GATE And Tech

Analytical Aptitude Quiz
Questions & Answers For GATE 2026

GATE And Tech
(Lakshman Patel)

August 15, 2025

1 Age Relations (10 Questions)

1. A man said to his son, "I was two-third of your present age when you were born". If the present age of the man is **50** years, what is the present age of the son?

   A. 20 years

   B. 15 years

   C. 30 years

   D. 40 years

   Solution:

   Let the Present age of the son be p and The age of the man was $(50 - p)$ [when son was born]

   Given the man's age when the son was born is 2/3 of P

   $(50 - P) = 2/3P$

   $3^*(50 - P) = 2P$

   $3 * 50 - 3p = 2p$

   $150 = 2p + 3p$

   $150 = 5p$

   $p = 150/5 = 30$

   The Present age of the son is 30 years.

   Correct Answer: C

2. The age of the three persons is in the ratio 3 : 5 : 9. Four years ago, the sum of their ages was 39. Six years ago, what are their ages?

   A. 3 years, 9 years, 21 years

   B. 4 years, 9 years, 21 years

   C. 3 years, 10 years, 21 years

   D. 3 years, 9 years, 18 years

   Solution:

   The present ages of the three persons = $3x, 5x, 9x$

   4 years back, the sum of their ages = 39

   4 years back, the ages of the three persons = $(3x-4), (5x-4), (9x-4)$

   [From the given question, we can write]

   $3x-4+5x-4+9x-4=39$

   $17x-12=39$

   $17x=39+12=51$

   $x = 51/17 = 3$

   The present ages of the three persons = $(3*3), (5*3), (9*3) = 9, 15, 27$

   6 years back, their ages = $9-6, 15-6, 27-6 = 3, 9, 21$

   $\therefore$ 6 years back, their ages = 3 years, 9 years, 21 years.

   Correct Answer: A

3. 15 years later, A will be twice as old as B but five years ago *A* was 4 times as old as B. What is the difference between their present ages?

   A. 45

   B. 15

   C. 30

   D. 25

   Solution:

   Let A's age = x years and B's age = y years

   As per the first condition,

   $\therefore (x+15) = 2(y+15)$

   $\Rightarrow x-2y=15$

   As the per second condition,

   $\therefore (x-5) = 4(y-5)$

   $\Rightarrow x-4y=-15$

   Solving (i) and (ii) one get's, $x = 45, y = 15$

   $\therefore$ A's age = **45** years

   B's age = 15 years

   $\therefore$ Difference of their ages =45 – 15 = 30 years.

   Correct Answer: C

4. Ten years ago, the ages of the members of a joint family of eight people added up to 231 years. Three years later, one member died at the age of 60 years and a child was born during the same year. After another three years, one more member died, again at 60, and a child was born during the same year. The current age of this eight-member joint family is nearest to:

   A. 23 years

   B. 22 years

   C. 21 years

D. 24 years

Solution:

Correct Answer: D

5. Dick is thrice as old as Tom and Harry is twice as old as Dick. If Dick's age is 1 year less than the average age of all three, then Harry's age, in years, is _____. (Numerical Answer Type)

Solution:

Let the present ages of Dick, Tom and Harry be D, T, and H years respectively.

According to the question,

- $D = 3T \longrightarrow (1)$
- $H = 2D \longrightarrow (2)$

And, $D = \left(\frac{D+T+H}{3}\right) - 1$

$\Rightarrow D = \left(\frac{D+\frac{D}{3}+2D}{3}\right) - 1$ [$\because$ From equation (1) and (2)]

$\Rightarrow D = \left(\frac{3D+D+6D}{9}\right) - 1$

$\Rightarrow 9D = 10D - 9$

$\Rightarrow \boxed{D = 9 \text{ years}}$

Now, Harry present age $H = 2 \times 9$

$\Rightarrow H = 18$ years.

Correct Answer: 18

6. Arun's present age in years is 40% of Barun's. In another few years, Arun's age will be half of Barun' s. By what percentage will Barun's age increase during this period?

A. 15

B. 25

C. 30

D. None of these

Solution:

Let the present age of Barun's be x years,

Therefore, Arun's Present age = 40% of $x = \frac{40}{100} \times x = \frac{2x}{5}$ years.

Let, after t years Arun's age will be half of Barun's age.

Now, $\frac{2x}{5} + t = \frac{1}{2}(x + t)$

$\Rightarrow \frac{2x+5t}{5} = \frac{x+t}{2}$

$\Rightarrow 4x + 10t = 5x + 5t$

$\Rightarrow x = 5t$

$\therefore$ The Barun's age increased by $= \left[\frac{(x+t)-x}{x}\right] \times 100\% = \frac{t}{x} \times 100\% = \frac{t}{5t} \times 100\% = 20\%$.

Short Method: Let the present age of Barun's be 100 years,

Therefore, Arun's Present age = 40 years.

Let, after t years Arun's age will be half of Barun's age.

Now, $40 + t = \frac{1}{2}(100 + t)$

$\Rightarrow 80 + 2t = 100 + t$

$\Rightarrow t = 20$

$\therefore$ The Barun's age increased by $= \frac{20}{100} \times 100\% = 20\%$.

Correct Answer : D

7. The age of a son, who is more than two years old, is equal to the units digit of the age of his father. After ten years, the age of the father will be thrice the age of the son. What is the sum of the present ages of the son and the father?

   A. 30 years

   B. 36 years

   C. 40 years

   D. Cannot be determined

   Solution:

   Correct Answer: C

8. Jitin's age 3 years from now will be double the average of Jitin's current age and his age 8 years ago. What was Jitin's age 5 years ago?

   A. 7 years

   B. 8 years

   C. 11 years

   D. 6 years

   Solution:

   Let Jitin's current age be a.

   Then, Jitin's age 3 years from now will be $a + 3$.

   The average of Justin's current age and his age 8 years ago is: $(a + (a - 8))/2 = (2a - 8)/2 = a - 4$

   Jitin's age 3 years from now will be double the average of Jitin's current age and his age 8 years ago.

   So, we have:

   $a + 3 = 2(a - 4)$

   $a + 3 = 2a - 8$

   $11 = a$

   Therefore, Jitin's current age is 11 years.

   Jitin's age 5 years ago is $11 - 5 = 6$ years.

   $\therefore$ The answer is 6 years.

   Correct Answer: D

9. The ratio of the ages of A, B and C, 5 years ago, was 4 : 5 : 7. The sum of their present ages is 135 years. What will be the sum of the ages (in years) of B and C, 3 years from now?

   A. 100

   B. 96

   C. 106

   D. 112

   Solution:

   Let the common ratio be Q.

   So, 5 years ago, the ages of A, B, and C are $4Q, 5Q$, and $7Q$ respectively.

   Now, their present ages are $(4Q + 5), (5Q + 5)$, and $(7Q + 5)$ respectively.

   According to the question,

   $(4Q + 5) + (5Q + 5) + (7Q + 5) = 135$

   $\Rightarrow 16Q + 15 = 135$

   $\Rightarrow 16Q = 135 - 15$

   $\Rightarrow 16Q = 120$

   $\Rightarrow Q = 7.5$

The present age of $B = (5 \times 7.5 + 5) = 42.5$ years

The present age of $C = (7 \times 7.5 + 5) = 57.5$ years

Now, 3 years from now, the sum of the ages of B and C

$\Rightarrow (42.5 + 3) + (57.5 + 3)$

$\Rightarrow 106$ years

$\therefore$ After 3 years from now, the sum of the ages of B and C will be 106 years.

Correct Answer: C

10. A man's age is 125% of what it was 10 years ago, but 83(1/3)% of what it will be after 10 years. What is his present age?

A. 40

B. 70

C. 50

D. 60

Solution:

Correct Answer: C

2 Family Relations (5 Questions)

11. 'P # Q' means 'P is the mother of Q'.

'P & Q' means 'P is the father of Q'.

'P @ Q' means 'P is the wife of Q'.

'P % Q' means 'P is the husband of Q'.

If 'U % N # L @ K & F % J', then which of the following statements is INCORRECT?

A. J is the daughter-in-law of K.

B. U is the grandfather of F.

C. L is the son of U.

D. N is the mother-in-law of K.

Solution:

U% N means ' U is the husband of N '.

N# L means ' N is the mother of L '.

L @ K means ' L is the wife of K '.

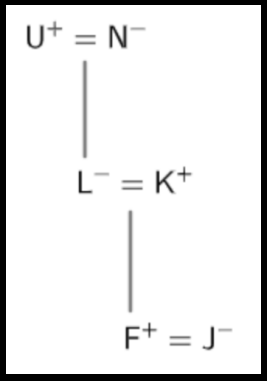
K & F means 'K is the father of F'.

F % J means 'F is the husband of J'.

According to the problem, the family tree is = denotes for wife and husband

+ and - denote male and female respectively

Lines are denoted for children



L is the daughter of U.

Correct Answer: C

12. Pointing to a person, Rahul said, "He is the brother of my father's mother's daughter". How is the person related to Rahul?

A. Aunt

B. Uncle

C. Father

D. Either B or C

Solution:

Rahul's father's mother will be Rahul's grandmother

Rahul's grandmother's daughter will be Rahul's aunt.

Rahul's aunt's brother will be Rahul's father or Rahul's uncle (brother of Rahul's father)

Hence, The person can be either Rahul's father or Rahul's uncle.

Correct Answer: D

13. A woman going with a boy is asked by another woman about the relationship between them. The woman replied, 'My maternal uncle and the uncle of his maternal uncle are the same.' How is the lady related to that boy?

A. Grandmother & Grandson

B. Mother & Son

C. Aunt & Nephew

D. None of these

Solution:

Clearly, the brother of the woman's mother is the same as the brother of the father of boy's maternal uncle.

So, the woman's mother's brother is the boy's maternal uncle's father' Thus, the woman's mother's brother's son is boy's maternal uncle, i.e. woman's mother's brother's daughter is boy's mother. so, the woman and boy's mother are cousins.

Thus, the woman is the boy's aunt.

Correct Answer: C

14. (i) 'A & B ' means ' A is the mother of B ';

(ii) 'A # B ' means ' A is the father of B ';

(iii) 'A @ B' means 'A is husband of B ';

(iv) 'A % B' means A is daughter of B '.

P @ Q & M # T indicates what relationship of P with T ?

A. Paternal Grandmother

B. Maternal grandmother

C. Paternal grandfather

D. Maternal grandfather

Solution:

P @ Q & M # T means P is the husband of Q who is the mother of M who is the father of T i.e. P is the father of T's father ie P is T's paternal grandfather.

Correct Answer: C

15. A is the father of C. But C is not his son. E is the daughter of C. F is the spouse of A. B is the brother of C. D is the son of B. G is the spouse of B. H is the father of G.

    C is A's father's nephew. D is A 's cousin but not the brother of C. How is D related to C?

    A. Father

    B. Sister

    C. Mother

    D. Aunt

    Solution:

    C is A 's father's nephew means C is the son of A 's father's brother i.e., C is the cousin of A. D is also A's cousin. So, D must be the real brother or sister of C. But D is not the brother of C. So, D must be sister of C.

    Correct Answer: B

3 Inequality (10 Questions)

16. The number of distinct integer values of n satisfying $\frac{4-\log_2 n}{3-\log_4 n} < 0$, is _____. (Numerical Answer Type)

    Solution:

    Let $\log_2 n = y$

    $\frac{4-y}{3-\frac{y}{2}} < 0$

    $(4-y)\left(3-\frac{y}{2}\right) < 0$

    $(4-y)(6-y) < 0$

    $(y-4)(y-6) < 0$

    $4 < y < 6$

    $4 < \log_2 n < 6$

    $2^4 < n < 2^6$

    $16 < n < 64$

    n can take values from 17 to 63(inclusive).

    The number of n values possible = 47.

    Correct Answer: 47

17. Among 100 students, x_1 have birthdays in January, X_2 have birthdays in February, and so on. If $x_0 = \max(x_1, x_2, \ldots, x_{12})$, then the smallest possible value of x_0 is _____.

    A. 8

    B. 9

    C. 10

    D. 12

    Solution:

    $x_0 = \max(x_1, x_2, \ldots, x_{12})$

    x_0 will be minimum if $x_1, x_2 \ldots, x_{12}$ are close to each other

    100/12 = 8.33

    $\therefore \max(x_1, x_2, \ldots, x_{12})$ will be minimum if $(x_1, x_2, \ldots, x_{12}) = (9, 9, 9, 9, 8, 8, 8, 8, 8, 8, 8, 8)$.

    Correct Answer: B

18. For real x, the maximum possible value of $\frac{x}{\sqrt{1+x^4}}$ is _____.

    A. $\frac{1}{2}$

    B. 1

C. $\frac{1}{\sqrt{3}}$

D. $\frac{1}{\sqrt{2}}$

Solution:

Now $\frac{x}{\sqrt{1+x^4}} = \frac{1}{\sqrt{\frac{1+x^4}{x^2}}} = \frac{1}{\sqrt{\frac{1}{x^2}+x^2}}$

We are applying A.M ≥ G.M.

$\frac{\left(\frac{1}{x^2}+x^2\right)}{2} \geq 1$ or $\frac{1}{x^2}+x^2 \geq 2$

Substituting we get the maximum possible value of the equation as $\frac{1}{\sqrt{2}}$.

Correct Answer: D

19. Let x, y be two positive numbers such that x + y = 1. Then, the minimum value of $\left(x+\frac{1}{x}\right)^2 + \left(y+\frac{1}{y}\right)^2$ is _____.

A. 12

B. 20

C. 12.5

D. 13.3

Solution:

The sum of two numbers, when their product is known, is minimum when they are equal.

The product of two numbers, when their sum is known, is maximum when they are equal.

$\left(x+\frac{1}{x}\right)^2 + \left(y+\frac{1}{y}\right)^2$

$= \left(x^2+y^2\right) + \frac{x^2+y^2}{x^2y^2} + 4$

This expression is minimum when $\left(x^2+y^2\right)$ is minimum and x^2y^2 is maximum.

We have $x + y = 1$

Squaring,

$x^2 + 2xy + y^2 = 1$

$\therefore x^2 + y^2 = 1 - 2xy$

$x^2 + y^2$ is minimum when xy is maximum.

xy is maximum when $x = y$

∴ For minimum value, both x and y have to be equal.

$\therefore x = y = \frac{1}{2}$

$\because \left(x+\frac{1}{x}\right)^2 + \left(y+\frac{1}{y}\right)^2 = \left(2+\frac{1}{2}\right)^2 + \left(2+\frac{1}{2}\right)^2$

$= (2.5)^2 + (2.5)^2 = 12.5$

Correct Answer: C

20. If $x > 2$ and $y > -1$, Then which of the following statements is necessarily true?

A. $xy > -2$

B. $-x < 2y$

C. $xy < -2$

D. $-x > 2y$

Solution:

$y > -1$

$\therefore -2y < 2 < x$

$\therefore -x < 2y$

Correct Answer: B

21. Which of the following values of x do not satisfy the inequality $\left(x^2 - 3x + 2 > 0\right)$ at all?

A. $1 \leq x \leq 2$

B. $-1 \geq x \geq -2$

C. $0 \leq x \leq 2$

D. $0 \geq x \geq -2$

Solution:

If we simplify the expression $x^2 - 3x + 2 > 0$, we get $(x-1)(x-2) > 0$.

For this product to be greater than zero, either both factors should be greater than zero or both of them should be less than zero.

Therefore, $(x-1) > 0$ and $(x-2) > 0$ or $(x-1) < 0$ and $(x-2) < 0$.

Hence, $x > 1$ and $x > 2$ or $x < 1$ and $x < 2$.

If we were to club the ranges, we would get either $x > 2$ or $x < 1$. So for any value of x equal to or between 1 and 2, the above equation does not follow.

Correct Answer: A

22. The minimum possible value of $\frac{x^2 - 6x + 10}{3 - x}$, for $x < 3$, is _____.

A. -2

B. $\frac{1}{2}$

C. 2

D. $-\frac{1}{2}$

Solution:

We have $\frac{x^2-6x+10}{3-x}$

$= \frac{(x-3)^2+1}{3-x}$

$= \frac{(x-3)^2}{3-x} + \frac{1}{3-x}$

$= (3-x) + \frac{1}{3-x}$

Here, since $x < 3, 3 - x > 0$

Also, we know that the sum of a positive number and its reciprocal is always greater than or equal to 2.

$\Rightarrow (3-x) + \frac{1}{3-x} \geq 2$

Correct Answer: C

23. Let N, x and y be positive integers such that $N = x + y, 2 < x < 10$ and $14 < y < 23$. If $N > 25$, then how many distinct values are possible for N?

A. 5

B. 7

C. 8

D. 6

Solution:

Given, $2 < x < 10$

x can take any of the values from $\{3, 4, 5, 6, 7, 8, 9\}$

Also, $14 < y < 23$

y can take any of the values from $\{15, 16, 17, 18, 19, 20, 21, 22\}$

The highest value N (i.e., x + y) can take = 9 + 22 = 31(when $x = 9; y = 22$)

The lowest value N (i.e., $x + y$) can take = 3 + 15 = 18(when $x = 3; y = 15$)

But, $N = x + y > 25$. Hence the different values of $x + y$ are $\{31, 30, 29, 28, 27, 26\}$.

Hence, $x + y$, and thereby N can take 6 distinct values.

Correct Answer: D

24. If x is a real number, then $\sqrt{\log_e\left(\frac{4x-x^2}{3}\right)}$ is a real number if and only if

A. $-3 \leq x \leq 3$

B. $1 \leq x \leq 2$

C. $1 \leq x \leq 3$

D. $-1 \leq x \leq 3$

Solution:

It is given that, $\sqrt{\log_e\left(\frac{4x-x^2}{3}\right)}$ is a real number

Therefore, $\log_e\left(\frac{4x-x^2}{3}\right) \geq 0$

$\Rightarrow \frac{4x-x^2}{3} \geq 1$

$\Rightarrow 4x - x^2 \geq 3$

$\Rightarrow x^2 - 4x + 3 \leq 0$

$\Rightarrow (x-1)(x-3) \leq 0$

$\Rightarrow x \in [1, 3]$

Correct Answer: C

25. If $f(x) = x^3 - 4x + p$, and $f(0)$ and $f(1)$ are of opposite signs, then which of the following is necessarily true?

A. $-1 < p < 2$

B. $0 < p < 3$

C. $-2 < p < 1$

D. $-3 < p < 0$

Solution:

$f(x) = x^3 - 4x + p$

$\therefore f(0) = p$ and $f(1) = p - 3$

$p - 3 < p$

As p and p – 3 are of opposite signs, p – 3 < 0 and p > 0.

$\therefore p < 3$ and $p > 0$

$\therefore 0 < p < 3$

Correct Answer: B

4 Direction Sense (10 Questions)

26. Ramlal walked 25 metres towards South. Then he turned to his left and walked 20 metres. He then turned to his left and walked 25 metres. He again turned to his right and walked 15 metres. At what distance is he from the starting point and in which direction?

A. 35 metre, North

B. 30 metre, South

C. 35 metre, East

D. 30 metre, North

Solution:

Correct Answer: C

27. Mohan is facing north-west. He turns 90° in the clockwise direction, then 180° in the anticlockwise direction, and then another 90° in the same direction. Which direction is he facing now?

A. South

B. South-west

C. South-east

D. East

Solution:

Correct Answer: C

28. A clock is so placed that at 12 noon its minute hand points towards North-East. In which direction does its hour hand point at 1:30 pm?

A. North

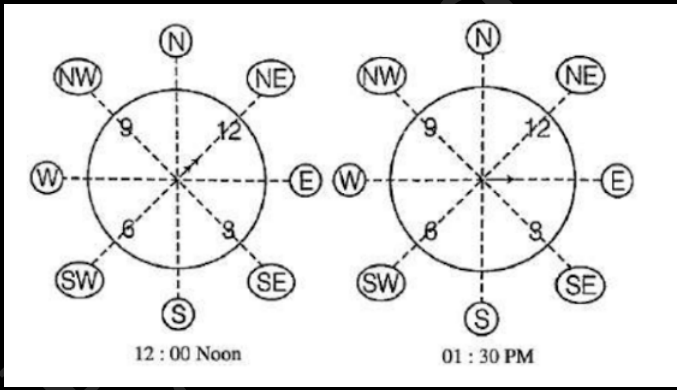
B. South

C. East

D. West

Solution:

In this question, the clock is placed, so that at 12 noon its minute hand point towards North-East. We know that, minute and hour hand point in the same direction at 12 noon. Therefore, the clock will look somewhat like this



At 1 : 30pm, the hour hand will point in the East direction.

Correct Answer: C

29. A girl is facing North. She turns 180° in the anti-clockwise direction and then 225° in the clockwise direction. Which direction is she facing now?

A. West

B. North-East

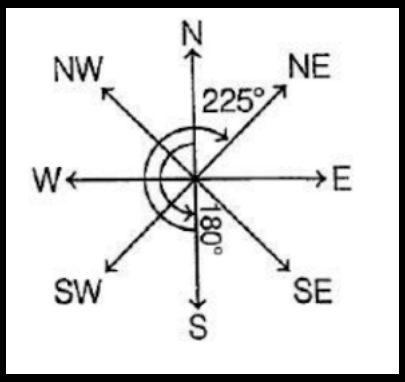
C. South-West

D. East

E. North-West

Solution:

The girl turns 180° in the anti-clockwise direction and then 225° in the clockwise direction, which means she finally turns 45° in the clockwise direction.



Initially, she was facing North. So, now she is facing North-East direction.

Correct Answer: B

30. A person walks towards his house at 8:00 am and observes his shadow to his right. In which direction he is walking?

A. North

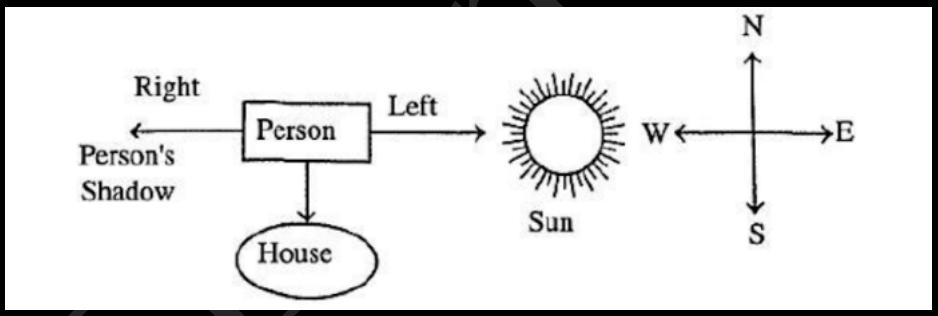
B. South

C. East

D. West

Solution:

At 8:00 am the Sun is in the East direction.



Clearly, the person is walking towards the South direction.

Correct Answer: B

31. Seven poles A, B, C, D, E, F, and G are put in such a way that the distance between the next two decreases by 1 meter. The distance between the first two poles, A and B, is 10 meters.

If a monkey hops from pole G to pole C, then how much distance did it cover?

A. 26 m

B. 19 m

C. 22 m

D. 25 m

Solution:

Correct Answer: A

32. The following question is based on the following information:

(a) Six flats on a floor in two rows facing North and South are allotted to P, Q, R, S, T and U.

(b) Q gets a north-facing flat and is not next to S.

(c) *S* and *U* get diagonally opposite flats.

(d) R next to U, gets a south facing flat and T gets North facing flat.

The flats of which of the other pair than SU, is diagonally opposite to each other?

A. QP

B. QR

C. PT

D. TS

Solution:

Correct Answer: A

33. Dev, Kumar, Nilesh, Ankur and Pintu are standing facing to the North in a playground such as given below:

(a) Kumar is at 40 m to the right of Ankur.

(b) Dev is are 60 m in the south of Kumar.

(c) Nilesh is at a distance of 25 m in the west of Ankur.

(d) Pintu is at a distance of 90 m in the North of Dev.

If a boy starting from Nilesh, met to Ankur and then to Kumar and after this he to Dev and then to Pintu and whole the time he walked in a straight line, then how much total distance did he cover?

A. 215 m

B. 155 m

C. 245 m

D. 185 m

Solution:

Correct Answer: A

34. The following question is based on the following information:

(a) A # B means B is at 1 metre to the right of A.

(b) A $ B means B is at 1 metre to the North of A.

(c) $A * B$ means B is at 1 metre to the left of A.

(d) A @ B means B is at 1 metre to the south of A.

(e) In each question first person from the left is facing North.

According to $P\#R\$A * U$, in which direction is U with respect to P?

A. East

B. West

C. North

D. South

Solution:

Correct Answer: C

35. In a row of twenty-five children facing South R is sixteenth from the right end and B is eighteenth from the left end. How many children are there between R and B?

A. 2

B. 3

C. 4

D. None of these

Solution:

Total number of children in the row = 25

Position of R from right end = 16th

Position of B from left end = 18th

$\Rightarrow$ Position of B from right end = $(25 - 18) + 1 = 8$th

$\therefore$ Number of children between R and $B = (16 - 8) - 1 = 7$

Correct Answer: D

5 Round Table Arrangement (10 Questions)

36. 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 opposite to Priti?

A. Mukesh

B. Deepa

C. Pankaj

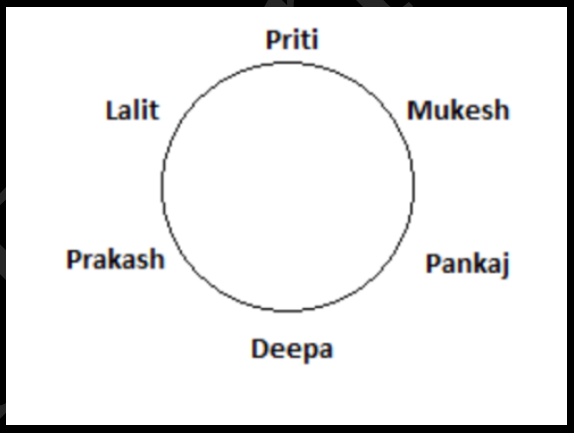
D. Lalit

Solution:

The data given to us is:

Deepa is between Prakash and Pankaj. Priti is between Mukesh and Lalit. Prakash and Mukesh are opposite to each other.

This can be interpreted in diagrammatic form as:



Therefore, Deepa is sitting opposite to Priti.

Correct Answer: B

37. (i) Six friends A, B, C, D, E and F are seated in a circle facing each other.

(ii) A is between D and B and F is between C and E

(iii) C is the third to the left of B

Which of the following is the position of A in relation to F?

A. Second to the left

B. Second to the right

C. third to the right

D. Fourth to the left

Solution:

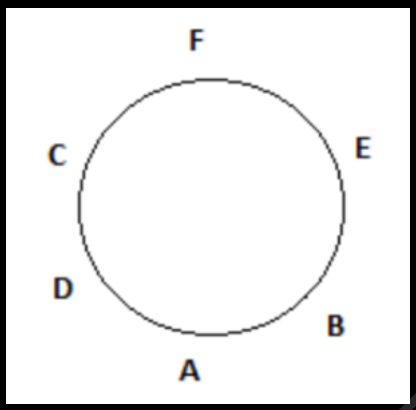
The data given to us is:

(i) Six friends A, B, C, D, E and F are seated in a circle facing each other.

(ii) A is between D and B and F is between C and E

(iii) C is the third to the left of B

Now, we can represent this in diagrammatic form as:



Hence, A is fourth to the left of A.

Correct Answer: D

38. At a meeting, 6 people are to be seated around a circular table. Two seating arrangements are considered different only when the positions of the people are different relative to each other. What is the total number of different possible seating arrangements for the group?

A. 72

B. 120

C. 144

D. 720

Solution:

We have a case of circular arrangement.

The number of arrangements of n distinct objects in a row is given by $n!$.

The number of arrangements of n distinct objects in a circle is given by $(n-1)!$.

The difference between placement in a row and that in a circle is the following: if we shift all objects by one position, we will get a different arrangement in a row but the same relative arrangement in a circle.

So, for the number of circular arrangements of n objects, we have:

$R = \frac{n!}{n} = (n-1)!$

$(n-1)! = (6-1)! = 120$

Correct Answer: B

39. Seven family members are seated around their circular dinner table. If only arrangements that are considered distinct are those where family members are seated in different locations relative to each other, and Michael and Bobby insist on sitting next to one another, then how many distinct arrangements around the table are possible?

A. 120

B. 240

C. 360

E. 720

Solution:

Let's consider Michael and Bobby as one individual and fix their position so that all the members do NOT move together while they remain in the same order relatively.

Now after fixing Michael and Bobby, we have 5 other members left to change their positions among themselves which can change positions in 5! ways.

but Michael and Bobby's exchange positions the two in 2! ways.

Hence, the total ways of different arrangements = $5! \times 2! = 120 \times 2 = 240$.

Correct Answer: B

40. At a dinner party 5 people are to be seated around a circular table. Two sitting arrangements are considered different only when the positions of the people are different relative to each other. What is the total number of possible seating arrangements for the group?

A. 5

B. 10

C. 24

D. 32

Solution:

Since the arrangement is circular and 2 seating arrangements are considered different only when the positions of the people are different relative to each other, we can find the total number of possible seating arrangements, by fixing one person's position and arranging the others.

Thus if one person's position is fixed, the others can be arranged in 4! ways.

Correct Answer: C

41. In how many different ways can 4 ladies and 4 gentlemen be seated at a round table so that all ladies sit together?

A. 70

B. 288

C. 576

D. 10,080

Solution:

Since the four women must be together there are ${}^4C_4$ ways we can choose seats for them.

Permutation:

Among the women, there are 4! ways we can arrange them.

Likewise, among men, there are 4! ways that they can be arranged

$4!x4! = 576$.

Correct Answer: C

42. A group of 8 friends sit together in a circle. If *A* refuses to sit beside *B* unless *C* sits on the other side of *A* as well, how many possible seating arrangements are possible?

A. 3600

B. 3840

C. 4440

D. 31,680

Solution:

The number of ways A and B can sit together with C not on A's side.

Considering AB as one unit, they can take any position. The place next to A can be filled in 5 ways (excluding C).

AB can be seated in 2 ways.

The rest of the chairs can be filled in 5! Ways.

So, the total number of ways = $2 * 5 * 5! = 1200$

Total number of ways 8 people can be seated = 7!

So, required number of ways = $7! - 1200 = 3840$.

Correct Answer: B

43. Seven men and five women have to sit around a circular table so that no 2 women are together. In how many different ways can this be done?

    A. 86,400

    B. 172,800

    C. 518,400

    D. 1,814,400

    Solution:

    The number of arrangements of 7 men around a table is $(7-1)! = 6!$;

    There will be 7 possible places for women between them, 7 empty slots.

    The number of ways to choose in which 5 slots women will be placed is ${}^5C_7 = 21$;

    The number of arrangements of 5 women in these slots is 5!;

    So total: $6! * 21 * 5! = 1,814,400$.

    Correct Answer: D

44. There are six persons sitting around a round table. Pankaj is sitting left of Dayanand who is facing Kundan. Ranjan is sitting right to Dayanand. Yash is sitting left of Pankaj and Abhishek is sitting right of Ranjan. If Pankaj and Ranjan swap their position and Yash and Abhishek also swap their position, then who will be to the left of Abhishek?

    A. Kundan

    B. Yash

    C. Dayanand

    D. Pankaj

    Solution:

    Correct Answer: A

45. A, B, C, D, E, F, G, and H are sitting around a circular table facing the center not necessarily in the same order. F is fourth to the left of A and second to the right of C. B is second to the left of A, and A is to the immediate right of G. E who is not an immediate neighbour of B is fourth to the left of D.

    Who is the immediate right of F?

    A. D

    B. H

    C. B

    D. C

    Solution:

    Correct Answer: A

6 Logical Reasoning (10 Questions)

46. Argument: "Many companies require job applicants to have a college degree. However, studies show that the skills required for most jobs can be learned on the job or through vocational training. Therefore, companies should not require a college degree for employment."

    Question: Which of the following, if true, would most strengthen the argument?

    A. Companies that do not require a college degree have a higher employee turnover rate.

    B. Many successful employees do not have a college degree.

    C. Vocational training programs are more cost-effective than college education.

    D. Job applicants with college degrees tend to have higher starting salaries.

    Solution:

The argument is that companies should not require a college degree because skills can be learned on the job or through vocational training. To strengthen this argument, we need evidence that supports the effectiveness of vocational training or on-the-job learning compared to a college degree.

Answer choice: B. This choice strengthens the argument by showing that many successful employees do not have a college degree, indicating that a degree is not necessary for job success.

Correct Answer: B

47. Argument: "Attendance at the city's annual arts festival has been declining over the past few years. To increase attendance, the organizers should consider lowering the ticket prices."

Question: Which of the following, if true, most seriously weakens the argument?

A. The arts festival features popular artists and performers.

B. The festival is held at a time of year when many residents are on vacation.

C. Surveys indicate that most people who attended the festival thought the ticket prices were reasonable.

D. Other cities with lower ticket prices for similar festivals have also seen declining attendance.

Solution:

The argument suggests lowering ticket prices to increase attendance. To weaken this argument, we need evidence that lowering prices would not necessarily lead to higher attendance.

Answer choice: C. This choice weakens the argument by showing that people who attend the festival do not find the ticket prices to be an issue, suggesting that lowering prices may not impact attendance.

Correct Answer: C

48. Some fish, which one caught more fish?

(1) Jim caught 2/3 as many fish as Tom.

(2) After Tom stopped fishing, Jim continued to fish until he caught 12 fish.

A. Statement (1) ALONE is sufficient but statement (2) ALONE is not sufficient.

B. Statement (2) ALONE is sufficient but statement (1) ALONE is not sufficient.

C. BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

D. EACH statement ALONE is sufficient.

Solution:

Statement (1) indicates that Jim caught fewer fish than Tom.

Therefore, (1) alone is sufficient to answer the question, and the answer must be A or D. Statement (2) gives no information about the number of fish Tom caught. Therefore, (2) alone is not sufficient.

Correct Answer: A

49. Which of the following best completes the passage below? In a survey of job applicants, two-fifths admitted to being at least a little dishonest. However, the survey may underestimate the proportion of job applicants who are dishonest, because _____.

A. some dishonest people taking the survey might have claimed on the survey to be honest

B. some generally honest people taking the survey might have claimed on the survey to be dishonest

C. some people who claimed on the survey to be at least a little dishonest may be very dishonest

D. some people who claimed on the survey to be dishonest may have been answering honestly

Solution:

If applicants who are in fact dishonest claimed to be honest, the survey results would show a smaller proportion of dishonest applicants than actually exists. Therefore, this choice is the best answer.

B is inappropriate because generally honest applicants who claimed to be dishonest could contribute to the overestimation, but not to the underestimation, of dishonest applicants.

D is inappropriate because applicants who admitted their dishonesty would not contribute to an underestimation of the proportion of dishonest applicants.

C is inappropriate because the argument is concerned neither with degrees of dishonesty nor with the honesty of non-applicants.

Correct Answer: A

50. The average life expectancy for the United States population as a whole is 73.9 years, but children born in Hawaii will live an average of 77 years, and those born in Louisiana, 71.7 years. If a newlywed couple from Louisiana were to begin their family in Hawaii, therefore, their children would be expected to live longer than would be the case if the family remained in Louisiana.

    Which of the following statements, if true, would most significantly strengthen the conclusion drawn in the passage?

    A. As population density increases in Hawaii, life expectancy figures for that state are likely to be revised downward.

    B. Environmental factors tending to favor longevity are abundant in Hawaii and less numerous in Louisiana.

    C. Twenty-five percent of all Louisianans who move to Hawaii live longer than 77 years.

    D. Over the last decade, average life expectancy has risen at a higher rate for Louisianans than for Hawaiians.

    Solution:

    If *B* is true, the greater abundance of longevity-promoting environmental factors it mentions is probably at least partly responsible for the higher life expectancy in Hawaii. Children born in Hawaii benefit from these factors from birth, and thus Louisianans who have children in Hawaii increase their children's chances of living longer. Therefore, B is the best answer.

    If life expectancy in Hawaii is likely to be falling, as A says, the argument is weakened rather than strengthened.

    C in the absence of other relevant information, have no bearing on the conclusion; thus, it is inappropriate.

    D is irrelevant, because the information it mentions about rates would already have been incorporated into the statistics cited in the passage.

    Correct Answer: B

51. Insurance Company *X* is considering issuing a new policy to cover services required by elderly people who suffer from diseases that afflict the elderly. Premiums for the policy must be low enough to attract customers. Therefore, Company *X* is concerned that the income from the policies would not be sufficient to pay for the claims that would be made.

    Which of the following strategies would be most likely to minimize Company X's losses on the policies?

    A. Attracting middle-aged customers unlikely to submit claims for benefits for many years.

    B. Insuring only those individuals who did not suffer any serious diseases as children.

    C. Including a greater number of services in the policy than are included in other policies of lower cost.

    D. Insuring only those individuals who were rejected by other companies for similar policies.

    Solution:

    Insurance companies can improve the ratio of revenues to claims paid, thus minimizing losses, if they insure as many people belonging to low-risk groups as they can. Because the strategy described in A adds a low-risk group to the pool of policyholders, this choice is the best answer.

    B is irrelevant, since no link is established between childhood diseases and diseases affecting the elderly.

    C is inappropriate, since increasing the number of services covered is unlikely to minimize losses.

D is inappropriate, since it would increase the likelihood that claims against the policy will be made. Because policyholders will file claims against the policy for services covered rather than pay for the cost of the services themselves.

Correct Answer: A

52. Four friends John, Mike, Lewis and Peter went on a picnic and they participated in four adventure sports Paragliding, Skiing, Bungee Jumping and Rock climbing. Further the following information is known about them:

i. The number of persons who participated in Skiing is one more than that of those who participated in Bungee Jumping and Rock Climbing, which, in turn, is same as that of those who participated in Paragliding, which, in turn, is twice that of those who participated in Rock Climbing.

ii. Every person participated in at least one event and each sport was taken up by at least one person.

iii. John participated in Skiing but not in Rock Climbing while Lewis participated in Bungee Jumping but not in Paragliding.

iv. None of them participated in both Bungee Jumping and Rock Climbing.

v. Peter participated in three sports.

vi. Between Skiing and Paragliding, Mike participated in exactly one sport.

If Lewis participated in two sports, which of the following is definitely false?

A. Mike did not participate in Skiing.

B. John participated in Paragliding.

C. Lewis participated in Skiing.

D. Mike participated in Paragliding.

Solution:

Correct Answer: B (Needs To verify)

53. The following is the table of points drawn at the end of all matches in a six-nation Hockey tournament, in which each country played with every other country exactly once. The table gives the positions of the countries in terms of their respective total points scored(i.e., in the decreasing order of their total points). Each win was worth three points, each draw one point, and there were no points for a loss. Some information in the table has been intentionally left out. The results of none of the individual matches are known, except that Pakistan beat India and no two teams finished with the same number of points.

Position	Country	Won	Drawn	Lost	Goals For	Goals Against	Total Points
1	Australia				17	5	15
2	Netherlands				9	6	10
3	Pakistan					2	8
4	India				2	5	
5	South Korea			7	11	2	
6	Spain				8	16	

The total number of points won by India is _____.

A. 5

B. 6

C. 7

D. Cannot be determined

Solution:

Correct Answer: C (Needs To verify)

54. Answer the question on the basis of the information given below. A study was conduced to ascertain the relative importance that employees in five different countries assigned to five different traits in their Chief Executive officers. The traits were compassion (C), decisiveness (D), negotiation skills (N), public visibility (P), and vision (V). The level of dissimilarity between two countries is the maximum difference in the ranks allotted by the two countries to any of the five traits. The following table indicates the rank order of the five traits for each country.

Rank	India	China	Japan	Malaysia	Thailand
1	C	N	D	V	V
2	P	C	N	D	C
3	N	P	C	P	N
4	V	D	V	C	P
5	D	V	P	N	D

Which of the following countries is least dissimilar to India?

A. China

B. Japan

C. Malaysia

D. Thailand

Solution:

Correct Answer: D (Needs To verify)

55. Read the following information carefully and answer the question based on that.

Two teams of five each must be selected from a group of ten persons. A through J of which A, E and G are doctors; D, H and J are lawyers; B and I are engineers; C and F are managers. It is also known that

i. Every team must contain persons of each of the four professions.

ii. C and H cannot be selected together.

iii. I cannot be selected into a team with two lawyers.

iv. J cannot be in a team with two doctors.

v. A and D cannot be selected together.

If C and G are in different teams, then who are the other team members of A?

A. C, D, E and I

B. B, F, I and J

C. B, C, H and J

D. F, H, I and G

Solution:

Correct Answer: B

7 Clock Time (10 Questions)

56. The angle between the hands of the clock at 2:30 p.m. in degrees is _____.

A. 105°

B. 95°

C. 85°

D. 115°

Solution:

Minute hand covers 360° in 60 minutes.

Hour hand covers $360°$ in $12 \times 60 = 720$ minutes

$\therefore$ In 1 minute hour hand and minute hand covers $6°$ and $0.5°$ respectively.

Now At 2 : 00 angle difference = $60°$ and relative difference= $5.5°$

$\therefore$ At 2 : 30 difference = $30 \times 5.5 - 60 = 105°$.

Correct Answer: A

57. It takes a pendulum of a clock 7 seconds to strike 4 o'clock. How much time will it take to strike 11 o'clock?

A. 18 seconds

B. 20 seconds

C. 19.25 seconds

D. 23.33 seconds

Solution:

It is based on a simple unitary method.

To reach 4 o'clock it takes = 7 *s*

Hence to reach 1 o'clock it takes = (7/4) *s*

Hence to reach 11 o'clock it takes = (77/4) *s* = 19.25 *s*.

Correct Answer: C

58. At what time between 7 and 8 o'clock will the hands of a clock be in the same straight line but, not together?

A. 5 min. past 7

B. $5\frac{2}{11}$ min. past 7

C. $5\frac{3}{11}$ min. past 7

D. $5\frac{5}{11}$ min. past 7

Solution:

At 7'o clock the minute hand and hour hand are separated by 25 minutes distance. They come in a straight line when this separation is 30 minutes - so the minute hand (it moves faster) needs to gain 5 5-minutes distance.

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

1 minute gain $\frac{60}{55}$

5 minuntes gain $\frac{60}{55} \times 5 = 5\frac{5}{11}$ minuntes

Correct Answer: D

59. A watch which gains 5 seconds in 3 minutes was set right at 7 a.m. In the afternoon of the same day, when the watch indicated quarter past 4 o'clock, the true time is:

A. $59\frac{7}{12}$ min. past 3

B. 4 p.m.

C. $58\frac{7}{11}$ min. past 3

D. $2\frac{3}{11}$ min. past 4

Solution:

Gains 5 seconds in 3 minutes.

So, the speed of the clock = 185/180 = 37/36 to a correct clock.

Distance moved = 7 am to 4:15 pm = 9 hrs 15 minutes = 555 minutes.

Distance moved by a correct clock = 555 * 36/37 = 15 * 36 = 540 minutes = 9 hours.

So, the correct time is 4 pm.

Correct Answer: B

60. The minute hand of a clock overtakes the hour hand at intervals of 64 minutes of correct time. How much does the clock gain or lose in 12 hours?

A. 16(5/11) min

B. 16(4/11) min

C. 16(6/11) min

D. 16(7/11) min

Solution:

60 min are gained in $(60/55) \times 60 = 65(5/11)$ minutes

But they are together after 64 minutes

Gain in 65 minutes $= 65(5/11) - 64 = (16/11)$ minutes

Gain in 12 hours $= (16/11) \times (12 \times 60/64) = 180/11 = 16(4/11)$ minutes

Correct Answer: B

61. An antique store has a collection of eight clocks. At a particular moment, the displayed times on seven of the eight clocks were as follows: 1:55 pm, 2:03 pm, 2 : 11pm, 2:24 pm, 2:45 pm, 3:19 pm, and 4:14 pm. If the displayed times of all eight clocks form a mathematical series, then what was the displayed time on the remaining clock?

A. 1 : 53 pm

B. 1 : 58 pm

C. 2 : 18 pm

D. 3 : 08 pm

Solution:

Let us find out the difference between the times given to figure out the pattern.

The times given are 1:55 pm, 2:03 pm, 2:11 pm, 2:24 pm, 2:45 pm, 3:19 pm and 4:14 pm.

The difference between 2 consecutive times given are 8 minutes, 8 minutes, 13 minutes, 21 minutes, 34 minutes, and 55 minutes.

We can observe that the difference between the times are in the Fibonacci series.

$8 + 13 = 21$

$21 + 13 = 34$

$34 + 21 = 55$

The Fibonacci series is as follows:

1,1,2,3,5,8,13,21,34,55.

But the first difference in the times given is 8.

Therefore, the missing time must be such that it divides the interval of 8 minutes into 3 minutes and 5 minutes.

The missing time should be 1 : 58 pm.

Correct Answer: B

62. Alarms from 3 different clocks sound after every 2, 4, and 6 hours, respectively. If the clocks are started at the same time, how many times do the alarms ring together in 3 days?

A. 6

B. 3

C. 9

D. 2

Solution:

The alarms ring together every $\text{LCM}(2, 4, 6) = 12$ hours.

In 3 days (72 hours), the number of times they ring together is $= \frac{72}{12} = 6$.

Correct Answer: A

63. In Ravi's clock shop, two clocks were brought for repairs. One clock has the cuckoo coming out every sixteen minutes, while the other one has the cuckoo coming out every eighteen minutes. Both cuckoos come out at 12.00 noon. When will they both come out together again?

    A. 2.06 PM

    B. 2.08 PM

    C. 2.24 PM

    D. 2.32 PM

    Solution:

    Time after cuckoo comes in first clock = 16 min

    Time after cuckoo comes in second clock = 18 min

    Time after cuckoo will come together in both = L.C.M. $(16, 18) = 144$ min $= 2 : 24$ min

    They will both come out together again $= 12 + 2 : 24 = 2 : 24$ PM

    Correct Answer: C

64. A clock gains five minutes every hour. What will be the angle traversed by the second hand in one minute?

    A. 360°

    B. 360.5°

    C. 390°

    D. 380°

    Solution:

    This clock moves 65 minutes for every 60 minutes.

    Each hand moves $= \frac{65}{60}$ as far as it should.

    A correct second hand moves 360° in one minute.

    This second hand moves $= \frac{65}{60} \times 360° = 390°$ in one minute.

    Correct Answer: C

65. If a clock is kept on the table in such a way that at 3:10 pm the hour hand points south, after how much time will the minute hand point east?

    A. 20 minutes

    B. 35 minutes

    C. 50 minutes

    D. 90 minutes

    Solution:

    If at 3:10 the hour hand is pointing south then 3 points South, 6 points West, 9 points North, and 12 points East.

    Thus, after 50 minutes the minute hand will point 12 and thus East.

    Correct Answer: C

8 Calendar (10 Questions)

66. If 29 January 2003 is a Wednesday, then what day of the week will be 26 February 2005?

    A. Thursday

    B. Saturday

    C. Friday

    D. Sunday

Solution:

Given, that 29 January 2003 is a Wednesday

Number of days between 29 January 2003 and January 292004 = 365 days

Number of days between 29 January 2004 and January 292005 = 366 days

Number of days between 29 January 2005 and 26 February 2005 = 28 days

Number of days between 29 January 2003 and 26 February 2005 = 365 + 366 + 28 = 759 days

Number of odd days between 29 January 2003 and 26 February 2005 = Remainder of $\frac{759}{7} = 3$

∴ The day on 26 February 2005 = Wednesday +3 = Saturday.

Correct Answer: B

67. What day of the week was 5 February 2008?

A. Thursday

B. Monday

C. Tuesday

D. Wednesday

Solution:

Odd days in year 2007 = 6 + 2 = 8 (∵ 2004 is the leap year and odd days till 2000 is 0.)

Odd days in 5 February = odd days in January +5 = 3 + 5 = 8

Total odd days = 8 + 8 = 16

Odd days = 16 = 2 weeks +2 odd days

So, the day of the week was Tuesday.

Correct Answer: C

68. If it was a Saturday on 10 November 2018, what was the day of the week on 15 August 2017?

A. Monday

B. Tuesday

C. Sunday

D. Friday

Solution:

Given, 10 November 2018 was Saturday

Number of days between 15 August 2017 and 15 August 2018 = 365 days

Number of days between 15 August 2018 and 10 November 2018 = 16 + 30 + 31 + 10 = 87 days

Number of days between 15 August 2017 and 10 November 2018 = 452 days

Number of odd days between 29 January 2003 and 26 February 2005 = Remainder of $\frac{452}{7} = 4$

∴ The day on 15 August 2017 = Saturday - 4 = Tuesday.

Correct Answer: B

69. If 5^{th} May 2010 is Wednesday, then what will be the day of the week on 5^{th} June 2022?

A. Tuesday

B. Monday

C. Wednesday

D. Sunday

Solution:

Given: 5th May 2010 was Wednesday.

Now, 2010 to 2022 = 12 Years (9 Ordinary Years and 3 Leap Years).

And, In 12 Years = 3 Leap years and 9 Ordinary Years.

So, 3 Leap Years have 6 odd days,

And, 9 Ordinary Years have 9 odd days.

Total odd days = 6 + 9 = 15.
15 odd days → 15/7 = 2 weeks and 1 odd day.

Then, 5th May 2022 will be Wednesday + 1 = Thursday.

Now, the number of days between 5th May 2022 to 5th June 2022

= 26(May) + 5(June) = 31 days.

= 31 days → 31/7 = 4 weeks and 3 odd days.

So, 5th June 2022 will be Thursday + 3 = Sunday.

Correct Answer: D

70. Sarah notices that her birthday falls on the same day of the week every year. If her birthday was on a Thursday this year, what day of the week would it be in five years?

A. Friday

B. Monday

C. Tuesday

D. Wednesday

Solution:

Sarah's birthday is on a Thursday this year.

In the first year (next year), her birthday will be on Thursday + 1 day = Friday.

In the second year, her birthday will be on Friday + 1 day = Saturday.

In the third year, her birthday will be on Saturday + 1 day = Sunday.

In the fourth year (leap year), her birthday will be on Sunday + 2 days = Tuesday.

In the fifth year, her birthday will be on Tuesday + 1 day = Wednesday.

Therefore, in five years, Sarah's birthday will fall on a Wednesday.

Correct Answer: D

71. Number of times 29^{th} day of the month occurs in 400 consecutive year is _____.

A. 4400

B. 4497

C. 4800

D. 4600

Solution:

400 consecutive years contain 97 leap years.

$\therefore$ In 400 consecutive years February has 29 days 97 times and the remaining 11 months have 29th day $400 \times 11 = 4400$ times

$\therefore$ 29th day of the month occurs $4400 + 97 = 4497$ times.

Correct Answer: B

72. Monday falls on 20^{th} March, 1995. What was the day of 3^{rd} November, 1994?

A. Sunday

B. Tuesday

C. Thursday

D. Friday

Solution:

Number of days after 3^{rd} November, 1994 will be

Nov. Dec. Jan. Feb. March

$27 + 31 + 31 + 28 + 20 = 137$ days $\Rightarrow$ 19 weeks +4 days

$\therefore$ Number of odd days = 4.

$\therefore$ The day on 3rd November, 1994 is (7 – 4) days beyond the day on 20th March, 1995.

So, the required day is Thursday.

Correct Answer: C

73. What was the day of the week on 28^{th} February, 1995?

A. Monday

B. Tuesday

C. Wednesday

D. Thursday

Solution:

1600 years contain 0 odd day.

300 years contain 1 odd day.

94 years = (23 leap years +71 ordinary years)

= (46 + 71) odd days

= 117 odd days, i.e., 5odd days.

Days from 1st January 1995 to 28th February 1995

= (31 + 28) days = 59 days

= (8 weeks +3 days) = 3 odd days

Total number of odd days = (0 + 1 + 5 + 3) = 9 odd days

i.e., 2 odd days.

So, the required day is Tuesday.

Correct Answer: B

74. January 1, 1992, was Wednesday. What day of the week was January 1, 1993?

A. Monday

B. Tuesday

C. Thursday

D. Friday

Solution:

1992 was a leap year.

Hence it had 2 odd days.

So, the first day of the year 1993 must be two days after Wednesday.

So, it was Friday.

Correct Answer: D

75. Today is Ram's birthday which falls on Wednesday, Gopal's birthday falls after **50** days after Ram's birthday. On which day Gopal's birthday falls?

A. Monday

B. Thursday

C. Sunday

D. Wednesday

Solution:

Every day of the week is repeated after 7 days. Hence, it will be Wednesday after 49 days.

Because $7 \times 7 = 49$. After this one more day means Thursday.

So, Gopal's birthday falls on Thursday.

Correct Answer: B

9 Ordering and Ranking (10 Questions)

76. Rajiv is fifth from the front in a line of students while his brother Sanjay is sixteenth from the back. Praveen is exactly in the middle of Rajiv and Sanjay. If the total number of students in the row is 52, what is the position of Praveen from the front?

    A. 26

    B. 21

    C. 18

    D. 25

    Solution:

    The position of Sanjay from the front is $52 - 16 + 1 = 37$.

    Hence, the position of Praveen is $(5 + 37)/2 = 21$.

    Correct Answer: B

77. The ranks of two students differ by 5. If the better rank from the top is 23, and the number of students in the class is 67, what are the ranks of the two students from the bottom?

    A. 45, 39

    B. 46,40

    C. 46,41

    D. 45,40

    Solution:

    The two ranks from the top are 23 and 28.

    So, the ranks from the bottom are $67 - 23 + 1$ and $67 - 28 + 1 = 45$ and 40 respectively.

    Correct Answer: D

78. Anil and Mukesh are standing in a queue. Anil's position from the front is 15 and Mukesh's position from the front is 18. If they interchange their positions, Anil's position from behind becomes 15. What is the original position of Anil from behind?

    A. 17

    B. 16

    C. 18

    D. 15

    Solution:

    The number of people before Anil is 14.

    The number of people between Anil and Mukesh is 2.

    The number of people behind Mukesh is 14.

    So, the position of Anil from behind is 14 (number of people behind Mukesh) +1 (Mukesh) +2 (number of people between Anil and Mukesh) + 1(Anil) = 18.

    Correct Answer: C

79. In a row of 40 boys Sameer was shifted 10 places to the right of Raman and Kailash was shifted 10 places to the left of Vikas. If Vikas was 26th from the left end and there were three boys between Kailash and Sameer after Shifting, what was the position of Raman in the row?

    A. Data inadequate

    B. 10th from the left end

    C. 10th from the right end

    D. 39th from the right end

    Solution:

    All positions in this question will be from the left end.

Total students in the row = 40

Vikas's position = 26

Since, Kailash was shifted 10 places to the left of Vikas $\Rightarrow$ Kailash's position = 16

Three boys were sitting between Kailash and Sameer $\Rightarrow$ Sameer's position = 12 or 20

Sameer was 10 places to the right of Raman.

$\Rightarrow$ Raman's position = 2 or 10

Thus, not sufficient data is given.

Correct Answer: A

80. A, B, C, D,…, X, Y, Z are the players who participated in a tournament. Everyone played with every other player exactly once. A win scores 2 points, a draw scores 1 point, and a loss scores 0 point. None of the matches ended in a draw. No two players scored the same score. At the end of the tournament, by ranking list is published which is in accordance with the alphabetical order. Then

A. M wins over N

B. N wins over M

C. M does not play with N

D. None of these

Solution:

The ranking list would be in the order A, B, C, D,…, X, Y, Z.

Now the A wins all his 25 matches, *B* wins 24 matches and lost to *A*. *C* wins 23 matches and lost to *A* and *B*.

In this way N 12 matches and looses 13 matches to A, B, C, D,…, M.

Correct Answer: A

81. In a class, Ena ranked eighteen from the top and thirty-ninth from the bottom among these who passed an examination. Ten students did not appear in the examination and four failed. What is the total number of students in the class?

A. 40

B. 60

C. 56

D. 70

Solution:

Number of students who passed the exam = $(18 + 39) - 1 = 56$

Total number of students = $56 + 10 + 4 = 70$.

Correct Answer: D

82. Five persons H1, H2, H3, H4 and H 5 are sitting around a circular table facing towards the centre (Not necessarily in the same order). H4 is third to the left of H2. H3 and H1 are the immediate neighbors of H2. H5 is to the immediate left of H3. Who is sitting third to the right of H1?

A. H_2

B. H4

C. H5

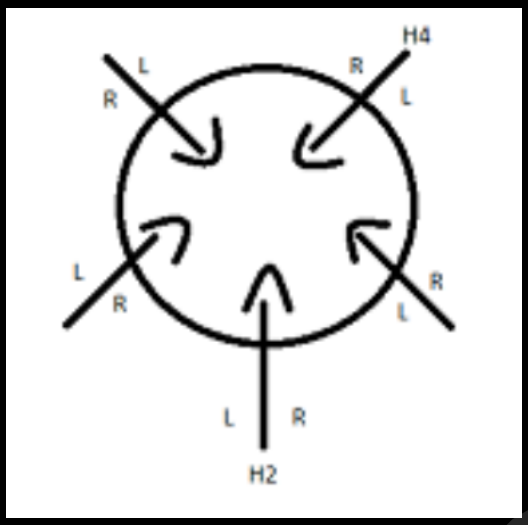
D. H3

Solution:

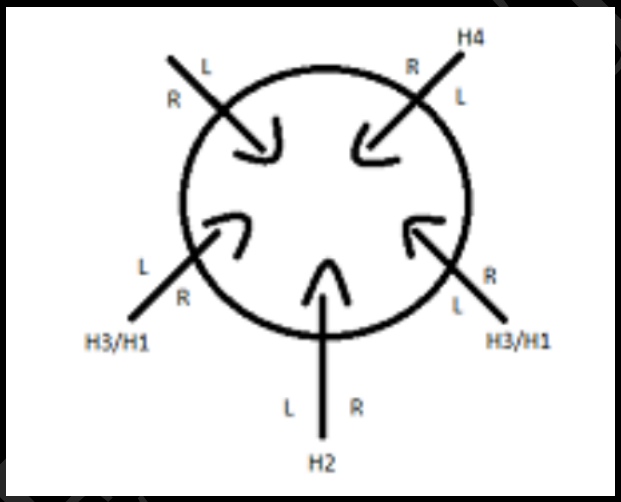
H3 and H1 are the immediate neighbors of H2.

Given,

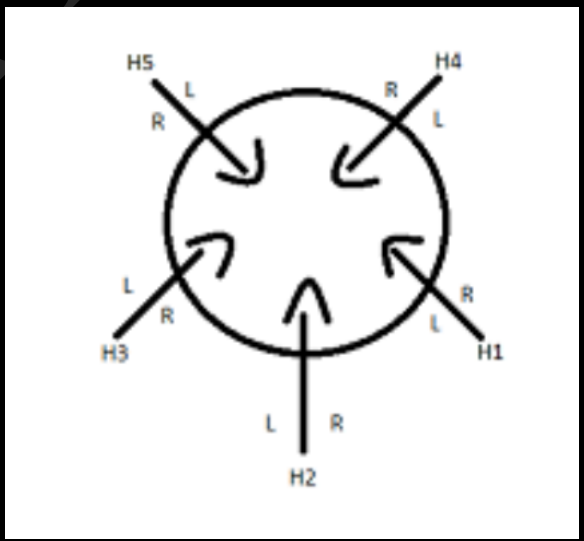
Five persons H1, H2, H3, H4 and H 5 are sitting around a circular table facing towards the centre and H 4 is third to the left of H2.



H3 and H1 are the immediate neighbors of H2.



H5 is to the immediate left of H3.



Correct Answer: D

83. Saurav, Mohit, Mukesh, Sumit and Bhim are arranged in descending order of their height from top to bottom. Saurav is at third place. Bhim is between Sumit and Saurav while Sumit is not at the top end. Who is at second place from the top?

A. Mohit

B. Mukesh

C. Bhim

D. Cannot be determined

Solution:

Saurav is at third place and they are standing in descending order.

Bhim is between Sumit and Saurav while Sumit is not at the top end, ⇒ Sumit is at the bottom.

		Saurav	Bhim	Sumit

Also, the position of Mukesh and Mohit is unknown.

Thus, the final arrangement is :

Mukesh/Mohit	Mohit/Mukesh	Saurav	Bhim	Sumit

∴ Second place from the top cannot be determined.

Correct Answer: D

84. Six tailors T1, T2, T3, T4, T5 and T6 are sitting around a circular table facing towards the centre (Not necessarily in the same order). T2 is second to the right of T1. T5 is to the immediate right of T3. T3 and T4 are facing towards each other. Three of the four given options follows a same logic. Which of the following does not follow that logic?

A. T2, T3

B. T4, T6

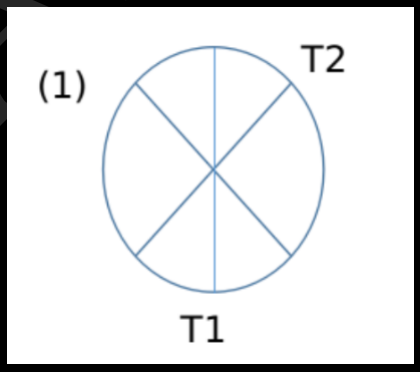
C. T1, T3

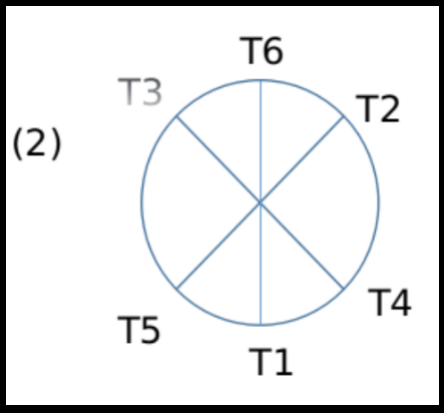
D. T6, T5

Solution:

From the given statements, T2 is second to the right of T1, so we can place T1 and T2 accordingly anywhere in the arrangement. Figure 1 depicts the arrangement.

Now, T3 and T4 are facing each other so only two places are vacant which are opposite to each other and also T5 is to the immediate right of T3 so, we can not place T3 in between T2 and T1 as T2 has already occupied the space. Hence, the figure 2 depicts the final arrangement.





From the given options we conclude that T1 and T3 does not meet the logic as T3 is second to the right of T 1 not second to the left as in the other options.

Hence, option C is correct.

Correct Answer: C

85. In a row of 15 people what is the position of 'B' from the left?

Statements:

1. 'A' and 'B' have 5 members between them.

2. 'A' is 7th from the left.

A. Statement 1 and 2 together are sufficient.

B. Statement 1 alone is sufficient.

C. Statement 2 alone is sufficient.

D. Statement 1 and 2 together are not sufficient.

Solution:

Since in the 2nd statement it is given as 'A' stands 7th from the left we can place *B* at 1st from the left and 13th from the left and in both cases, there are only 5 people between them and so it cannot be answered using both statements.

Correct Answer: D

10 Statement Follows (10 Questions)

86. Saurabh: Airlines have made it possible for anyone to travel around the world in much less time than was formerly possible.

Monica: That is not true. Many flights are too expensive for all but the rich.

Monica's response shows that she interprets Saurabh's statement to imply that

A. everyone has an equal right to experience world travel

B. world travel is only possible via routes serviced by airlines

C. most forms of world travel are not affordable for most people

D. anyone can afford to travel long distances by air

Solution:

Saurabh: anyone can travel around the world, because of airlines.

Monica: many flights are too expensive.

Conclusion: anyone can travel long distances by air. Option D is the right answer.

Option C is ruled out because it is talking about world travel, not air travel.

Correct Answer: D

87. Statements:

1. All bottles are marbles

2. All glasses are marbles

Conclusions:

1. All glasses are bottles

2. Some marbles are not glasses

A. Only Conclusion 1 follows

B. Only Conclusion 2 follows

C. Either Conclusion 1 or 2 follows

D. Neither 1 nor 2 follows

Solution:

Correct Answer: D

88. What is the length of the rectangle ABCD?

I. The area of the rectangle is 48 square units

II. Length of the diagonal is 10 units

A. If the questions can be answered with the help of both the statements but not with the help of either statement itself.

B. If the question can not be answered even with the help of both the statements.

C. If the question can be answered with the help 0 statement II alone.

D. If the question can be answered with the help of the statement I alone.

Solution:

Correct Answer: A

89. Choose 1 if the question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.

Choose 2 if the question can be answered by using either statement alone.

Choose 3 if the question can be answered by using both statements together, but cannot be answered using either statement alone.

Choose 4 if the question cannot be answered even by using both statements together.

A square is inscribed in a circle. What is the difference between the area of the circle and that of the square?

i. The diameter of the circle is $25\sqrt{2}$ cm.

ii. The side of the square is 25 cm.

A. 1

B. 2

C. 3

D. 4

Solution:

The answer is B, because either of the statements is enough to get the area of both the square and the circle.

Correct Answer: B

90. **Statements:** In a one day cricket match, the total run made by a team were 200. Out of these 160 runs were made by spinners.

Conclusions:

I. 80% of the team consists of spinners.

II. The opening batsmen were spinners.

A. Only conclusion I follow

B. Only conclusion II follow

C. Either I or II follows

D. Neither I nor II follows

Solution:

In statement-conclusion questions always try to make the conclusion false and see if the statement can hold - if so, then the conclusion need not follow always from the statement.

Here, both the conclusion can be false and still the statement can hold, which means neither conclusion follows from the statement.

i.e., $P \implies Q = \neg P \vee Q = \neg\neg Q \vee \neg P = \neg Q \implies \neg P$.

Correct Answer: D

91. Statements:

I. All buses are cars.

II. Some buses are trucks.

Conclusions:

I. Some buses are definitely not trucks.

II. At least some trucks are cars.

A. only conclusion I follow.

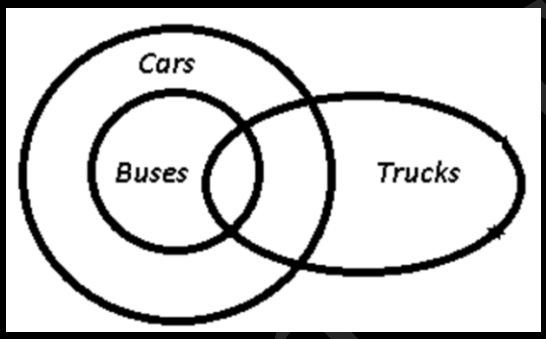
B. only conclusion II follow.

C. either conclusion I or II follows

D. both conclusions I and II follows.

Solution:

The Venn diagram for the above statements is:



Conclusions:

I. Some buses are definitely not trucks cannot be concluded.

II. At least some trucks are cars = true

Thus, only conclusion II follows.

Correct Answer: B

92. Statements :

I. No book is library.

II. Some books are diaries.

Conclusions:

I. At least some libraries are diaries

II. No diary is library

A. if only the conclusion I follow.

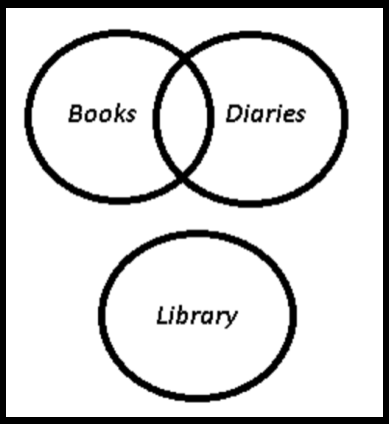
B. if only conclusion II follow.

C. if either I or II follows.

D. if neither I nor II follows.

Solution:

The Venn diagram for the above statements is:



Conclusions:

I. At least some libraries are diaries = that may or may not be true

II. No diary is library = may or may not be true

Thus, either I or II follows.

Correct Answer: C

93. Statements:

I. All bowls are spoons.

II. All dishes are bowls.

Conclusions:

I. Some spoons are dishes.

II. All spoons are bowls.

A. only conclusion I follow

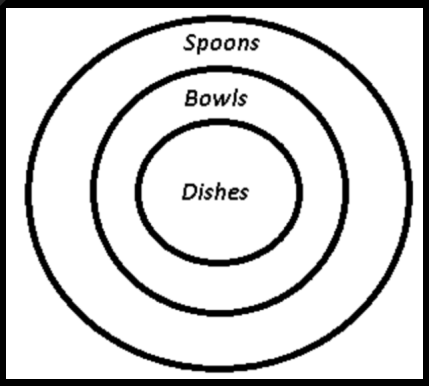
B. only conclusion II follow

C. either conclusion I or II follows

D. both conclusions I and II follows

Solution:

The Venn diagram for the above statements is:



Conclusions:

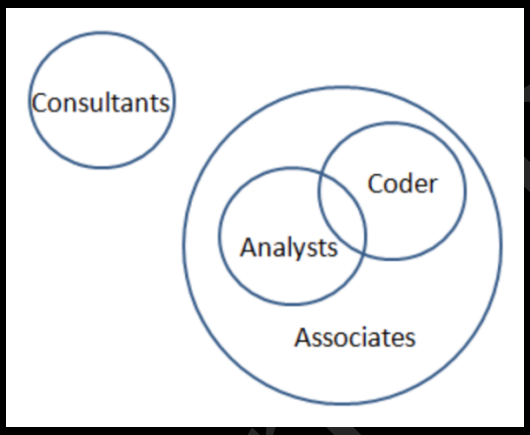
I. Some spoons are dishes = true

II. All spoons are bowls = false

Thus, the only conclusion I follow.

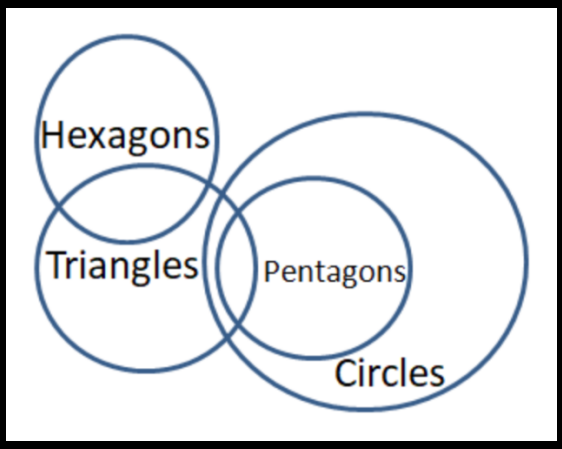
Correct Answer: A

94. Statement I: Some analysts are coders.
Statement II: All coders are associates.
Statement III: No associate is a consultant.
Conclusion I: All analysts can be associates.
Conclusion II: All consultants can be coders.
A. Conclusion I only
B. Conclusion II only
C. Both the conclusions follows
D. Either conclusion I or conclusion II follows
Solution:



From the diagram, we can see that all analysts can be associates.
Hence, the conclusion I follow.
All coders are associates and no associate is a consultant.
Hence, no consultant is a coder. Therefore, conclusion II doesn't follow.
Therefore, option A is the correct answer.
Correct Answer: A

95. Statement I: Some triangles are pentagons.
Statement II: All pentagons are circles.
Statement III: No circle is a hexagon.
Conclusion I: No circle is a triangle.
Conclusion II: Some triangles can be hexagons.
A. Conclusion I only
B. Conclusion II only
C. Both the conclusions follow
D. Either conclusion I or conclusion II follows
Solution:



From the diagram, we can see that some circles can be triangles.

Hence, the conclusion I doesn't follow.

From the diagram, we can see that some triangles can be hexagons.

Hence, conclusion II follow.

Therefore, option B is the correct answer.

Correct Answer: B

11 Sequence & Series (9 Questions)

96. Look at this series: $7, 10, 8, 11, 9, 12, \ldots$

What number should come next?

A. 11

B. 13

C. 14

D. 10

Solution:

In the given series having 2 different series such as $7, 8, 9, 10, \ldots, 10, 11, 12, \ldots$

In the odd place, we put the first series term, even place we put the second series term.

So, the next term of the series should be 10.

Another way, given series having the following patterns:

- $7 + 3 = 10$
- $10 - 2 = 8$
- $8 + 3 = 11$
- $11 - 2 = 9$
- $9 + 3 = 12$
- $12 - 2 = 10$

So, the next term should be 10.

Correct Answer: D

97. Select the number from among the given options that can replace the question mark (?) in the following series.

$$4096, 1024, 256, 64, ?$$

A. 30

B. 16

C. 28

D. 8

Solution:

Correct Answer: B

98. What is next number in pattern below:

$$131, 517, 192, 123, ?$$

A. 252

B. 296

C. 729

D. 512

Solution:

Correct Answer: A

99. What is the missing number in the sequence:

$$8, 27, ?, 343, 1331$$

A. 120

B. 125

C. 155

D. 165

Solution:

These numbers are cubes of prime numbers.

$2^3 = 8$

$3^3 = 27$

$5^3 = 125$

$7^3 = 343$

$11^3 = 1331$

Hence, missing number is 125.

Correct Answer: B

100. The 288-th term of the series $a, b, b, c, c, c, d, d, d, d, e, e, e, e, e, f, f, f, f, f, f, \ldots$ is _____.

A. u

B. v

C. w

D. x

Solution:

In the series $a, b, b, c, c, c, d, d, d, d, e, e, e, e, e, \ldots$

The first letter of the alphabet is written once, the second is written twice, and the nth letter is written n times.

The number of letters written up to the nth letter is equal to the sum of the first n natural numbers $= \dfrac{n(n+1)}{2}$

For $n = 23$, $\dfrac{n(n+1)}{2} = 276$

For $n = 24$, $\frac{n(n+1)}{2} = 300$

This means the series contains 276 letters in all for the letter corresponding to $n = 23$ and 300 letters in all for the letter corresponding to $n = 24$.

The letter corresponding to $n = 24$ will be the letter occupying the 277th to the 300th place in the series.

But, $n = 24$ corresponds to letter x.

The 288th letter in the series is x.

Correct Answer: D

101. What is the missing number in the series $4, 18, \ldots, 100, 180, 294$.

A. 32

B. 36

C. 48

D. 40

Solution:

Correct Answer: C

102. What will replace the question mark (?) in the number series?

$$16.8, 16.85, 16.75, 16.9, 16.7, ?$$

A. 17.5

B. 17.25

C. 16.95

D. 16.25

Solution:

Multiples of 0.05 are alternatively added and subtracted.

$16.8 + 0.05 \times 1 = 16.85$

$16.85 - 0.05 \times 2 = 16.75$

$16.75 + 0.05 \times 3 = 16.9$

$16.9 - 0.05 \times 4 = 16.7$

$16.7 + 0.05 \times 5 = \mathbf{16.95}$

Correct Answer: C

103. In a magic square, the numbers in each row, the numbers in each column, and the numbers on each diagonal have the same sum. In the magic square shown, the value of x is _____.

2.3		
3.6	3	2.4
	x	

A. 3.6

B. 3.1

C. 2.9

D. 2.2

Solution:

Since given: all row sums are same as each other and all diagonal sums and all column sums

mid row $= 3.6 + 3 + 2.4 = 9$

$\therefore a_{11} + a_{22} + a_{33} = 9$

$a_{33} = 9 - 2.3 - 3 = 3.7$

also, $a_{11} + a_{21} = 5.9$

$\therefore a_{31} = 3.1$

$x = a_{32} = 9 - 3.1 - 3.7 = 2.2$

Correct Answer: D

104. What number would replace question mark (?) in the series given below?

$$1, 4, 11, 26, 57, 120, 247, ?$$

A. 424

B. 367

C. 255

D. 502

Solution:

The pattern of the given series is as follows:

$1 * 2 + 2 = 4$

$4 * 2 + 3 = 11$

$11 * 2 + 4 = 26$

$26 * 2 + 5 = 57$

$57 * 2 + 6 = 120$

$120 * 2 + 7 = 247$

$247 * 2 + 8 = 502$

So, the next number in the given series is 502.

Correct Answer: D

12 Code Words (6 Questions)

105. In a certain code 'BUILT' is written as '5#32@' and 'TRIBE' is written as '@935©'. How is 'RULE' written in that code?

A. 9#2©

B. 92#©

C. @#2©

D. @2#©

Solution:

U is #

R is 9

L is 2

E is ©

Correct Answer: A

106. In a certain code language.

'economics is not money' is written as 'ka la ho ga'

'demand and supply economics' is written as 'mo ta pa ka'

'money makes only part' is written as 'zi la ne ki'

'demand make supply economics' is written as 'zi mo ka ta'

What may be the possible code for 'demand only more' in the given code language?

A. xi ne mo

B. mo zi ne

C. ki ne mo

D. mo zi ki

Solution:

economics is not money — ka la ho ga

demand and supply economics — mo ta pa ka

So, Economics is "ka"

demand and supply economics — mo ta pa ka

demand make supply economics — zi mo ka ta

demand — mo or ta

economics is not money — ka la ho ga

money makes only part — zi la ne ki

money — la

money makes only part — zi la ne ki

demand make supply economics — zi mo ka ta

make — zi

only — ne or ki

"demand only more"

option B, D: zi–makes but makes not present in sentence

option C: ne ki — only part but part not present in sentence

Correct Answer: A

107. In a certain code ‘CLEAR’ is written as ‘SBFMD’ and ‘BONDS’ is written as ‘TEOPC’. How is ‘STALE’ written in that code?

A. DKZSR

B. BUTFM

C. TUBMF

D. FMBUT

Solution:

Take next alphabet of each letter and read it in reverse.

S T A L E

T U B M F

Correct Answer: D

108. If GIVE is coded as 5137 and BAT is coded as 924, how is GATE coded?

A. 5427

B. 5724

C. 5247

D. 2547

Solution:

Correct Answer: C

109. Which set of letters CANNOT be coded with the same digit?

A. S, E, Z

B. I, B, M

C. S, U, V

D. X, Y, Z

Solution:

Correct Answer: C

110. In a certain code PATHOLOGIST is written as PIUBQKSRHFN. How is CONTROVERSY written in that code?

A. SUOPDNXRQDU

B. SUOPDNZTSFW

C. QSMNBPXRQDU

D. QSMNBPZTSFW

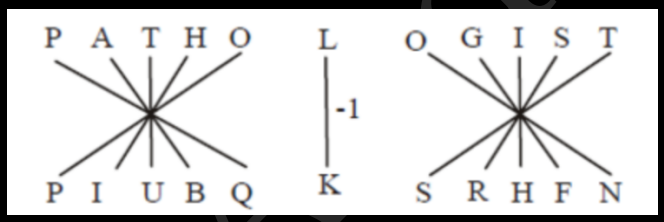
Solution:

PATHOLOGIST is written as PIUBQKSRHFN

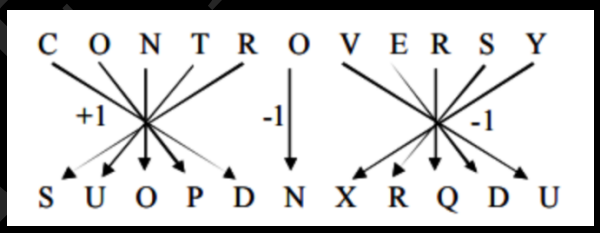
Five letters of the word PATHOLOGIST are reversed first and then coded as one place forward.

Similarly, the last five letters of word are reversed then code as one place backward.

Middle letter is coded as one place backward.



Similarly, for CONTROVERSY:



Correct Answer: A

– Love From GATE And Tech –

– Love From Lakshman Patel –

Total 110 Questions