required for better policymaking. Indian Space Research Agency (ISRO) and Indian Council of Agricultural Research (ICAR) successful experiment-Agricultural Resource Inventory and Survey Experiment (ARISE) used aerial color photographs to estimate crop acreage in many states of India. Other Important uses of remote sensing include crop identification, stress detection, and crop yield modeling, drought monitoring, land degradation mapping and more. Urbanization is important and inevitable for development, but its proper planning and management is crucial for sustenance. One of the important features of GIS is multilayered mapping. This kind of mapping helps municipal corporations, town planning boards to build cities that are better organized. The information systems with socio-economic data overlaid upon satellite data makes urban planning cost-effective and accurate.

Coastal ecosystems have high ecological significance. GIS and remote sensing data are used to study coastal ecosystem and marine living resources which include habitats like mangroves, coral reefs and more. Apart from this, suspended shoreline dynamics can be studied and climatic changes leading to cyclone and sea level rise may be of special interest too. Geospatial data is effective in the analysis and determination of factors that affect the utilization of these resources. The technologies provide a platform through which we can generate information that can be used to make sound decisions for sustainable development of the natural resources of India.

1. What can be the most appropriate title for the passage?

- a) GIS and remote sensing in natural resource management.
 - b) Use of GIS and remote sensing in land management.
 - c) Use of GIS and remote sensing in urban management.
 - d) Use of GIS and remote sensing in coastal ecosystem management
 - e) Success of ISRO.
2. What is the tone of the author?
- a) Ridiculing
 - b) Critical
 - c) Informative
 - d) Pessimistic
 - e) Dogmatic
3. Why, according to the passage, are GIS and remote sensing considered as promising tools?
- I. They collect data in the form of graphs.
 - II. They provide scope for manipulating, analyzing and visualizing the images.
 - III. They disseminate data more accurately.
- a) Only I and II
 - b) Only II and III
 - c) Only I and III
 - d) Only II
 - e) All of the above
4. In the given context of the passage, why are GIS and remote sensing tools crucial in the agricultural sector?
- I. This sector alone sustains the livelihood of around 50 percent of the population.
 - II. GIS and remote sensing would help in advanced crop production forecasting.
 - III. Drought monitoring can be done using GIS and remote sensing tools.
- a) Only I
 - b) Only I and III
 - c) Only II and III
 - d) All I, II and III
 - e) None of the above
5. Which of the following statements is/are not true?
- I. Agricultural Resource Inventory and Survey Experiment (ARISE) is carried out by Indian Space Research Agency (ISRO) and Indian Council of Agricultural Research (ICAR)
 - II. Coastal ecosystems have less ecological significance hence GIS and remote sensing are of not much use to study their ecosystems.
 - III. GIS and remote sensing provide information that can be used to make sound decisions for sustainable development of the natural resources of India.
- a) Only (I) and (III)

- b) Only (I)
 - c) Only (III)
 - d) Only (II)
 - e) All of the above
6. What is the synonym of the word ‘dynamics’ used in the passage?
- a) Properties
 - b) Virtues
 - c) Growth
 - d) Immobility
 - e) None of the above

STATEMENT AND ASSUMPTIONS

5. **Statement:** Do not throw the garbage outside the dustbin.

Assumptions:

- (I) It is possible to throw the garbage outside the dustbin.
 - (II) Such warning will have some effect.
- A. Only assumption I is implicit
 - B. Only assumption II is implicit
 - C. Either I or II is implicit
 - D. Neither I nor II is implicit
 - E. Both I and II are implicit

Solution: Option E

If it was not possible to throw the garbage outside the dustbin, there would be no need for the notice. Hence, (I) is implicitly true.

Likewise, the notice would not be placed if the warning would have no impact. Hence, (II) is also implicit.

So, the correct answer is E.

6. **Statement:** Because of the large number of potholes in road X, reaching airport in time has become difficult.

Assumptions:

- (I) Reaching airport in time may not be always necessary.
 - (II) There is no other convenient road to the airport.
- A. Only assumption I is implicit
 - B. Only assumption II is implicit
 - C. Either I or II is implicit

- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option B

7. **Statement:** Beware of dogs, our dogs do not bark, but they are trained to distinguish between genuine guests and intruders.

Assumptions:

- (I) Barking dogs bite rarely.
- (II) Our dogs could be dangerous for intruders.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option B

8. **Statement:** 'Double your money in five months.' - An advertisement.

Assumptions:

- (I) The assurance is not genuine.
- (II) People want their money to grow.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option B

9. **Statement:** Be humble even after being victorious.

Assumptions:

- (I) Many people are humble after being victorious.
- (II) Generally, people are not humble.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option B

6. **Statement:** Government has permitted unaided colleges to increase their fees.

Assumptions:

- (I) Unaided colleges are in financial difficulties.
- (II) Aided colleges do not need to increase fees.
- A. Only assumption I is implicit
- B. Only assumption II is implicit

- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

Solution: Option A

7.Statement: A college degree is necessary to secure a good job.

Assumptions:

- (I) All good jobs require a college degree.
- (II) Having a college degree increases the chances of securing a good job.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

8.Statement: Regular exercise is essential for good health.

Assumptions:

- (I) People who do not exercise regularly will have poor health.
- (II) Exercising once a week is sufficient for good health.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

9.Statement: The company will be closed on Sundays.

Assumptions:

- I. The company believes in a work-life balance for its employees.
- II. The company is losing money by staying open on Sundays.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

10.Statement: Watching films have become easy for people.

Assumptions:

- I. Films are the only media of entertainment.
- II. People do not enjoy films.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

11.Statement: It is desirable to put the child in school at the age of 3.5 years or so.

Assumptions:

- I. At this age they are ready to learn.
- II. The schools do not admit children after 4 years of age.
- A. Only assumption I is implicit
- B. Only assumption II is implicit
- C. Either I or II is implicit
- D. Neither I nor II is implicit
- E. Both I and II are implicit

CRITICAL REASONING

Question 1:

Statement: "In the last three matches, the cricket team's star player scored a century."

Conclusion: "The star player will score a century in the next match as well."

Is the conclusion valid based on the statement?

- A) Yes, the conclusion is valid.
- B) No, the conclusion is not valid.

Answer:

B) No, the conclusion is not valid.

Explanation:

The statement provides information about the star player's performance in the last three matches, but it doesn't guarantee their performance in the next match. There could be various factors affecting the player's performance in the upcoming game.

D. Statement & Course of Action:

Question 2:

Statement: "The river near the village has been contaminated, posing a health risk to the villagers."

Course of Action: "The authorities should conduct regular water quality tests and implement measures to clean the river."

Is the course of action appropriate based on the statement?

- A) Yes, the course of action is appropriate.
- B) No, the course of action is not appropriate.

Answer:

- A) Yes, the course of action is appropriate.

Explanation:

The statement identifies a problem (contaminated river) and suggests a feasible course of action (conducting water quality tests and implementing measures to clean the river) to address the issue.

Question 3:

Statement: "The number of road accidents has increased significantly in the city due to speeding."

Course of Action: "The city should impose heavy fines and penalties on drivers caught speeding."

Is the course of action appropriate based on the statement?

- A) Yes, the course of action is appropriate.
- B) No, the course of action is not appropriate.

Answer:

- A) Yes, the course of action is appropriate.

Explanation:

The statement highlights the cause of increased road accidents (speeding), and the course of action proposes imposing heavy fines and penalties to deter drivers from speeding and reduce accidents.

Question 4:

Cause: "The heavy rainfall led to flooding in the low-lying areas."

Effect: "Many residents had to evacuate their homes."

Is the cause and effect relationship logical?

- A) Yes, the cause and effect relationship is logical.
- B) No, the cause and effect relationship is not logical.

Answer:

- A) Yes, the cause and effect relationship is logical.

Explanation:

The heavy rainfall (cause) led to flooding in the low-lying areas (effect), which subsequently forced residents to evacuate their homes.

Question 5:

Cause: "The team worked diligently on the project."

Effect: "The project was completed ahead of schedule."

Is the cause and effect relationship logical?

- A) Yes, the cause and effect relationship is logical.

- B) No, the cause and effect relationship is not logical.

Answer:A) Yes, the cause and effect relationship is logical.

Explanation:

The team's diligent work (cause) resulted in the project's completion ahead of schedule (effect). Their effort and commitment directly impacted the project's timeline.

Comprehension

1. Read the given comprehension and answer the questions that follow.

Women all over the world in general and Indian women in particular have been facing different problems. A recent report titled 'Women and children in India' and a nearly simultaneous report on 'Indian women their Health and Economic productivity' **highlight** the international importance bring given to the problems of the Indian women.

Unfortunately, both the reports fail to either convey a fresh understanding of the issues or to suggest **innovative** and workable approaches for women's development. The former is because the reports restrict themselves to old statistics. We are told, for example, that the ratio of women to men remains below its natural level and that it is related to other parameters, such as the level of literacy and the **availability** of primary health care.

The failure to suggest a fresh approach is less understandable given that a variety of approaches to women's development has been tried out all over the world. In India, the State has made a strong political and economic commitment to women. In 1990, the National Commitment to Women was established. In 1969 two major policy documents were released. Ever since the

Sixth Five-year plan there has been a special section on socio-economic programmes for women. Poverty alleviation programmes have a 30% **target** for women. Special programmes like Development of women and children in Rural Areas have also been started. These government and other approaches have had mixed results. For example, certain organization's approach of using bank credit to organize self-employed women has worked well. So did women's literacy programmes in Kerala. On the other hand, some of the legislated reforms like dowry prohibition have not worked well. The issue of whether women should be identified as separate participator in the development process is also not free from controversy. In this context, it is disappointing to read in one of the reports that one of the government's targets for 1991-95 ought to be to foster "an ethos of caring in the community- not to let a child **go to bed hungry**, be subjected to a preventable disease or remain without learning opportunity-this could not **mark** the beginning of a social process towards a more humane order". Is the report saying then, that Indians do not love their children, as a matter a cultural practice? Both the reports are likely to be highly influential on opinion leaders and policy makers. It is very unfortunate that these reports have become superficial and do not delve sufficiently deep into the real problems.

1. Which of the following statement (s) is / are correct in the context of the passage in regard to development schemes?

- i. All people are of the opinion that women should be given special status.
 - ii. No one feels that women should be given special status.
 - iii. There is no controversy regarding women being given special status.
- a) Only 1
 - b) Only 2
 - c) Only 3
 - d) All the three
 - e) None of these

2. Which of the following is not put forward by the author of the passage as a defect of the report?

- a) They highlight the problems of Indian women
- b) They contain outdated statistical data
- c) The reports have not suggested any new measures
- d) Some of the suggestions in the reports are superficial
- e) The reports are not analytical

3. Which of the following is specifically put forward as a reason for the unequal sex ratio in the population?

- a) Natural causes
- b) Economic development
- c) Literacy level and healthcare
- d) Socio-economic programmes
- e) Poverty alleviation programmes

4. Which of the following is FALSE according to the passage?

- i. The problem of women in general is attracting attention the world over.
 - ii. Indian people do not love their children as much as they should.
 - iii. Right from independence women have been receiving special attention for development.
- a) Only 1
 - b) Only 2
 - c) Only 3
 - d) Only 2 and 3
 - e) Only 1 and 2

5. Which of the following would correctly reflect the tone of the author of the passage to the two reports mentioned in the first paragraph?

- a) Biased
- b) Critical
- c) Neutral
- d) Praiseful
- e) Appreciative

6. Which of the following is conveying the SAME meaning as the word 'mark' as is used in the passage?

- a) Symbolise

- b) Sign
- c) Distinguish
- d) Notice
- e) Start

7. Why has according to the passage, the legislation prohibiting dowry failed in India?

- a) Due to cultural ethos in the country
- b) Because of the fact that it was passed as law
- c) No social organizations were involved as law
- d) Literacy rate among women is poor
- e) Reason not mentioned in the passage

8. Which of the following is TRUE in the context of the passage?

- a) Some development programmes have failed in India.
- b) All development programmes and schemes are generally a success.
- c) Indian women do not manage their finances well.
- d) Women literacy programmes are held all over India.
- e) Culturally, Indians do not love their children.

9. Choose the word that is most SIMILAR in meaning to ‘Target’

- a) Aim
- b) Margin
- c) Quota
- d) Schemes
- e) Attempt

10. Choose the word that is most SIMILAR in meaning to ‘Go to bed hungry’

- a) Malnutrition
- b) Insomnia
- c) Famine
- d) Undernourishment

e) Unsatisfied

2. Read the given comprehension and answer the questions that follow.

Reading is a fundamental skill that plays a vital role in our lives. It's not just about deciphering words on a page but about the doors it opens, the knowledge it imparts, and the worlds it allows us to explore. Reading is an essential tool for learning, expanding our horizons, and fostering imagination.

When we read, we acquire knowledge. Whether it's reading textbooks, newspapers, or online articles, we gain information that helps us understand the world. Books, in particular, are a treasure trove of knowledge. They contain the wisdom of generations, the discoveries of great minds, and the stories of diverse cultures. Reading books can educate us on history, science, literature, and countless other subjects. It's like having a mentor, guiding us through the complexities of life.

Reading also broadens our horizons. It exposes us to different viewpoints, perspectives, and experiences. When we read about characters from various backgrounds or explore far-off lands through the pages of a novel, we step into their shoes and see the world from a different angle. This broadening of perspective fosters empathy and understanding, making us more tolerant and open-minded individuals.

Furthermore, reading fuels our imagination. Whether it's a fantasy novel, a science fiction story, or a compelling mystery, books transport us to other worlds and challenge us to envision the unimaginable. Our minds become the canvas, and words paint the pictures. It's a magical experience that ignites creativity and inspiration.

Moreover, reading is a skill that transcends academic boundaries. It's not just about scoring well on tests; it's about developing critical thinking, analytical skills, and the ability to communicate effectively. A person who reads regularly is likely to have a broader vocabulary, better writing skills, and an improved ability to express their thoughts and ideas.

In our modern digital age, reading has taken on new forms. E-books and audiobooks have made it more accessible and convenient. With just a few clicks or taps, we can access a vast library of literature. However, there's something timeless and intimate about holding a physical book, flipping its pages, and smelling the scent of paper and ink.

In conclusion, reading is not just a hobby; it's a cornerstone of education, personal growth, and cultural enrichment. It empowers us with knowledge, broadens our perspectives, ignites our imagination, and equips us with essential skills. Whether we're reading for pleasure, information, or self-improvement, reading is a journey that enriches our lives and shapes us into more informed, empathetic, and creative individuals.

(1) What are some of the benefits of reading mentioned in the passage?

- a) Acquiring knowledge
- b) Physical exercise
- c) Developing cooking skills

d) Enhancing video game proficiency

(2) How does reading broaden our horizons and foster empathy?

- a) By encouraging isolation
- b) By exposing us to different viewpoints and experiences
- c) By promoting narrow-mindedness
- d) By making us less tolerant

(3) What role does reading play in developing critical thinking and communication skills?

- a) It has no impact on critical thinking or communication skills
- b) It broadens horizons but does not impact skills
- c) It expands vocabulary, improves writing skills, and enhances communication abilities
- d) It only helps with imagination but not critical thinking or communication

(4) What are the advantages of reading physical books compared to digital formats?

- a) Physical books are more expensive
- b) Digital formats are more environmentally friendly
- c) Physical books offer a timeless and intimate experience
- d) Digital formats are easier to access

(5) How does reading enrich our lives and shape us as individuals, according to the passage?

- a) Reading has no impact on personal growth
- b) Reading makes us less informed and less creative
- c) Reading empowers us with knowledge, broadens our perspectives, and equips us with essential skills, making us more informed, empathetic, and creative individuals
- d) Reading only fosters creativity but not empathy

3. Read the given comprehension and answer the questions that follow.

This past decade has witnessed a surge in wildlife tourism that has doubled and tripled the tourist load in several of the more accessible national parks and reserves. But serious infrastructural shortcomings have brought us precariously close to a breakdown of the ecosystem's capacity to absorb this load. The result is an unsatisfactory tourist experience (and an opportunity to impart conservation values lost), overworked, pressurized and confused wildlife staff, and occasional man-animal confrontation crises such as man-killing by tigers. Not to speak of the ecosystem that is being battered by humans. A road area, which accommodated four vehicles a day, ten years ago, is now being used by 12 a day. The road area the wildlife population of that area has in any case gone up. A collision of interests is inevitable. An important function of wildlife refuges is to encourage tourism. recognising that it forms an ideal —hands-on method of orienting, educating and winning the hearts and minds of the general public over to conservation values and concepts. This can only be achieved by communication with tourists before and during their visits to a wildlife refuge. The —interpretation as it is generally referred to, is properly done by having an interpretation centre, consisting of photographic, written and audio-visual exhibits supplemented by free or priced literature and a

person on hand to answer the queries of visitors. Tourists should be routed through this facility by the simple expedient they have some time to see it while their entry permits are being prepared. The general message should be the history of the wildlife refuge as a conservation microcosm, interesting facts of some of the species it supports, and an explanation of the mechanics of an ecosystem and its relevance to man, plus codes of conduct specific to the area and to wildlife and jungles in general. This should be backed up by a cadre of trained naturalist guides, preferably from the local population, who should accompany the tourists in the refuge. In some of our wildlife refuge, very poor facilities for this sort of thing exist. In most, none exist at all. The result is tourist traffic, which is generally quite ignorant of wildlife, ecology and conservation values, who leave the refuge no wiser than when they came in, leaving behind for good measure the detritus of their presence: plastic bags, cigarette packets, bottle, paper, a lot of which is nonbiodegradable and toxic. Added to this is the fact that wildlife guards and rangers are often diverted from their normal work-monitoring and managing wildlife and the ecosystem—and made to guide tourists and generally be at the beck and call of people, irrelevant to the priorities of the wildlife refuge.

1. Which of the following is not true in the context of the passage?

- (a) The forest staff are diverted from their normal work
- (b) The priorities of the wildlife are sometimes ignored by the forest staff.
- (c) The tourists are generally equipped with the necessary knowledge of wildlife
- (d) The tourists leave behind lots of toxic disposals

2. According to the passage, the main purpose of bringing tourists in the forest areas is

- (a) to involve the general public in maintaining the ecosystem
- (b) to educate the general public about wildlife and ecosystem
- (c) to reduce the wildlife population
- (d) to make them understand the codes of conduct of the jungles

3. Which of the following best explain this according to the passage?

- (a) Unwillingness to build more roads vis-à-vis load of vehicular traffic
- (b) Development of tourism vis-à-vis the conservation of the ecosystem
- (c) Better tourist capability vis-à-vis lack of funds
- (d) Positioning people to ecosystem and also destruction of the ecosystem.

4. What, according to the author, should be the step to improve the situation?

- (a) Tourists should be briefed about the nature of wildlife and jungle
- (b) Tourists should be briefed about the inter-relation between man and animals
- (c) Tourists should be briefed about the information before they enter the jungle
- (d) All of these.

5. What according to the author, will win the hearts and minds of the general public?

- (a) Providing them better facilities.
- (b) Providing them with trained guides
- (c) Providing them with good food articles
- (d) Providing them with better communication about the wildlife refuge

6. What, according to the passage, should the forest staff be engaged in?

- (a) They should look after the well-being of wildlife
- (b) They should take care of the habitat of wildlife
- (c) They should provide tourists with necessary information about wildlife.
- (d) They should take help of the local people to take care of the tourists.

7. The main concern expresses by the author in the above passage is to

- (a) improve facilities for tourists
- (b) build more road areas
- (c) restrict wildlife population
- (d) balance the ecosystem by careful planning.

8. Which of the following words is most nearly the same in meaning as the words — on hand as used in the passage?

- (a) practical
- (b) available
- (c) useful
- (d) knowledgeable

9. Man-animal confrontation, according to the passage leads to

- (a) Killing of tigers by man
- (b) Killing of animals by other animals
- (c) Confusion of wildlife staff
- (d) Destruction of mutual bond

10. What, according to the author, is the main reason for the near collapse of the capacity of the ecosystem of wildlife refuges?

- (a) Increase in tourist inflow
- (b) Felling of trees indiscriminately
- (c) Absence of adequate wildlife habitat
- (d) Absence of adequate infrastructural

4. Read the following comprehension and answer the questions that follow.

There's the crush of traffic outside and the air is still with the heat of summer and the aroma of baking. At the junction of Perambur's Paper Mills Road and Foxen Street, at the cusp of the slowly-vanishing world of Anglo India, is Ajantha Bakers.

A mosaic-tiled stairway leads to the bakery on the first floor, overlooking tin-roofed garages and tiled houses that have risen and slept under the warm blanket of comfort this aroma exudes.

Ajantha Bakers has been part of this Anglo-Indian stronghold since 1972, baking wedding cakes, pound cakes and marzipan-rich, chewy Easter eggs.

But, during the week between Palm Sunday and Easter Sunday, it is hot cross buns — soft, slightly spiced and tinged in nostalgia — that sell by the thousands. Says KS Subhash, managing director, “When my father KT Sekhar started the bakery, he had plenty of Anglo-Indian friends and customers. They still form the backbone of our clientèle, and it is their recipes that we largely use, whether in our butter cakes or whole-wheat breads. Our Easter eggs and bunnies made of marzipan and chocolates are ready at least two weeks ahead of the festival. For the hot cross buns, which are eggless, we use the best of spices blended with raisins. That flavour is unmistakeable and we bake about 25,000 buns. They sell out within a few hours.”

Ajantha Bakers sells its buns on Thursday, “so they keep fresh” on Good Friday, when they are traditionally eaten. “Priced at Rs. 65 for a pack of five, the buns are retailed at our 14 outlets and ordered in bulk by churches.”

Choose your flavour

In Britain, where it first originated, hot cross buns have been celebrated in a nursery rhyme and sold in supermarkets through the year.

The bar at The Bell Inn, Essex, has buns from every Good Friday since 1906 suspended as bunting. Belief is that hot cross buns hung in kitchens prevent fires, and the faith behind them would never let them go mouldy. Hot cross buns have also been mixed with unusual flavours such as Earl Grey tea, rum-soaked sultanas and potato-bread dough.

In Chennai, though, it is the standard recipe that is followed. At the iconic Buhari Hotel on Anna Salai, hot cross buns will be available from Thursday. The hotel that has stood here since 1951, has had an in-house bakery since the 1960s. Above the roar of traffic and customers tucking into plates of biryani on a busy Friday afternoon, Nawaz Buhari, managing director, says, “The egg-free recipe for hot cross buns that we follow comes from the Vietnamese bakers who worked here when we started out.” While the famed McRennett will stock hot cross buns priced at Rs. 40 for a pack of four from tomorrow, hotels such as ITC Grand Chola and Hyatt Regency already have trays laden with Good Friday and Easter goodies at their gourmet shops.

Family tradition

Harry MacLure, editor, Anglos in the Wind, says of his childhood in Tiruchi, “It was tradition at home — the air used to be filled with the spiced aroma of hot cross buns baking, but now we just buy it off store shelves. We look forward to breaking the fast with this simple delicacy and a coconut milk-rice gruel with coconut chutney.”

Lenten treat

Hot cross buns have long been a symbol of spring and fertility. According to pagan legend, oxen were sacrificed and their horns symbolically emblazoned on freshly baked bread. The words ‘bun’ and ‘Easter’ are derived from the Anglo-Saxon lexicon meaning ‘sacred ox’ and ‘Eostre’,

the goddess of spring. The four quadrants made by the cross on the bread are said to have represented the phases of the moon. The modern version of the hot cross bun is a British invention that came with Europe opening up to trade with the East. Spices and salt started to cost less and the sweet-savoury bun with a pasty white cross on its brown top became a Good Friday baker's treat. The cross came to symbolise Christ's passion and death, and the spices, the mixture with which his body was embalmed. So popular and wholesome were the buns, that they were baked through the year, and Queen Elizabeth I had to issue a royal decree to stop their year-round baking, so that their religious symbolism wouldn't be lost.

(1) Consider the following statements regarding the Ajantha Bakers as given in the above passage:

1. It is situated in Perambur.
2. It has been part of Anglo-Indian stronghold since 1872.

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both are correct
- (d) None is correct

(2) Where did hot cross buns come from?

- (a) Britain
- (b) Perambur
- (c) USA
- (d) Spain

(3) Which of the following statement regarding Ajantha Bakers is incorrect?

- (a) They are famous for chewy Easter eggs.
- (b) They are famous for wedding cakes.
- (c) Hot cross buns are ordered in bulk by churches.
- (d) It is famous for only hot cross buns.

(4) What is 'Eostre' in context with the pagan legend as described in the passage?

- (a) horns
- (b) Bread
- (c) Goddess
- (d) moon

(5) From where the egg-free recipe for hot cross buns came?

- (a) India

- (b) Vietnam
- (c) China
- (d) Burma

**(6) Choose the word which is Most Opposite to the word printed in bold in the passage-
‘Tucking’**

- (a) spread
- (b) enfold
- (c) push
- (d) seam

**(7) Choose the word which is Most Opposite to the word printed in bold in the passage-
‘Gourmet’**

- (a) connoisseur
- (b) critic
- (c) gourmand
- (d) destitute

**(8) Choose the word which is Most Similar to the word printed in bold in the passage-
‘Delicacy’**

- (a) inelegance
- (b) coarseness
- (c) heaviness
- (d) elegance

**(9) Choose the word which is Most Similar to the word printed in bold in the passage-
‘Embalmed’**

- (a) wrap
- (b) squander
- (c) waste
- (d) neglect

**(10) Choose the word which is Most Similar to the word printed in bold in the passage-
‘Decree’**

- (a) word
- (b) rap
- (c) directive
- (d) verdict

5. Read the given passage and answer the questions that follow.

There is an old African proverb that says, “Until the lions have their own historians, histories of the hunt will glorify the hunter.”

As is common knowledge, while the male lion’s mane incites our imagination, it is actually the lionesses that bring in food and ensure survival of the species. As Renana Jhavwala of SEWA and member of UN Secretary General’s High Level Panel on Women’s Economic Empowerment aptly says, “Women’s work is invisible … women are at the base of the economic pyramid. Women are stuck on a ‘sticky floor’ of low technology, low productivity, low skills, low earnings and low dignity.” Rural women in the Asia-Pacific region make critical contributions to household production and national food security, yet their contribution is hardly acknowledged.

The credit for the success of Brazil’s conditional cash transfer programme, Bolsa familia, goes to women. The programme rewards families for sending their children to school and taking them for regular health check- ups. This scheme has pulled millions out of poverty. The state tends to believe women are more reliable than men. In Mexico, a similar programme, Oportunidades, is available exclusively to women.

There is strong empirical evidence to suggest that money in the hands of the mother increases expenditure on children. There is a strong positive correlation between women’s status and economic/social development. Policy makers across the world have placed great emphasis on gender equality. The experience suggests that economic development alone is not enough to bring about equality. What is needed is policy action. This is where the importance of women’s political empowerment comes. Democracy in the 21st century is moving towards equity and inclusion. This is the underlying message of citizens’ movements across the world. And with increasing role of women at the policy level and in institutions of government, democracy can become ‘politics of difference’ and ‘politics of presence.’

1. 'Democracy in the 21st century is moving towards equity and inclusion.' implies that

- a) Every citizen has the right to participate actively in the democracy in the 21st century.
- b) Women had no role in politics before 21st century.
- c) Democracy in the 21st century is accepting both men and women equally in the mainstream politics.
- d) None of the above

2. Which of the following is contrary to the facts mentioned in the passage about women in the Asia-Pacific region?

- a) Their contribution is greatly acknowledged.

- b) They make a lot of contribution to household production and national food security.
- c) They are engaged mostly in household work, which is a piece of low-skill work.
- d) None of the above

3. What is the position of women in the economic pyramid?

- a) They are at the top of the economic pyramid.
- b) They are at the bottom of the economic pyramid.
- c) They are in the middle of the economic pyramid.
- d) Not clear from the given passage.

4. Which of the following is true about 'Bolsa familia' programme?

- a) This is a conditional cash transfer programme in Mexico.
- b) This programme failed in Brazil because of the non-cooperation of local people.
- c) This programme pulled millions out of poverty.
- d) This programme has provided employment opportunities to Brazilian women.

5. According to the author,

- a) There is no relationship between women's status and socio-economic development.
- b) Money in the hands of women makes them frugal.
- c) Economic development alone is enough to bring about equality.
- d) Most of the policy makers across the world agree that there should be gender equality.

6. Read the following comprehension and answer the questions that follow.

Organic farming is either really expensive or really cheap, depending on where you live and whether or not you are certified. Not only are the 'natural' pesticides and fertilizers increasingly marketed by agribusiness as costly as or costlier than their chemical counterparts, but proving you are an organic farmer requires certification, which is time-consuming and expensive.

In the USA, converting to organic agriculture is a huge undertaking for commercial farmers, who have relied on chemical fertilizers and pesticides for many decades, but in India, the conversion is no less **arduous** and far more ironic.

India's farmers are still mostly practising organic methods, passed down for millennia. Organic fertilizer and natural pest control are the only tools available to most of these farmers, who have always lacked the financial resources to explore chemical solutions. But these farmers, whose produce is as organic as they come, cannot afford to pay the fees required to gain official certification.

As the international community adopts standards for organic agriculture, the challenges faced by farmers in the USA versus farmers in India in order to adapt are very different indeed. The danger is that the well intentioned global move towards organic standards will make small organic farmers in countries like India, who have never done anything but organic farming, no longer able to sell their crops.

In response to the \$ 26 billion global market for organic foods, the Indian Central Government set up a National Institute of Organic Farming in October 2003. The purpose of this institute is to **formulate** rules, regulations and certification of organic farm products in conformity with international standards.

The institute has its offices across the country and has appointed certifying agencies for organic farm products for the domestic market. The certifying agencies are **accountable** for confirming that any product sold with the new 'India Organic' logo is in accordance with international criteria, and launch major awareness and marketing campaigns in India and abroad.

Organic farming has been identified as a major thrust area of the 10th plan of the central government. 1 billion rupees have been allocated to the aforementioned National Institute of Organic Farming alone for the 10th five-year plan. Despite this, most of India's organic farms are not officially considered organic. Most of India's farms are 'organic by default'.

The irony and difficulty of the new governmental push for organic agriculture is that 65% of the country's cropped area is 'organic by default', according to a study. By this somewhat **degrading** term they mean that small farmers, located mostly in the Eastern and North-Eastern regions of the country, have no choice except to farm without chemical fertilizers or pesticides. Though this is true in many cases, it is also true that a significant number of them have chosen to farm organically, as their forefathers have done for thousands of years.

Many have seen for themselves the effects of chemical farming soil erosion and loss of soil nutrients, loss of nutrition in food and human diseases resulting from the chemicals that **inevitably** seep into the water table, all the reasons for the urgent demand for organic foods and farming.

India currently has only 1,426 certified organic farms. This statistical discrepancy reveals that the weak link in the organic/economic chain is certification. Under current government policy, it takes four years for a farm to be certified as organic.

The cost of preparing the report is a flat fee of Rs. 5,000 and the certificate itself costs another Rs. 5,000. While these costs are bearable for the new industrial organic greenhouses, they are equal to or more than an entire year's income for the average small farmer, if the costs of travel and inspection are included.

In the United States, an organic farm plan or organic handling plan must be submitted to a USDA accredited private or state certification program. The plan must explain all current growing and handling methods, and any materials that will be used—in the present and any future plans must be included as well.

Records for the last five years must be presented. Land must be chemical free for three years prior to harvest, so a conventional farmer cannot receive the organic label for the **transitional** years. This will generally mean a decrease in income—crops may be less plentiful than with conventional fertilizers and pesticides and yet the higher price for organic products won't yet be possible. Many farmers cannot afford the transition, even if they want to.

One solution to the small farmer's dilemma of how to both certify and survive is that of community certification. In community certification, communities, on a nonprofit basis, take charge of the certification process themselves. They evaluate the farmer's commitment to the stewardship of the soil and examine from many angles whether the food is being grown in an environmentally sensitive way or not, rather than technical standards.

While community certification may be a viable solution on the local level, it is our opinion that, in the global market place, less than exact technical standards will never be enough for today's consumer and in today's largely poisoned environment, it shouldn't be, either. Furthermore, such 'soft' guidelines can easily backfire on the farmers themselves, as a system not based on facts must be by definition subject to local politics, bribery, favoritism, etc.

India must find a way to keep the strict international organic standards intact if it wants to compete in the international market for organic foods, but is there a way to do it without leaving small farmers out in the cold? One obvious solution is for the government to subsidize these certification fees enough to make it a **viable** option for ordinary farmers, not just for neo-organic factory farms and greenhouses.

Banks also could provide a more level playing field for small farmers. Currently, almost all bank loans are for pure crop farmers. While many of these big-business farmers use harmful chemicals and processes, small farmers fertilizing their soil with recycled organic wastes are usually ineligible for insurance, much less state subsidies.

1. What role does the National Institute of Organic Farming have to play in the organic farming area?

- (a) To set standards for the import of material required for organic farming within India
- (b) To ensure that Indian farm products conform to the international standard for organic foods
- (c) To suggest methods to farmers for producing the best organic products
- (d) To import the best organic foods from international countries and harvest them in India
- (e) To set up agencies internationally for the marketing of Indian organic produce

2. Which of the following is possibly the most appropriate title for the passage?

- (a) Agribusiness in India
- (b) Organic Farming in India—An Irony
- (c) Inorganic Farming—A Health Hazard
- (d) Small and Marginal Farmers
- (e) Organic Farming in India and the US

3. Why, according to the author, is the term ‘organic by default’ degrading?

- (a) The Indian farmers are adopting incorrect methods of organic farming, thereby rendering the crop useless
- (b) As the crop cultivated out of organic farming is rejected by most international agencies
- (c) As all the farmers in India do not have any access to chemical fertilizers and pesticides to carry out inorganic farming
- (d) As the Govt. has issued a directive to farmers in India to carry out organic farming alone
- (e) As it means that the farmers in India cannot afford to use anything but organic methods of farming

4. Which of the following are reasons for the increasing demand for organic foods and organic farming?

- 1. Consumption of inorganic food has given rise to illnesses.
 - 2. Excessive use of pesticides has caused soil erosion.
 - 3. There has been a loss in soil nutrient value of soil due to chemical farming.
- (a) Only 2
 - (b) Only 1 and 2
 - (c) Only 3
 - (d) Only 2 and 3
 - (e) All 1, 2 and 3 are true

5. Why according to the author, will the idea of community certification not work?

- (a) As there may not be enough people in the community to work on a non-profit basis
- (b) As the farmers may not be forthcoming in providing information about their cultivation practices and thus lead to the failure of this system
- (c) As the certification granted through this scheme will not be authentic at all
- (d) As certification sought in this manner may give rise to vested interests and also not meet the stringent criteria laid down globally
- (e) None of these

6. Which of the following is true in the context of the passage?

- 1. The Indian Govt. is not in favour of acquiring certification to meet global standards.
 - 2. The process of certification is quite time-consuming and expensive.
 - 3. The farmer does not earn much during the three-four years that it takes to get certification.
- (a) Only 1 and 3
 - (b) Only 2
 - (c) Only 2 and 3
 - (d) Only 1 and 2
 - (e) All 1, 2 and 3

7. What, according to the author, is a major problem with Organic Farming in India?

- (a) Despite their organic nature most farms in India are not perceived as organic because of mere paperwork
- (b) The Govt. has not paid attention to organic farming in India thereby promoting inorganic farming to a great extent
- (c) Only recycled organic waste is available to Indian farmers for the purpose of organic farming
- (d) Indian farmers are accustomed to the usage of chemicals and their farms have now started losing their fertility
- (e) Large number of farmers in India is averse to the idea of organic farming as it is not profitable

8. Which of the following, according to the author, are factors that can help in acquiring organic farming certification in India?

1. Providing more bank loans to small farmers.
2. Reducing the quantum of loans being provided to pure crop farmers.
3. Lowering the cost of certification.
 - (a) Only 1
 - (b) Only 3
 - (c) Only 1 and 3
 - (d) Only 2 and 3
 - (e) All 1, 2 and 3

Directions— (Q. 9–12) Choose the word/group of words which is most similar in meaning to the word/ group of words printed in bold as used in the passage.

9. ARDUOUS:

- (a) Pleasurable
- (b) Different
- (c) Difficult
- (d) Hazardous
- (e) Threatening

10. FORMULATE:

- (a) Regularize
- (b) Contemplate
- (c) Apply
- (d) Frame
- (e) Mix

11. DEGRADING:

- (a) Corrupting
- (b) Minimizing
- (c) Lowering
- (d) Demeaning
- (e) Worrying

12. TRANSITIONAL:

- (a) Extreme
- (b) Intermediate
- (c) Revolutionary
- (d) Base
- (e) Changed

Directions—(Q. 13–15) Choose the word/group of words which is most opposite in meaning to the word/group of words printed in bold as used in the passage.

13. VIABLE:

- (a) Impossible
- (b) Negative
- (c) Deadly
- (d) Practical
- (e) Rudimentary

14. INEVITABLY:

- (a) Avoidably
- (b) Mostly
- (c) Certainly
- (d) Expectedly
- (e) Predictably

15. ACCORDANCE:

- (a) Division
- (b) Quarrel
- (c) Tune
- (d) Enmity

7. Read the given passage and answer the questions that follow.

I was lying on a ridge scanning, with field glasses, a rock cliff opposite me for tahr, the most sure-footed of all Himalayan goats. On a ledge halfway up the cliff, a tahr and her kid were lying asleep. Then, the tahr got to her feet, stretched herself, and the kid immediately began to feed. After a minute the mother freed herself, took a few steps along the ledge, poised for a moment, then jumped down on to another but a narrower ledge some twelve to fifteen feet below her. As

soon as it was left alone the kid started running backward and forwards, stopping every now and then to peer down at its mother, but unable to summon the courage to jump down to her, for below the narrow ledge was a sheer drop of a thousand feet. I was too far away to hear whether the mother was encouraging her young, but from the way her head was turned, I believe she was doing so. The kid was getting more and more agitated and, possibly fearing that it would do something foolish, the mother went to what looked like a mere crack in the vertical rock face and, climbing it, rejoined her young. Immediately on doing so she lay down, presumably to prevent the kid from feeding.

After a while, she got to her feet again, allowed the kid to drink for a minute, poised carefully on the brink, and jumped down while the kid again ran backward and forwards above her. Seven times in the course of the next half-hour this procedure was repeated until finally the kid, abandoning itself to its fate, jumped, and landing safely beside its mother was rewarded by being allowed to drink its fill. The lesson for her young, that it was safe to follow where she led, was over for that day.

Q1. Which of the following excerpts from the passage best bears out the description of the tahr as a sure-footed mountain goat?

- (a) "Seven times in the course of the next half-hour this procedure was repeated."
- (b) "The lesson for her young _____ was over for that day."
- (c) "_____ the mother went to what looked like a mere crack in the vertical rock face
_____ rejoined her young."
- (d) "I was too far away to hear whether the mother was encouraging her young _____ I
believe
she was doing so."

Q2. The mother goat feared that the kid "would do something foolish" like

- (a) drink more than its share of milk
- (b) throw itself off the cliff
- (c) follow her down the vertical rock face
- (d) continue to pace up and down indefinitely

Q3. Which of the following phrases can replace "abandoning itself to its fate", used in the second paragraph?

- (a) Making the most of the situation

- (b) Taking the bull by the horns
- (c) Facing the music
- (d) Accepting consequences

Q4. One way in which the kid was encouraged to follow its mother was by

- (a) not being allowed to have its fill of milk until it had jumped
- (b) running backward and forwards on the ledge before it jumped
- (c) getting very agitated before it jumped
- (d) being rejoined by its mother several times

Q5. The mother goat taught her kid the lesson through

- (a) agility and sure-footedness
- (b) severity and punishment
- (c) patience and perseverance
- (d) praise and reward

8. In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

Digital India can be the prime (1) behind making a reality of the government's promise of minimum government, maximum governance. Such a transformation requires technology to be firmly (2) into government, something that the Digital India project lists as one of its foremost objectives. Embedding technology into government (3) will do three things; transform the government and make it more transparent and efficient, transform the lives of citizens especially those at the bottom of the (4) pyramid and make our economy more efficient and competitive. A 2014 McKinsey Global Institute report predicts that the large-scale (5) of technology through Digital India positions India with the biggest opportunity yet to accelerate economic growth.

Q. 1: Select the most appropriate option to fill in blank number 1.

- 1. impact
- 2. might
- 3. factors
- 4. force

Q. 2: Select the most appropriate option to fill in blank number 2.

- 1. inserted

- 2. embedded
- 3. planted
- 4. stuck

Q. 3: Select the most appropriate option to fill in blank number 3.

- 1. offices
- 2. details
- 3. processes
- 4. hierarchies

Q. 4: Select the most appropriate option to fill in blank number 4.

- 1. mythical
- 2. proverbial
- 3. hypothetical
- 4. classified

Q. 5: Select the most appropriate option to fill in blank number 5.

- 1. enhancement
- 2. anticipation
- 3. adaptation
- 4. monitoring

9. Read the given passage carefully and answer the questions that follow.

The economic development in India followed socialist-inspired policies for most of its independent history, including state-ownership of many sectors; India's per capita income increased at only around 1% annualised rate in the three decades after its independence. Since the mid-1980s, India has slowly opened up its markets through economic liberalisation. After more fundamental reforms since 1991 and their renewal in the 2000s, India has progressed towards a free market economy. In the late 2000s, India's growth reached 7.5%, which will double the average income in a decade. Analysts say that if India pushed more fundamental market reforms, it could sustain the rate and even reach the government's 2011 target of 10%. States have large responsibilities over their economies. The annualised 1999-2008 growth rates for Tamil Nadu (9.9%), Gujarat (9.6%), Haryana (9.1%), and Delhi (8.9%) were significantly higher than for Bihar (5.1%), Uttar Pradesh (4.4%), and Madhya Pradesh (6.5%). India is the tenth-largest economy in the world and the third largest by purchasing power parity adjusted exchange rates (PPP). On per capita basis, it ranks 140th in the world or 129th by PPP. The economic growth has been driven by the expansion of services that have been growing consistently faster than other sectors. It is argued that the pattern of Indian development has been a specific one and that the country may be able to skip the intermediate industrialisation-led phase in the transformation of its economic structure. Serious concerns have been raised about the jobless nature of the economic growth favourable macroeconomic performance has been a necessary but no sufficient stipulation for the significant reduction of poverty amongst the Indian

population. The rate of poverty decline has not been higher in the post-reform period (since 1991). The improvements in some other non-economic dimensions of social development have been even less favourable. The most palpable example is an exceptionally high and importunate level of child malnutrition (46% in 2005-06). The progress of economic reforms in India is followed closely. The World Bank suggests that the most important priorities are public sector reform, infrastructure, agricultural and rural development, removal of labour regulations, reforms in lagging states, and HIV /AIDS. For 2015, India ranked 142nd in Ease of Doing Business Index, which is setback as compared with China 90th, Russia 62nd and Brazil 120th. According to index of Economic Freedom World Ranking an annual survey on economic freedom of the nations, India ranks 123rd as compared with China and Russia which ranks 138th and 144th respectively in 2012.

1. According to the passage, the economic growth has been driven by the expansion of which of which genre of services?

- a) The services growing slower than other sectors available in the world.
- b) The services growing more easily than other sectors available in the world.
- c) The services growing erratically faster than all other sectors available in India.
- d) The services growing consistently faster than other sectors available in the world.
- e) None of these

2. Which of the following statements is true according to the passage?

- a) More than one hundred and fifty countries are doing better than India on PPP basis.
- b) India is doing better than 140 countries on per capita basis.
- c) India ranked 1 17th on the basis of economic growth which is a setback.
- d) India ranked 142nd in 2015 in Ease of Doing Business Index.
- e) None of these

3. What was the opinion of the World Bank particularly on public sector reforms according, to the passage?

- A. Infrastructures development
- B. Health reforms
- C. Removal of labour regulations
- D. Agricultural development

- a) Only (A) and (B)
- b) only (C) and (D)
- c) only (B) and (D)
- d) only (A), (B) and (D)
- e) None of these

4. "Economic liberalisation have been beneficial for Indian according to the passage, which of the following statements support the given statement?

- a) India bit by bit kicks off its markets through economic liberalisation.
- b) India opened new markets all over world within 10 years of its initiation.
- c) India gave a lot of employment compared to the last decade after its initiation.
- d) India's growth rate increased by 7.5% after initiating economic liberalisation.
- e) None of these

5. Which of the following is not mentioned in the passage regarding economic development?

- a) Index of Economic Freedom World Ranking did an annual survey on economic freedom.
- b) India's per capita income increased at only around 1% annualised rate.
- c) The progress of economic reforms in India is followed closely.
- d) Economic liberalisation is a fusion of growth and economic development.
- e) None of these

10. Read the following passage carefully and answer the questions given below it.

Italian super - luxury sports car manufacturer Lamborghini has spread its wings in India. And it, has just opened a dealership in Bengaluru, the IT (information technology). capital of the country,

It has already a dealership in Mumbai, the financial capital, and Delhi, the political capital. At a price tag of over Rs. 1 Crore. Who will buy a Lamborghini car? Rather, what gives the Italian car maker the confidence to not only drive into India but also expand its presence? The choice of its location for dealership gives a clue or two to its game plan, and also an insight into its prospective customer profile. While dealership in Mumbai and Delhi are understandable considering the wealth and power that reside in these two metros, the choice of Bengaluru to locate its new dealership indicates that the Italian company is betting big on the neo rich who have sprouted in big numbers in the wake of an unprecedented growth experienced by this city. If super - luxury brand like Lamborghini is sensing an unfolding big opportunity in a New India, other traditional global luxury car makers have turned very ambitious with new launches.

Despite high import duty barriers, global luxury car makers continue to believe that roll out new models and ramp up dealership in a bid to sustain the appetite of India's super rich for expensive cars is only likely to grow. After the launch of BMW M5, priced at Rs. 1.35 crore its German rival Mercedes - Benz launched next - generation C- Class, priced at Rs. 40.9 lakh in New Delhi. The C- Class is one of the most successful products of Merc in India. It has so far sold over 20,000 units C- class in India. Till date, Lamborghini had sold around 94 sports cars in the country. It said the high import duty would impact the company's sales in India, and 2014 might see a lower volume. In 2013, it sold around 22 super - luxury sports cars in India. "The import duty in India is higher than many other countries. We want to sell more cars in the country but the import duty in India is high as much as 167 percent. This huge import tax will impact the sales of the super cars in the country," said Automobili Lamborghini President and CEO Stephan Winkelmann. Apart from the high import duty, the late launch of its new model Huracan into India market was another reason for lower sales this year. The company expects to improve the sales next year. Lamborghini is also considering the possibility of launching its SUV in India by 2018. In April 2012 the company showcased its concept SUV at the Beijing Auto Show.

1. Which of the following rationale explains the curtailing of Lamborghini car trade in India?

- (A) The price figure ranges over one crore.

- (B)** Lofty import duty
(C) Delayed launch of its new model
1. Only A
 2. Only B
 3. Only C and A
 4. Only B and C
 5. Only A and B
2. What kind of strategy is mentioned in the passage about the car selling geographical factor?
1. Launching a new model every six months will give lots of choices to buyers.
 2. Competitive environment leads to better designing of Lamborghini cars.
 3. Seeking out well-heeled people who have enormously emerged in Bengaluru.
 4. Mumbai and Delhi are having many rich people, so it was easy for the company to launch their car first here.
 5. None of these
3. Which of the following statements is true according to the given passage?
1. Lamborghini is the only company to flourish better in India when it comes to car sales.
 2. The new model Huracan's predecessor is Mercedes' C-class
 3. Lamborghini proliferates augmentation in India.
 4. Mercedes-Benz is an adherent of Lamborghini.
 5. None of these

- 4. According to the passage what makes the company think that their sales will grow in the country?**
- (A)** The ability of afford high import duties by Indians who are living in rich metropolitan areas.
(B) The inclination of moneyed people towards sports car will potentially grow.
(C) The luxury car is a stipulated requirement or thriving people as it has been seen in Delhi, Mumbai and Bengaluru.
1. Only A
 2. Only B
 3. Only C and A
 4. Only B and C
 5. Only A and B

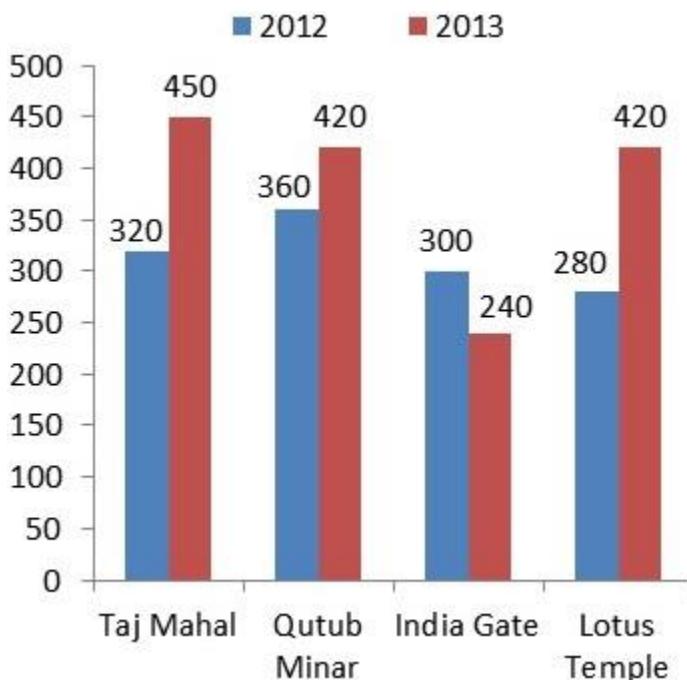
- 5. What can be concluded from the passage about the buyers and sellers of Lamborghini cars?**
- (A)** People in India have a good preference and knowledge about the Lamborghini car.
(B) Buyers are afar of sellers in India, therefore new metropolitan city was opted to launch a new dealership.
(C) Regarding car sales competitive environment is ubiquitous in India.
1. Only A
 2. Only B

3. Only C
 4. Only B and C
 5. Only A and B

DATA ANALYSIS

Direction : Study the following bar chart carefully and answer the questions 1-5

The number of people who visited four different places in two different years are given.



1. The number of people who visited Taj Mahal in 2013 is how much percent less than the number of people who visited Taj Mahal and Lotus Temple in 2012 together?

- a. 20% b. 30% c. 25% d. 50%

Answer : Option C

Solution :

The number of people who visited Taj Mahal in 2013 = 450

The number of people who visited Taj Mahal and Lotus Temple in 2012 together = $(280 + 320) = 600$

Difference = $(600 - 450) = 150$

$$\% \text{ less} = \frac{150}{600} \times 100 = 25\%$$

2. What is difference between the sum of the number of people who visited Qutub Minar and India Gate in 2012 together and the sum of the number of people who visited Lotus Temple and India Gate in 2013 together?

- a. 30 b. 15 c. 20 d. None of these

Answer : Option D

Solution :

The sum of the number of people who visited Qutub Minar and India Gate in 2012 together = $(360 + 300) = 660$

The sum of the number of people who visited Lotus Temple and India Gate in 2013 together = $(420 + 240) = 660$

Difference = $(660 - 660) = 0$. Hence, option D is correct.

3. Which place shows maximum percentage increase in number of people who visited from 2012 to 2013?

a. Both Taj Mahal and Lotus Temple

b. Lotus Temple

c. India Gate

d. Both Qutub Minar and Taj mahal

Answer : Option B

Solution :

The difference between the number of people who visited Taj mahal in 2012 and 2013 = $450 - 320 = 130$

$$\% \text{ increased} = \frac{130}{320} \times 100 = 40.625\%$$

The difference between the number of people who visited Qutub Minar in 2012 and 2013 = $420 - 360 = 60$

$$\% \text{ increased} = \frac{60}{360} \times 100 = 16.67\%$$

The difference between the number of people who visited India Gate in 2012 and 2013 = $300 - 240 = 60$

$$\% \text{ decreased} = \frac{60}{300} \times 100 = 20\%$$

The difference between the number of people who visited Lotus Temple in 2012 and 2013 = $420 - 280 = 140$

$$\% \text{ increased} = \frac{140}{280} \times 100 = 50\%$$

Lotus Temple shows the maximum percentage increased in the number of people.

4. What is the average of the number of people who visited Taj Mahal in 2012, Qutub Minar in 2012, Lotus Temple in 2013 and India Gate in 2013?

a. 335

b. 355

c. 535

d. 553

Answer: Option A

Solution :

Sum of the number of people who visited Taj Mahal in 2012, Qutub Minar in 2012, Lotus Temple in 2013 and India Gate in 2013 = $(320 + 360 + 420 + 240) = 1340$

$$\text{Reqd. average} = \frac{1340}{4} = 335$$

5. What is the ratio of the number of people who visited Qutub Minar and India Gate in 2013 together and the number of people who visited Lotus Temple and Taj Mahal in 2012 together respectively?

- a. 10 : 11 b. 5 : 6 c. 11 : 13 d. 11 : 10

Answer : Option D

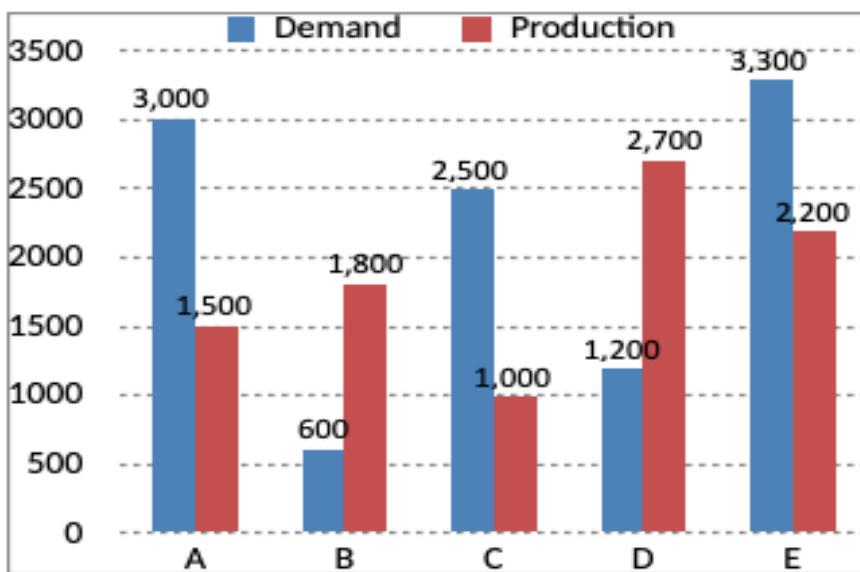
Solution :

The number of people who visited Qutub Minar and India Gate in 2013 together = $(420 + 240) = 660$

The number of people who visited Lotus Temple and Taj Mahal in 2012 together = $(320 + 280) = 600$

Required ratio = $660 : 600 = 11 : 10$

Directions: The following chart represents Demand and Production for 5 companies A, B, C, D, E. On the basis of the graph answer the questions 6-10



6. If the production of company D is h times of the production of company A, then h equals :

- a. 1.5 b. 2.5 c. 1.2 d. 1.8

Answer: Option D

Solution:

Production of company D = 2700

Production of company A = 1500

$$h = \frac{\text{Production of company D}}{\text{Production of company A}}$$

$$h = \frac{2700}{1500}$$

$$h = \frac{9}{5}$$

$$h = 1.8$$

7. The ratio of the number of companies having more demand to those having more production than demand is :

- a. 4 : 1 b. 2 : 2 c. 3 : 2 d. 2 : 3

Answer: Option C

Solution:

Number of companies having more demand than production = 3

Number of companies having more production than demand = 2

∴ Required ratio

= 3 : 2

8. If company A desires to meet the demand by purchasing surplus production of another company, then the most suitable company is :

- a. C b. D c. E d. B

Answer: Option B

Solution:

Difference between demand and production of company A

= 3000 – 1500 = 1500

Difference between production and demand of company D

= 2700 – 1200 = 1500

9. The difference between average demand and average production of five companies taken together is :

- a. 400 b. 280 c. 130 d. 620

Answer: Option B

Solution:

Total production of the five companies

= 1500 + 1800 + 1000 + 2700 + 2200

= 9200

Total demand of the five companies

= 3000 + 600 + 2500 + 1200 + 3300

$$\begin{aligned} &= 10600 \\ \therefore \text{Required difference} \\ &= 1/5(10600 - 9200) = 15 \times 1400 = 280 \end{aligned}$$

10. If x% of demand for company C equals demand for company B, then x equals :

- a. 24 b. 20 c. 60 d. 4

Answer: Option A

Solution:

Given that

x% of demand for company C = Demand for company B

$$\Rightarrow \frac{2500 \times x}{100} = 600$$

$$\Rightarrow 25x = 600$$

$$\Rightarrow x = \frac{600}{25}$$

$$\Rightarrow x = 24$$