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Contents

Mathematics

Number System

1. An Identity Card has the number ABCDE-FG, not necessarily in that order, where each letter represents a distinct digit (I, 2, 4, 5, 7, 8, 9 only). The number is divisible by 9. After deleting the first digit from the right, the resulting number. is divisible by 6. After deleting two digits from the right or original number, the resulting number is divisible by 5. After deleting three digits from the right of original number, the resulting number is divisible by 4. After deleting four digits from the right of original number, the resulting number is divisible by 3. After deleting five digits from the right of original number, the resulting number is divisible by 2. Which of the following is a possible value for the sum of the middle three digits of the number ?

(A) 8   (B) 9
(C) 11   (D) 12

1. (A) Given that
A, B, C, D, E, F, G
It is completely divisible by 9, then it is also divisible by 3. ...(i)
Let the sequence is A B C D E F G
According to the condition, after deleting the first digit from the right the resulting number is divisible by 6 *i.e.*, ABCDEF is divisible by 6.
If a number is divisible by 6 then the number is also divisible by 2 and 3 both *i.e.*, ABCDEF is divisible by 6, 2 and 3. ...(ii)
From eq (i) and (ii),
Among the given number 1, 2, 4, 5, 7, 8, 9 only 9 is divisible by 3.
So, 9 will be in place of G.
According to the condition, after deleting two digits from right.
The number ABCDE, it is divisible by 5.
So, the value of E is either 0 or 5, but these is only 5. Hence, E = 5.
According to the condition, after deleting three digits from right the number ABCD is divisible by 4 *i.e.*, D is even number.
According to condition after de-

leting four digits from right the number ABC is divisible by 3.
Again from the condition after deleting five digits from right, the number AB is divisible by 2 *i.e.*, B is an even number.
The middle three digits are C, D, E.

A   B   C   D   E   F   G
↓   ↓   ↓   ↓   ↓   ↓   ↓
   even   odd   even   5   even   9
   digit   digit   digit   digit
   [2/4/8]   [2/4/8]   [2/4/8]

4 and 8 are not possible for the value of D. Now the value of D and C are 2 and 1 respectively.
Hence, required sum = C + D + E
                  = 1 + 2 + 5
                  = 8

2. Which number amongst 2^{40}, 3^{21}, 4^{18} and 8^{12} is the smallest ?
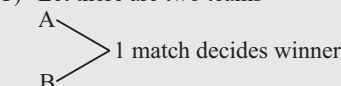
(A) 2^{40} (B) 3^{21}
(C) 4^{18} (D) 8^{12}

2. (B) 2^{40}, 3^{21}, 4^{18}, 8^{12}
$(4)^{18} = (2)^{2 \times 18} = 2^{36}$
$(8)^{12} = (2)^{3 \times 12} = 2^{36}$
4^{18} and 8^{12} both are equal.
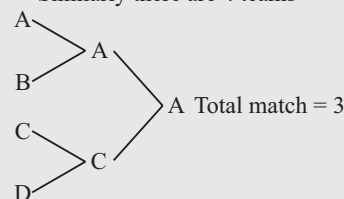$2^{40} > 4^{18} = 8^{12}$
Hence, 3^{21} is smallest.

3. In a tournament of Chess having 150 entrants, a player is eliminated whenever he loses a match. It is given that no match results in a tie/draw. How many matches are played in the entire tournament ?

(A) 151   (B) 150
(C) 149   (D) 148

3. (C) Let there are two teams
A
B
     1 match decides winner
Similarly there are 4 teams
A, A, B, C, C, D
A Total match = 3
Similarly for 150 teams,
No. of match for winner = n − 1
                        = 150 − 1
                        = 149

4. How many 3-digit natural numbers (without repetition of digits) are there such that each digit is odd and the number is divisible by 5 ?

(A) 8   (B) 12
(C) 16   (D) 24

4. (B) 3-digit number that is divisible by 5, then the last digit is 5 or 0. but each digit of the number is odd. So last digit is 5. Now, there is no repetition of digits. So only 4 digits (1, 3, 7, 9) are remained.

                    5
   4   ×   3   = 12
       [∵ digits are not repeated]

5. Consider the Question and two statements given below :

Question : Is *x* an integer ?

Statement-1 : *x*/3 is not an integer.

Statement-2 : 3*x* is an integer.
Which one of the following is correct in respect of the Question and the Statements ?

(A) Statement-1 alone is sufficient to answer the Question

(B) Statement-2 alone is sufficient to answer the Question

(C) Both Statement-1 and Statement-2 are sufficient to answer the Question.

(D) Both Statement-1 and Statement-2 are not sufficient to answer the Question.

5. (D) From statement 1,
$\frac{x}{3}$ is not an integer.
         $\left[\text{As } \frac{13}{13} \text{ is not integer} \right]$
But only on the basis of statement 1, integer can not be find out.
From statement 2,
Let *x* = 11
then 3*x* = 33 [integer]
$\frac{x}{3} = \frac{11}{3}$ but $\frac{11}{3}$ is not integer
Hence, both statements are not sufficient.

6. A has some coins. He gives half of the coins and 2 more to B. B gives half of the coins and 2 more to C. C gives half of the coins and 2 more to D. The number of coins D has now, is the smallest two-digit number. How many coins does A have in the beginning ?

(A) 76   (B) 68

(C) 60   (D) 52

6. (D) D has no. of coins is smallest two digit number *i.e.*, 10.

$$D \to 10$$
$$\downarrow -2$$
$$8 \times 2 = 16 \to C$$
$$\downarrow -2$$
$$14 \times 2 = 28 \to B$$
$$\downarrow -2$$
$$26 \times 2 = 52 \to C$$

7. How many seconds in total are there in x weeks, x days, x hours, x minutes and x seconds ?

(A) $11580\,x$ (B) $11581\,x$

(C) $694860\,x$ (D) $694861\,x$

7. (D) x weeks + x days + x hours + x minutes + x seconds

$= (x \times 7 \times 24 \times 60 \times 60 + x \times 24 \times 60 \times 60 + x \times 60 \times 60 + x \times 60 + x)$ seconds

$x\,(7 \times 24 \times 3600 + 24 \times 3600 + 3600 + 60 + 1)$

$= 694861x$ seconds

8. Five friends P, Q, X, Y and Z purchased some notebooks. The relevant information is given below :

1. Z purchased 8 notebooks more than X did.

2. P and Q together purchased 21 notebooks.

3. Q purchased 5 notebooks less than P did.

4. X and Y together purchased 28 notebooks.

5. P purchased 5 notebooks more than X did.

If each notebook is priced ₹ 40, then what is the total cost of all the notebooks ?

(A) ₹ 2,600   (B) ₹ 2,400

(C) ₹ 2,360   (D) ₹ 2,320

8. (A)
$$Z = X + 8 \quad ...(1)$$
$$P + Q = 21 \quad ...(2)$$
$$Q = P - 5 \quad ...(3)$$
$$X + Y = 28 \quad ...(4)$$
$$P = X + 5 \quad ...(5)$$

From eq. (2) and (3)

$$P + P - 5 = 21$$
$$P = 13$$
$$Q = 8$$
$$X = 8$$
$$Z = 16$$
$$Y = 20$$

∵ If notebook has cost ₹ 40.

Then, total cost = [20 + 16 + 13 + 8 + 8] × 40

$$= 65 \times 40$$
$$= ₹\ 2,600$$

9. What is the remainder when $91 \times 92 \times 93 \times 94 \times 95 \times 96 \times 97 \times 98 \times 99$ is divided by 1261 ?

(A) 3   (B) 2

(C) 1   (D) 0

9. (D) $91 \times 92 \times 93 \times 94 \times 95 \times 96 \times$
$$\frac{97 \times 98 \times 99}{1261}$$

Now remainder is 0.

10. Let p be a two-digit number and q be the number consisting of same digits written in reverse order. If $p \times q = 2430$, then what is the difference between p and q ?

(A) 45   (B) 27

(C) 18   (D) 9

10. (D) $p \times q = 2430 = 54 \times 45$
$$p \neq 0 \text{ and } q \neq 0$$

Hence, the last digit of the product is 0, which indicates that one of the digits must be 5.

Hence, required difference = 54 – 45
$$= 9$$

11. Consider the following statements in respect of two natural numbers p and q such that p is a prime number and q is a composite number :

1. $p \times q$ can be an odd number.

2. q/p can be a prime number.

3. $p + q$ can be a prime number.

Which of the above statements are true ?

(A) 1 and 2 only   (B) 2 and 3 only

(C) 1 and 3 only   (D) 1, 2 and 3

11. (D) Prime numbers (P) = 2, 3, 5, 7, 11, ...

Composite numbers (*q*) = 4, 6, 8, 9, 10, ...

From statement 1,

Example : $p \times q = 3 \times 9 = 27$ (odd no.)

From statement 2,

Example : $\dfrac{q}{p} = \dfrac{4}{2} = 2$ (Prime no.)

From statement 3,

Example : $p + q = 3 + 4 = 7$ (Prime no.)

Hence statement 1, 2 and 3 are correct.

12. The sum of three consecutive integers is equal to their product. How many such possibilities are there ?

(A) Only one

(B) Only two

(C) Only three

(D) No such possibility is there

12. (C) $a + b + c = abc$

Required possibilities = (1, 2, 3), (–1, 0, 1) and (–1, –2, –3).

LCM and H.C.F.

13. What is the smallest number greater than 1000 that when divided by any one of the numbers 6, 9, 12, 15, 18 leaves a remainder of 3 ?

(A) 1063   (B) 1073

(C) 1083   (D) 1183

13. (C) LCM = 6, 9, 12, 15, 18

LCM = 180

The number should be greater than 1000.

Hence, required number = 1080 + 3 = 1083 [∵ Remainder = 3].

14. There are 9 cups placed on a table arranged in equal number of rows and columns out of which 6 cups contain coffee and 3 cups contain tea. In how many ways can they be arranged so that each row should contain at least one cup of coffee ?

(A) 18   (B) 27

(C) 54   (D) 81

14. (D) Row 1 : C C C

Row 2 : C C T

Row 3 : C T T

If the first row has 3 cups of coffee, then possible arrangement = 3 × 3 = 9

No. of ways for rows of 2 and 1 cup of coffee that can be arranged = 3!

$= 3 \times 2 = 6$

Possible arrangement = 9 × 6 = 54

Case 2 :

Row 1 : C C T

Row 2 : C C T

Row 3 : C C T

A cup of tea can be arranged in a row in three ways.

So, possible arrangement = $3^3 = 27$

Hence, total arrangement = 54 + 27

$= 81$.

Square and Square Roots

15. If $15 \times 14 \times 13 \times ..... \times 3 \times 2 \times 1 = 3^m \times n$ where m and n are positive integers, then what is the maximum value of m ?

(A) 7   (B) 6

(C) 5   (D) 4

15. (B) $15 \times 14 \times 13 \times ..... \times 3 \times 2 \times 1 = 3^m \times n$

$(3 \times 5) \times 14 \times 13 \times (3 \times 4) \times 11 \times 10 \times (3 \times 3) \times 8 \times 7 \times (3 \times 2) \times 5 \times 4 \times 3 \times 2 \times 1 = 3^m \times n$

$3^6 \times 14 \times 13 \times 11 \times 10 \times 8 \times 7 \times 5 \times 5 \times 4 \times 4 \times 2 \times 2 \times 1 = 3^m \times n$

Comparing both sides, we get

$$m = 6$$

Fraction and Decimal Numbers

16. On one side of a 1.01 km long road, 101 plants are planted at equal distance from each other. What is the total distance between 5 consecutive plants ?

(A) 40 m   (B) 40.4 m

(C) 50 m   (D) 50.5 m

16. (B)

First Tree   Second Tree   Third Tree
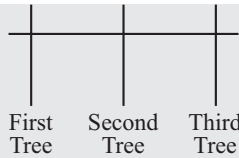
Now, places between three trees
= 3 – 1 = 2
Similarly, places
= 101 – 1
= 100
Distance of 100 = 1.01 km
Distance of 1 = 10.1 m
Then places between 5 consecutive tree = 4
Hence, required distance = 4 × 10.1
= 40.4 m

17. Let A, B and C represent distinct non-zero digits. Suppose x is the sum of all possible 3-digit numbers formed by A, B and C without repetition.

Consider the following statements :
1. The 4-digit least value of x is 1332.
2. The 3-digit greatest value of x is 888.
Which of the above statements is/are correct ?
(A) 1 only   (B) 2 only
(C) Both 1 and 2 (D) Neither 1 nor 2

17. (A) The possible numbers without repetition.
A B C
A C B
B A C
B C A
C A B
C B A
then, 100 A + 10 B + C
....
....
100 C + 10 B + A
Hence, sum of numbers = 222 A + 222 B + 222 C
= 222 [A + B + C]
= 222 [x]
∵ A, B, C are non-zero.
Suppose, A = 1, B = 2, C = 3
= 222 [1 + 2 + 3]
= 1332
Hence, least value is 1332.
So, statement 1 is correct and statement 2 is not correct.

18. What is the number of numbers of the form 0.XY, where X and Y are distinct non-zero digits ?
(A) 72   (B) 81
(C) 90   (D) 100

18. (A) 0.X Y
         ↓ ↓
         8 × 9 = 72

Average

19. The average weight of A, B, C, is 40 kg, the average weight of B, D, E is 42 kg and the weight of F is equal to that of B. What is the average weight of A, B, C, D, E, and F ?
(A) 40.5 kg
(B) 40.8 kg
(C) 41 kg
(D) Cannot be determined as data is inadequate.

19. (C) $\dfrac{A + B + C}{3} = 40$
⇒   A + B + C = 120 ...(i)
and $\dfrac{B + D + E}{3} = 42$
B + D + E = 126 ...(ii)
And, F = B
⇒ From eq.(ii) F + D + E = 126
From eq.(i) and (ii)
A + B + C + F + D + E = 126 + 120
= 246
Required average = $\dfrac{246}{6} = 41$ kg

Ratio and Proportion

20. A person X wants to distribute some pens among six children A, B, C, D, E and F. Suppose A gets twice the number of pens received by B, three times that of C, four times that of D, five times that of E and six times that of F. What is the minimum number of pens X should buy so that the number of pens each one gets is an even number ?
(A) 147   (B) 150
(C) 294   (D) 300

20. (C) A, B, C, D, E, F
A = 2KB = 3KC = 4KD = 5KE = 6KF

LCM of 1K, 2K, 3K, 4K, 5K, 6K
= 60K

If K = 1	If K = 2
A = 60	A = 120
B = 30	B = 60
C = 20	C = 40
D = 15 odd	D = 30
E = 12	E = 24
F = 10	F = 20

Required number of pens
= 120 + 60 + 40 + 30 + 24 + 20
= 294

Percentage

21. The increase in the price of a certain item was 25%. Then the price was decreased by 20% and then again increased by 10%. What is the resultant increase in the price?
(A) 5%   (B) 10%
(C) 12.5%   (D) 15%

21. (B) Let price of the item is ₹ 100.
Price after 25% increament = ₹ 125
Again, price is decreased by 20%
then price = $\dfrac{125 \times 80}{100}$
= 100
Again, price is increased by 10%
then price = ₹ 110
Hence, 110 – 100 = 10
Price is increased by 10%

22. When 70% of a number x is added to another number y, the sum becomes 165% of the value of y. When 60% of the number x is added to another number z, then the sum becomes 165% of the value of z. Which one of the following is correct ?
(A) $z < x < y$ (B) $x < y < z$
(C) $y < x < z$ (D) $z < y < x$

22. (D)   70% of $x = 0.7 x$
and   165% of $y = 1.65 y$
According to the question,
$0.7x + y = 1.65 y$
$0.7x = 0.65 y$
$\dfrac{x}{y} = \dfrac{65}{70}$
$\dfrac{x}{y} = \dfrac{13}{14}$
and,
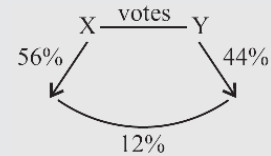$0.6x + z = 1.65 z$
$\dfrac{x}{z} = \dfrac{13}{12}$
$x = 13, y = 14, z = 12$
Hence, $z < x < y$

23. Two candidates X and Y contested an election, 80% of voters cast their vote and there were no invalid votes. There was no NOTA (None of the above) option. X got 56% of the votes cast and won by 1440 votes. What is the total number of voters in the voters list ?
(A) 15000   (B) 12000
(C) 9600   (D) 5000

23. (A) Total votes = 80%

X --votes-- Y
56%   44%
12%
12% = 1440
1% = 120
100% = 12000
Hence, Total votes × 80% = 12000
Then, total votes = 15,000

Mixture

24. There are two containers X and Y. X contains 100 ml of milk and Y contains 100 ml of water, 20 ml of milk from X is transferred to Y. After mixing well, 20 ml of the mixture in Y is transferred back to X. If m denotes the proportion of milk in X and n denotes the proportion of water in Y, then which one of the following is correct ?

(A) $m = n$

(B) $m > n$

(C) $m < n$

(D) Cannot be determined due to insufficient data

24. (A)

20 ml Milk

X → Y

100 ml milk ↓ ↓ 100 ml water

$\dfrac{20}{120}$ → (5 : 1)

Mixture of milk and water

20 ml
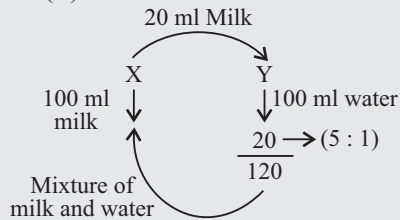
$m = 80 + \dfrac{1}{6} \times 20 = \dfrac{250}{3}$

$n = 100 - \dfrac{5}{6} \times 20 = \dfrac{250}{3}$

Hence, $m = n$

Time and Work

25. 24 men and 12 women can do a piece of work in 30 days. In how many days can 12 men and 24 women do the same piece of work ?

(A) 30 days

(B) More than 30 days

(C) Less than 30 days or more than 30 days

(D) Data is inadequate to draw any conclusion

25. (D) 24 M + 12 W → 30 days

12 M + 24 W → ?

∴ There is no enough data for calculating the efficiency.

Hence, option (D) is correct.

Speed, Distance and Time

26. X and Y run a 3 km race along a circular course of length 300 m. Their speeds are in the ratio 3 : 2. If they start together in the same direction, how many times would the first one pass the other the start-off is not counted as passing.

(A) 2 (B) 3

(C) 4 (D) 5

26. (B)

300 m   200 m

x y

$x : y = 3 : 2$

↓   ↓
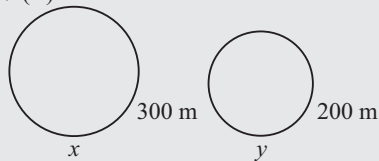
300 200

↓   ↓

600 400

↓   ↓

900 600

Length of circular path = 300 m

When the distance of X is 900 m,

then the distance of Y is 600 m and his distance equals the 600 m distance of X.

The race is about 3 km, then X will pass Y 3 times.

Data Interpretation

27. A pie chart gives the expenditure on five different items A, B, C, D and E in a household. If B, C, D and E correspond to 90°, 50°, 45° and 75° respectively, then what is the percentage of expenditure on item A ?

(A) $\dfrac{112}{9}$

(B) $\dfrac{125}{6}$

(C) $\dfrac{155}{9}$

(D) $\dfrac{250}{9}$

27. (D) B = 90°

C = 50°

D = 45°

E = 75°

The total value of all these is 260°.

A = 360° − 260° = 100°

100% = 360°

Percentage of expenditure on A

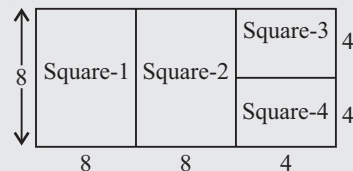$= \left(100 \times \dfrac{100°}{360°}\right)\%$
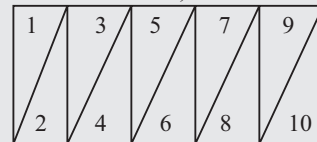
$= \dfrac{250}{9}\%$

Area of Plane Figures

28. Consider the following statements in respect of a rectangular sheet of length 20 cm and breadth 8 cm :

1. It is possible to cut the sheet exactly into 4 square sheets.

2. It is possible to cut the sheet into 10 triangular sheets of equal area.

Which of the above statements is/are correct ?

(A) 1 only (B) 2 only

(C) Both 1 and 2 (D) Neither 1 nor 2

28. (C) From statement 1.

8 | Square-1 | Square-2 | Square-3 4

| | | Square-4 4

8   8   4

From statement 2,

1   3   5   7   9

2   4   6   8   10

Hence statement 1 and 2 both are correct.

Linear and Quadratic Equations

29. A bill for ₹ 1,840 is paid in the enominations of ₹ 50, ₹ 20 and ₹ 10 notes. 50 notes in all are used. Consider the following statements :

1. 25 notes of ₹ 50 are used and the remaining are in the denominations of ₹20 and ₹ 10.

2. 35 notes of ₹ 20 are used and the remaining are in the denominations of ₹50 and ₹10.

3. 20 notes of ₹10 are used and the remaining are in the denominations of ₹50 and ₹ 20

Which of the above statements are not correct ?

(A) 1 and 2 only (B) 2 and 3 only

(C) 1 and 3 only (D) 1, 2 and 3

29. (A)   1840

50 20 10
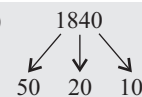
Total note = 50

From statement 1.

50 × 25 = 1250

Remaining amount = 1840 − 1250

= 590

The remaining amount is not possible for ₹ 20 and ₹ 10 notes.

From statement 2.

20 × 35 = 700

Remaining amount = 1840 − 700

= 1140.

The remaining amount is not possible for ₹ 50 and ₹ 10 notes.

From statement 3.

20 × 10 = 200

Remaining amount = 1840 − 200

= 1640

The remaining amount is not possible for ₹ 50 and ₹ 20 notes.

Hence all the three statements are not correct.

Permutation and Combination

30. The digits 1 to 9 are arranged in three rows in such a way that each row contains three digits, and the number formed in the second row is twice the number formed in the first row; and the number formed in the third row is thrice the number formed in the first row. Repetition of digits is not allowed. If only three of the four digits 2, 3, 7 and 9 are allowed to- use in the first row, how many such combinations are possible to be arranged in the three rows ?

(A) 4 (B) 3

(C) 2 (D) 1

30. (C) 7/9 ....

14/18 .... (×2)

21/27 .... (×3)

Since, 2, 3, 7, 9 are given.

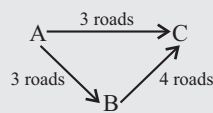If 7 or 9 is taken then it becomes four digits number. So, 7 and 9 are not possible.

So, there can be 2 or 3

Taking 3, it seems that the number will become larger.

Hence, the correct answer is 2.

31. The letters A, B, C, D and E are arranged in such a way that there are exactly two letters between A and E. How many such arrangements are possible ?

(A) 12   (B) 18

(C) 24   (D) 36

31. (C) A .... E.

There are only two places between A and E.

Total numbers = 4

Hence No. of possibilities = $\frac{4!}{2!}$

= $\frac{4 \times 3 \times 2}{2}$

= 12

The places of A and E are not definite.

Hence No. of possibilities = $\frac{4!}{2!}$

= $\frac{4 \times 3 \times 2}{2}$

= 12

Hence total possibilities = 12 + 12

= 24

32. A, B and C are three places such that there are three different roads from A to B, four different roads from B to C and three different roads from A to C. In how many different ways can one travel from A to C using these roads ?

(A) 10   (B) 13

(C) 15   (D) 36

32. (C)

(A to C) or (A to B) and (B to C)

3 + (3 × 4)

= 3 + 12

= 15

33. There is a numeric lock which has a 3-digit PIN. The PIN contains digits 1 to 7. There is no repetition of digits. The digits in the PIN from left to right are in decreasing order. Any two digits in the PIN differ by at least 2.How many maximum attempts does one need to find out the PIN with certainty ?
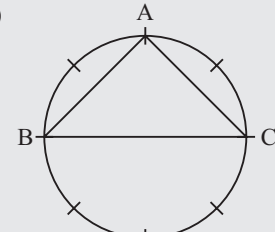
(A) 6   (B) 8

(C) 10   (D) 12

33. (C) A numeric lock which has 3-digit PIN. There is no repetition. The digits are from left to right in decreasing order. Difference between the digits is 2.

Now digits are from 1 to 7.

(7, 5, 3) (7, 5, 2) (7, 5, 1)
(7, 4, 2) (7, 4, 1) (7, 3, 1)
(6, 4, 2) (6, 4, 1) (6, 3, 1)
(5, 3, 1)

Required answer = 10

34. One non-zero digit, one vowel and one consonant from English alphabet (in capital) are to be used in forming passwords, such that each password has to start with a vowel and end with a consonant. How many such passwords can be generated ?

(A) 105   (B) 525

(C) 945   (D) 1050

34. (C) Password = Non zero digit + vowel + consonant.

Vowel ⟶ 5

Non –zero digit → 9

Consonant → 21

Required answer = 5 × 9 × 21

= 945

Sets

35. There are eight equidistant points on a circle. How many right-angled triangles can be drawn using these points as vertices and taking the diameter as one side of the triangle ?

(A) 24   (B) 16

(C) 12   (D) 8

35. (A)

The right angled triangle formed by the diameter formed by joining two points = 6

Now, these are 8 points then number of diameters = 8

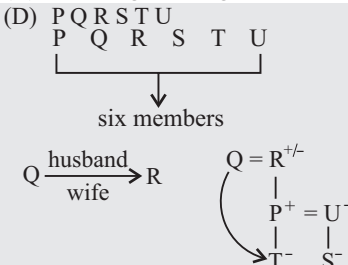Then, total right angled triangles = 4 × 6 = 24.

Reasoning

English Alphabet Test

36. If the order of the letters in the English alphabet is reversed and each letter represents the letter whose position it -occupies, then which one of the following. represents 'LUCKNOW ?

(A) OGXPMLD   (B) OGXQMLE

(C) OFXPMLE   (D) OFXPMLD

36. (D) [L + O = 27]

12 15

L	U	C	K	N	O	W
↓	↓	↓	↓	↓	↓	↓
12	F	X	P	M	L	D
↓	↓	↓	↓	↓	↓	↓
27 – 12	7	24	16	13	12	4

↓

15

↓

O

Blood Relation

37. P, Q, R, S, T and U are six members of a family. R is the spouse of Q. U is the mother of T and S is the daughter of U. P's daughter is T and R's son is P. There are two couples in the family.Which one of the following is correct ?

(A) Q is the grandfather of T

(B) Q is the grandmother of T

(C) R is the mother of P

(D) T is the granddaughter of Q

37. (D)

T is the granddaughter of Q.

Hence, option (D) is correct.

Direction Test

38. Two friends X and Y start running and they run together for 50 m in the same direction and reach a point. X turns right and runs 60 m, while Y turns left and runs 40 m. Then X turns left and runs 50 m and stops, while Y turns right and runs 50 m and then stops. How far are the two friends from each other now ?

(A) 100 m   (B) 90 m

(C) 60 m   (D) 50 m

38. (A) Two friends X and Y start running.
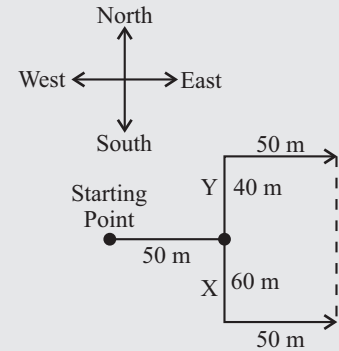
Hence distance between X and Y

= 60 + 40 = 100 m

Series Test

39. What is the value of X in the sequence 20, 10, 10, 15, 30, 75, X ?

(A) 105   (B) 120

(C) 150   (D) 225

39. (D)

Hence $x = 75 \times 3$

= 225

Series Test

40. In the series AABABCABCDABCDE ...,
which letter appears at the 100th place ?

(A) G   (B) H

(C) I   (D) J

40. (C) $\dfrac{1}{A} \ \dfrac{2}{AB} \ \dfrac{3}{ABC} \ \dfrac{4}{ABCD} \ \dfrac{5}{ABCDE}$

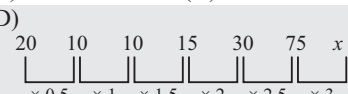......No. of letters upto 13th terms =

$\dfrac{13(13+1)}{2} = 91$

These letters will again start.

Hence 9th term = I

41. What is the value of X in the sequence
2, 12, 36, 80, 150, X ?

(A) 248   (B) 252

(C) 258   (D) 262

41. (B)

Hence X = 150 + 102

= 252

Syllogism

42. Two Statements followed by four
Conclusions are given below. You have
to take the Statements to be true even
if they seem to be at variance from the
commonly known facts. Read all the
Conclu sions and then decide which of
the given Conclusions logically follows/
follow from the Statements, disregarding
the commonly known facts :

Statement 1 : All pens are books.

Statement 2 : No chair is a pen.

Conclusion I : All chairs are books.
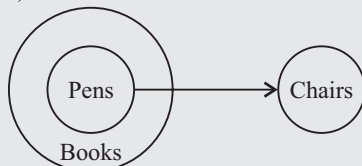
Conclusion II : Some chairs are pens.
Conclusion III : All books are chairs.
Conclusion IV : No chair is a book.

Which one of the following is correct?

(A) Only Conclusion-I

(B) Only Conclusion-II

(C) Both Conclusion-III and Conclusion
IV

(D) None of the Conclusions follows.

42. (D)

I. × II. × III. × IV. ×

Hence, none of the conclusions
follows.

43. Three Statements followed by three
Conclusions are given below. You have
to take the Statements to be true even
if they seem to be at variance from the
commonly known facts. Read all the
Conclusions and then decide which of
the given conclusions logically follows/
follow from the statments, disregarding
the commonly known facts :

Statement 1 : Some doctors are teachers.

Statement 2 : All teachers are engineers.

Statement 3 : All engineers are scientists.
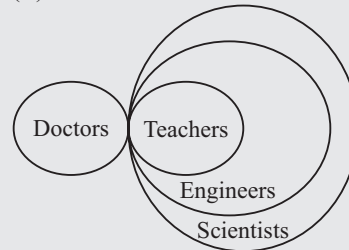
Conclusion I : Some scientists are doctors.

Conclusion II : All engineers are doctors.

Conclusion III : Some enginners are doc-
tors.

Which one of the following is correct ?

(A) Only Conclusion-I

(B) Only Conclusion-II

(C) Both Conclusion-I and Conclusion-
III

(D) Both Conclusion-I and Conclusion-II

43. (C)

I. ✓ II. × III. ✓

Only conclusion I and III follow.

Clock

44. Which date of June 2099 among the fol-
lowing is Sunday ?

(A) 4   (B) 5

(C) 6   (D) 7

44. (D) Suppose today is 5 June 2022.

Then the difference of years from
the year 2022 to 2099.

2099 – 2022 = 77 years

Number of leap years = $\dfrac{77}{4}$ = 19

So,   77 + 19 = 96 Days

$\dfrac{96}{7}$ = 13 weeks and 5 remaining
days.

The day on 5 June 2099 = Sunday
+ 5 days = Friday.

Hence, Sunday will be on 7 June
2099.

45. A man started from home at 14:30 hours
and drove to village, arriving there when
the village clock indicated 15:15 hours.
After staying for 25 minutes, he drove
back by a different route of length
1.25 times the first route at a rate twice
as fast reaching home at 16:00 hours. As

compared to the clock at home, the village
clock is :

(A) 10 minutes slow

(B) 5 minutes slow

(C) 10 minutes fast

(D) 5 minutes fast

45. (D) The time started from home = 14 : 30
Arriving village, the time in village
clock = 15 : 15
Time taken in journey = 45 minutes
Let Distance = d and Speed = s
After staying 25 minutes, the time
leaving village = 15 : 40 and, home
arrival time   = 16 : 00
Time taken in returning
             = 20 minutes
According to the question,
Distance of another road = 1.25 d
    And speed = 2s
Let difference in village clock
         = x minutes
Then, time taken from home to vil-
lage (t_1) = (45 + x) minutes
And time taken from village to
home (t_2) = (20 – x) minutes

∴ $\dfrac{d}{s} = t_1$ ...(i)

          $\dfrac{1.25d}{2s} = t_2$ ...(ii)

From eq.(i) and (ii)

$\dfrac{1.25}{2} \times t_1 = t_2$

$\dfrac{1.25}{2} \times (45 - x) = 20 - x$

225 + 5x = 160 – 8x

13x = –65

x = –5

Hence village clock is 5 minutes
fast.

46. Consider the following statements :

1. Between 3:16 p.m. and 3:17 p.m.,
both hour hand and minute hand
coincide.

2. Between 4:58 p.m. and 4:59 p.m.,
both minute hand and second hand
coincide.

Which of the above statements is/are
correct?

(A) 1 only

(B) 2 only

(C) Both 1 and 2

(D) Neither 1 nor 2

46. (C) From statement 1.

M = $\dfrac{2}{11}$ (H × 30° ± θ)

M = $\dfrac{2}{11}$ (3 × 30° ± 0)

$\dfrac{11}{2}$ M = 90°

M = $\dfrac{180}{11}$ = $16\dfrac{4}{11}$ minutes

From Statement 2,

Between 4 : 58 pm and 4 : 59 pm
both minutes hand and second hand
coincide.

Hence, statement 1 and 2 are cor-
rect.

Problem Solving Test

47. Three persons A, B and C are standing in a queue not necessarily in the same order. There are 4 persons between A and B, and 7 persons between B and C. If there are 11 persons ahead of C and 13 behind A, what could be the minimum number of persons in the queue ?

(A) 22   (B) 28

(C) 32   (D) 38

47. (A)
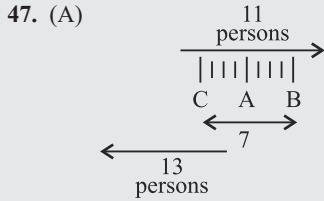
C's position from right $= 11 + 1 = 12^{th}$
Hence minimum number of persons
$= 11 + 1 + 10 = 22$

48. Eight students A, B, C, D, E, F, G and H sit around a circular table, equidistant from each other, facing the centre of the table, not necessarily in the same order. B and D sit neither adjacent to C nor opposite to C, A sits in between E and D, and F sits in between B and H. Which one of the following is definitely correct ?

(A) B sits in between A and G

(B) C sits opposite to G

(C) E sits opposite to F

(D) None of the above

48. (D)
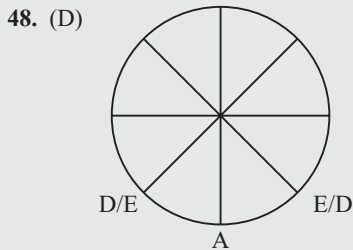
Since, the given information is not enough in the question.
Hence, none of the option is not correct.

Data Sufficiency

49. Consider the Question and two statements given below :

Question : Is Z an brother of X ?

Statement 1 : X is a brother of Y and Y is a brother of Z.

Statement 2 : X, Y and Z are siblings.
Which one of the following is correct in respect of the Question and the Statements ?

(A) Statement-1 alone is sufficient to answer the Question

(B) Statement-2 alone is sufficient to answer the Question

(C) Both Statement-1 and Statement-2 are sufficient to answer the Question.

(D) Both Statement-1 and Statement-2 are not sufficient to answer the Question.

49. (D) $+ \rightarrow$ Male, $- \rightarrow$ Female
From statement 1 and 2
$X^+ \leftarrow Y^+ \leftarrow Z$
Hence from both statements with respect to Z it is not known whether Z is brother or sister. Hence option (D) is correct.

50. Consider the Question and two statements given below in respect of three cities P, Q and R in a State :

Question : How far is city P from city Q ?

Statement 1 : City Q is 18 km from city R.

Statement 2 : City P is 43 km from city R.
Which one of the following is correct in respect of the Question and the Statements ?

(A) Statement-1 alone is sufficient to answer the Question

(B) Statement-2 alone is sufficient to answer the Question

(C) Both Statement-1 and Statement-2 are sufficient to answer the Question.

(D) Both Statement-1 and Statement-2 are not sufficient to answer the Question.

50. (D) There is no solution with respect to statement 1 and 2. Hence option (D) is correct.

51. Six persons A, B, C, D, E and F are sitting equidistant from each other around a circular table (facing the centre of the table).

Consider the Question and two Statements given below :

Question : Who is sitting on the immediate left of A ?

Statement-1 : B is sitting opposite to C and D is sitting opposite to E.

Statement-2 : F is sitting on the immediate left of B.

Which one of the following is. correct in respect of the Question and the Statements ?

(A) Statement-1 alone is sufficient to answer the Question

(B) Statement-2 alone is sufficient to answer the Question

(C) Both Statement-1 and Statement-2 are sufficient to answer the Question.

(D) Both Statement-1 and Statement-2 are sufficient to answer the Question.

51. (D) From statement 1 and 2,
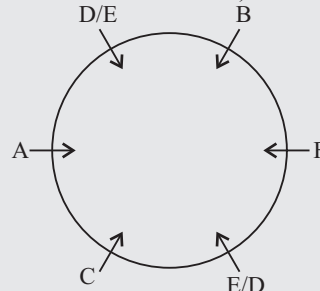
Hence, both statements are not sufficient to answer.

52. Consider the Question and two Statements given below :

Question : What is the age of Manisha?

Statement 1 : Manisha is 24 years younger than her mother.

Statement 2 : 5 years later, the ages of Manisha and her mother will be in the ratio 3 : 5.

Which one of the following is. correct in respect of the Question and the Statements ?

(A) Statement-1 alone is sufficient to answer the Question

(B) Statement-2 alone is sufficient to answer the Question

(C) Both Statement-1 and Statement-2 are sufficient to answer the Question.

(D) Both Statement-1 and Statement-2 are not sufficient to answer the Question.

52. (C) From statement 1,
Manisha's age cannot be find out because mother's age is not given.
From statement 2,
Let Manisha's age $= x$
Age of Manisha's mother
$$= y$$
5 years, later Manisha's age
$$= 3(x + 5)$$
5 years later age of Manisha's
$$= 5 (y + 5)$$
Manisha's age can not be find from statement 2 only.
Hence, both statements are required for find Manisha's age.

53. Six lectures A, B, C, D, E and F, each of one hour duration, are scheduled between 8:00 a.m. and 2:00 p.m.

Consider the Question and two Statements given below :

Question : Which lecture is in the third period?

Statement-1 : Lecture F is preceded by A and followed by C.

Statement-2 : There is no lecture after lecture B.

Which one of the following is correct in respect of the Question and the Statements ?

(A) Statement-1 alone is sufficient to answer the Question

(B) Statement-2 alone is sufficient to answer the Question

(C) Both Statement-1 and Statement-2 are sufficient to answer the Question.

(D) Both Statement-1 and Statement-2 are not sufficient to answer the Question.

53. (D) On the basis of statement 1, find out which is the third lecture, then it cannot be find out.
On the basis of statement 2 also the third lecture can not be find out.
Hence, on the basis of both statements can not be find out the third lecture.

Passage and Inferences

Direction (Q. No. 54 and 60)

Read the following **two passages** and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage-I

The main threat to maintaining progress growth and greenhouse gas emissions in human development comes from the increasingly evident unsustainability of production and consumption patterns. Current production models rely heavily on fossil fuels. We now that this is unsustainable because the resources are finite. The close link between enonomic needs to be severed for human development to become truly sustainable. Some developed countries have begun to alleviate the worst effects by expanding recycling and investing in public transport and infrastructure. But most developing countries are hampered by the high costs and low availability of clean energy sources. Developed countries need to support developing countries' transition to sustainable human development.

54. Unsustainability in production pattern is due to which of the following ?
1. Heavy dependence on fossil fuels
2. Limited availability of resources
3. Expansion of recycling

Select the correct answer using the code given below :

(A) 1 and 2 only   (B) 2 only

(C) 1 and 3 only   (D) 1, 2 and 3

54. (A) Statement 1 is correct, as stated in the passage that the current production model rely heavily on fossil fuels.
Statement 2 is correct, as stated in the passage that we now know that this is unsustainable because the resources are finite.
Statement 3 is not correct, the expansion of recycling does not imply unsustainability, but it seeks to reduce unsustainability and alleviate the worst effect.

55. Consider the following statements :
Developed countries can support developing countries' transition to sustainable human development by

1. making clean energy sources available at low cost.
2. providing loans for improving interest rates
3. encouraging them to change their production and consumption patterns.

Which of the statements given above is/are correct ?

(A) 1 only   (B) 1 and 2 only

(C) 2 and 3 only   (D) 1, 2 and 3

55. (A) Statement 1 is correct, as stated in the passage that but most developing countries are hampered by the high costs and low availability of clean energy sources. Therefore, developed countries can support developing countries' transition to sustainable human development by making clean energy sources available at low cost. The remaining two statements are not described in the passage.

Passage-II

Unless the forces and tendencies which are responsible for destroying the country's environment are checked in the near future and afforestation of denuded areas is taken up on a massive scale, the harshness of the climatic conditions and soil erosion by wind and water will increase to such an extent that agriculture, which is the mainstay of our people, will gradually become impossible. The desert countries of the world and our own desert areas' in Rajasthan are a grim reminder of the consequences of large-scale deforestation. Pockets of desert-like landscape are now appearing in other parts of the country including the Sutlej-Ganga Plains and the Deccan Plateau. Where only a few decades back there used to be lush green forests with perennial streams and springs, there is only brown earth, bare of vegetation, without any water in the streams and springs except in the rainy season.

56. According to the passage given above, deforestation and denudation will ultimately lead to which of the following ?
1. Depletion of soil resource
2. Shortage of land for the common man
3. Lack of water for cultivation

Select the correct answer using the code given below :

(A) 1 and 2 only   (B) 2 and 3 only

(C) 1 and 3 only   (D) 1, 2 and 3

56. (C) In the question, asked the lead of deforestation and denudation have been asked :
• Depletion of soil resource is described in the passage.

• Statement 2, shortage of land for the common man is not described.
• Statement 3, lack of water for cultivation is described in the passage as without any water in the streams and springs.

Passage-I

In simple matters like shoe-making, we think only a specially trained person will serve our purpose, but in politics, we presume that everyone who knows how to get votes knows how to administer a State. When we are ill, we call for a trained physician, whose degree is a guarantee of specific preparation and technical competence. We do not ask for the handsomest physician, or the most eloquent. One : well then, when the whole state is ill should we not look for the service and guidance of the wisest and the best ?

57. Which one of the following statements best reflects the message of the author of the passage ?
(A) We assume that in a democracy, any politician is qualified to administer a State.
(B) Politicians should be selected from those trained in administration.
(C) We need to devise a method of barring incompetence from public office.
(D) As voters select their administrators, the eligibility of politicians to administer a State cannot be questioned.

57. (B) Author is messaging throughout the passage that we should vote the trained-candidate participating for elections who provide the service and guidance with the wisest and the best. Therefore, politicians should be selected from those trained in administration.

Passage-II

The poverty line is quite unsatisfactory when it comes to grasping the extent of poverty in India. It is not only because of its extremely narrow definition of 'who is poor' and the debatable methodology used to count the poor, but also because of a more fundamental assumption underlying it. It exclusively relies on the notion of poverty as insufficient income or insufficient purchasing power. One can better categorize it by calling it income poverty. If poverty is ultimately about deprivations affecting human well-being, then income poverty is only one aspect of it. Poverty of a life, in our view, lies not merely in the impoverished state in which the person actually lives, but also in the lack of real opportunity given by social constraints as well as personal circumstances-to

choose other types of living. Even the relevance of low incomes, meagre possessions, and other aspects of what are standardly seen as economic poverty relate ultimately to their role in curtailing capabilities, *i.e.*, their role in severely restricting the choices people have to lead variable and valued lives.

58. Why is the methodology adopted in India to coun the 'poor' debatable ?
(A) There is some confusion regarding what should constitute the 'poverty line'.
(B) There are wide diversities in the condition of the rural and urban poor.
(C) There is no uniform global standard for measuring income poverty.
(D) It is based on the proposition of poverty as meagre income or buying capacity.

58. **(D)** The author explains through the passage that measuring poverty through the income or purchasing power is only a narrow way of looking at poverty. For example, "extremely narrow definition of 'who is poor' and the debatable methodology used to count the poor, but also because of a more fundamental assumption underlying it. It exclusively relies on the notion of poverty as insufficient income or insufficient purchasing power." Therefore, option (D) is correct.

59. Why is income poverty only one measure of counting the 'poor' ?
(A) It talks of only one kind of deprivation ignoring all others
(B) Other deprivations in a human life have nothing to do with lack of purchasing power.
(C) Income poverty is not a permanent condition, it changes from time to time.
(D) Income poverty restricts human choices only at a point of time.

59. **(A)** The author says about 'income poverty' in the passage, "If poverty is ultimately about deprivations affecting human well-being, then income poverty is only one aspect of it." The author, in the passage, later goes on to describe poverty, in the true sense, stems from a "lack of real opportunity given by social constraints as well as personal circumstances–to choose other types of living."

60. What does the author mean by 'poverty' of a life ?

(A) All deprivations in a human life which stem not only from lack of income but lack of real opportunities
(B) Impoverished state of poor people in rural and urban areas.
(C) Missed opportunities in diverse personal circumstances
(D) Material as well as non-material deprivations in a human life which restrict human choices permanently

60. **(A)** Although the phrase, "all deprivations" might seem extreme, the author does make a case for deprivations stemming from lack real opportunities, rather than solely income. So, option (A) is correct.

Read the following **passage** and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage-I

In some places in the world, the productivity of staples such as rice and wheat has reached a plateau. Neither new strains nor fancy agrochemicals are raising the yields. Nor is there much unfarmed land left that is suitable to be brought under the plough. If global temperature continues to rise, some places will become unsuitable for farming. Application of technology can help overcome these problems. Agricultural technology is changing fast. Much of this change is brought about by affluent farmers in the West/ Americas. Techniques developed in the West are being adapted in some places to make tropical crops more productive. Technology is of little use if it is not adapted. In the developing world, that applies as much to existing farming techniques as it does to the latest advances in genetic modification. Extending to the smallholders and subsistence farmers of Africa and Asia the best of today's. Agricultural practices, in such simple matters as how much fertilizers to apply and when, would lead to a greatly increased availability of food for humanity. So would things like better roads and storage facilities, to allow for the carriage of surpluses to markets and reduce wastage.

61. Based on the above passage, the following assumptions have been made :
1. Development of agricultural tech nology is onfined to developed countries.
2. Agricultural technology is not adapted in developing countries.
Select the correct answer using the code given below :
(A) 1 only
(B) 2 only
(C) Both 1 and 2
(D) Neither 1 nor 2

61. **(D)** **Assumption 1 :** In the passage, "Application of technology can help overcome these problems. Agricultural technology is changing fast. Much of this change is brought about by affluent farmers in the West/Americas". Here, focus on the use of the word "much". From this, we can infer that the West holds a major share of technological development in agriculture, but it does not imply "no technological development of agriculture in the developed countries". Therefore, it does not mean that technological development in agriculture is confined to the West. So, assumption 1 is not valid.
Assumption 2 : The author only makes a caution about copying and deploying the technologies of the West with respect to their suitability in different climatic regions of the Tropics. However, this does not imply that agricultural technology is not adapted in developing countries at all. Therefore, assumption 2 is not valid.

62. Based on the above passage, the following assumptions have been made :
1. Poor countries need to bring about change in their existing farming techniques.
2. Developed countries have better infrastructure and they waste less food.
Which of the above assumptions is/are valid ?
(A) 1 only
(B) 2 only
(C) Both 1 and 2
(D) Neither 1 nor 2

62. **(A)** As per the passage, "Technology is of little use if it is not adapted. In the developing world, that applies as much to existing farming techniques as it does to the latest advances in genetic modification." The passage clearly recommends the need to extend latest agricultural practices in simple matters like the timing and amount of fertilizer usage. Therefore, assumption 1 is valid.
There is no mention in the passage of the infrastructure status of the developed countries or the food wastage there. Hence assumption 2 is not valid.

63. Based on the above passage, the following assumptions have been made :
1. Growing enough food for future generations will be a challenge.

2. Corporate farming is a viable option for food security in poor countries.

Which of the above assumptions is/are valid ?

(A) 1 only (B) 2 only
(C) Both 1 and 2 (D) Neither 1 nor 2

63. (A) **Assumption 1 :** In the passage, "Nor is there much unfarmed land left that is suitable to be brought under the plough. If global temperature continues to rise, some places will become unsuitable for farming." It is clear that growing enough food for future generations will be a challenge. Hence assumption 1 is valid.

Assumption 2 : There is no mention or indication of corporate farming in the passage. So, this assumption is not valid.

Direction (Q. No. 64 to 67)

Read the following **two passages** and answer the items that follow the passages. Your answers to these items should be based on the passsages only.

Passage-I

Natural selection cannot anticipate future environments on the earth. Therefore, the set of existing organisms can never be fully prepared for environmental catastrophes that await life. An outcome of this is the extinction of those species which cannot overcome environmental adversity. This failure to survive, in modern terms, can be attributed to the genomes which are unable to withstand geological vagaries or biological mishaps (infections, diseases and so on). In biological evolution on the earth, extinction of species has been a major feature. The earth may presently have up to ten million species, yet more than 90% of species that have ever lived on the earth are now extinct. Once again, the creationist doctrines fail to satisfactorily address why a divine creator will firstly bother to create millions of species and then allow them to perish. The Darwinian explanation for extinct life is once again simple, elegant and at once convincing-organisms go extinct as a function of environmental or biological assaults for which their inheritance deems them ill-equipped. Therefore, the so-called Darwinian theory of evolution is not a theory at an. Evolution happens-this is a fact. The mechanism of evolution (Darwin proposed natural selection) is amply supported by scientific data. Indeed, to date no single zoological, botanical, geological, palenontological, genetic or physical evidence has refuted either of the central two main Darwinian ideas. If religion is not taken into consideration, Darwinian laws are acceptable just like the laws proposed by

Copernicus, Galileo, Newton and Einstein-sets of natural laws that explain natural phenomena in the universe.

64. According to the passage, natural selection cannot anticipate ... future environments on the earth as :
1. species not fully prepared to face the environmental changes that await them will face extinction
2. all the existing species would get extinct as their genomes will not withstand biological mishaps
3. Inability of the genome to withstand environmental changes would result in extinction
4. extinction of species is a common feature

Select the correct answer using the code given below :

(A) 1, 2 and 3 (B) 2, 3 and 4
(C) 1, 3 and 4 (D) 1, 2 and 4

64. (C) **Statement 1 :** In the passage, "Therefore, the set of existing organism can never be fully prepared for environmental catastrophe that await life. An outcome of this is the extinction of those species which cannot overcome environmental adversity". According to the passage, natural selection conveys that those species which are not adapted to the environment will get extinct. So this statement is correct.

Statement 2 : The passage clearly conveys that only those species that are not able to adapt to changes in the environment will get extinct. This is inferred from the lines "the extinction of those species which cannot overcome environmental adversity. The phrase "All the existing species" in this statement is incorrect.

Statement 3 : As explained above, "This failure to survive, in modern terms, can be attributed to the genomes which are unable to withstand geological vagaries or biological mishaps. So this statement is correct.

Statement 4 : The passage says that "In the biological evolution on the earth, extinction of the species has been a major feature". Hence we can consider this to be a common feature. So this statement is correct.

65. The passage suggests that Darwinian theory of evolution is not a theory at all because :

(A) it does not satisfy the creationist doctrine
(B) extinction is a function of environment and biological assaults

(C) there are no evidences to refute it
(D) existence of organisms is attributed to a creator

65. (C) Option (c) is correct: The passage clearly states, "Therefore, the so-called Darwinian theory of evolution is not a theory. Evolution happens—it is a fact. Mechanism of evolution (Darwin proposed natural selection) by scientific data." In fact, to date no single animal, botanical, geological, paleontological, genetic or physical evidence has contradicted either of the central two main Darwinian ideas." Therefore, there is no evidence to refute it, which increases the credibility of Darwinian theory and establishes it as a fact. It is more than a fact or law like other natural laws. Hence this option is correct.

66. With reference to the passage, the following assumptions have been made :
1. Only species that have the ability to overcome environmental catastrophes will survive and perpetuate.
2. More than 90% of the spices on the earth are in the danger of getting extinct due to drastic changes in the environment.
3. Darwin's theory explains all the natural phenomena.

Which of the above assumptions is/are valid ?

(A) 1 only (B) 1 and 2 only
(C) 3 only (D) 1, 2 and 3

66. (A) ● Statement 1 is correct: As stated in the passage, extinction of a species is mainly driven by non-adaptation to environmental catastrophe. This is reflected in the phrase "one consequence of this is the extinction of species that cannot overcome environmental adversity. This failure to survive, in modern terms, can be attributed to genomes that are unable to withstand geological irregularities or biological accidents, infections, diseases, etc.
● Statement 2 is False: It is a false presumption because the passage does not predict the probability of future extinction. It only provides statistics on past extinctions in the phrase, "The Earth may currently have ten million species, yet more than 90% of the species that once lived on Earth are now extinct."

Passage-II

With steady economic growth, higher literacy and increasing skill levels, the number of Indian middle-class families has gone up exponentially. Direct results of the affluence have been changes in dietary patterns and energy consumption levels. People have moved to a higher protein-based diet like milk products, fish and meat, all of which need significantly more water to produce than cereal-based diets. Increasing use of electronic and electric machines/ gadgets and motor vehicles needs more and more energy and generation of energy needs water.

67. Which one of the following statements best reflects the crux of the passage?

(A) People should be persuaded to continue with the mainly Indian traditional cereal-based diets.

(B) India needs to focus on developing agricultural productivity and capacity for more energy generation in the coming years.

(C) Modern technological developments result in the change of cultural and social behaviour of the people.

(D) Water management practices in India need to change dramatically in the coming years.

67. (D) The number of middle-class households in India has been growing rapidly, resulting in changes in dietary patterns and energy consumption levels. People have moved to a higher protein-based diet like milk products, fish and meat, all of which need significantly more water to produce than cereal based diets. Increasing population requires more and more energy, and water is needed for the generation of energy. Therefore, there is a need to bring dramatic changes in the water management systems in India in the coming years. Considering all these points, option (d) best reflects the essence of this passage.

Direction (Q. No. 68 to 71)

Read the following **two passages** and answer the items that follow the passages. Your answers to these items should be based on the passages only.

Passage-I

For two or three generations past, even-increasing numbers of individuals have been living as workers merely, not as human beings. An excessive amount of labour is rule today in every circle of society, with the result that man's spiritual element cannot thrive. He finds it very difficult to spend his little leisure in serious activities. He does not want to think; or he cannot even if he wants to. He seeks not self-improvement, but entertainment which would enable him to be mentally idle and to forget his usual activities. Therefore, the so called culture of our age is dependant more on cinema than on theatre, more .on newspapers, magazines and crime stories than on serious literature.

68. The passage is based on the idea that :

(A) man should not work hard

(B) the great evil of our age is overstrain

(C) man cannot think well

(D) man cannot care for his spiritual welfare

68. (B) Option (b) is correct : The passage talks of today's workers being engaged in excessive labour, which limits their spiritual and intellectual development. So we can conclude that the idea of the passage is that the greatest evil of our age is over stress.

69. Man does not seek self-improvement because he :

(A) is not intellectually capable

(B) has no time to do so

(C) is distracted by materialism

(D) loves amusement and is mentally idle

69. (B) Option (b) is correct: A phrase in the passage states that "He finds it very difficult to spend his little leisure time in serious activities." This statement shows the unavailability of time, due to which man does not seek self-improvement.

Passage-II

The demographic dividend, which has begun in India and is expected to last another few decades, is a great window of opportunity. The demographic dividend is basically a swelling in the working age population, which conversely means that the relative ratio of very young and very old will, for a while, be on the decline. From the experience of Ireland and China, we know that this can be a source of energy and an engine of economic growth. The demographic dividend tends to raise a nation's savings rate since in any nation, it is the working age population that is the main saver. And since the savings rate is an important driver of growth, this should help elevate our growth rate. However, the benefits of demographic dividend depend on the quality of the working age population. And this implies bringing back the importance of education, acquisition of skills and human capital.

70. Which of the following would invariably happen in a country, when the demographic dividend has begun to operate ?

1. The number of illiterate-people will decrease.

2. The ratio of very old and very young will decrease for a while.

3. Population growth rate will quickly stabilize.

Select the correct answer using the code given below

(A) 1 and 2 only (B) 2 only

(C) 1 and 3 only (D) 1, 2 and 3

70. (B)
- Statement 1 is incorrect: The number of illiterate people will decrease based on the emphasis placed by the government and other stakeholders. This has nothing to do with the operation of the demographic dividend. However, literacy will increase and the quality of the demographic dividend will increase.
- Statement 2 is correct: In case of demographic dividend, there will be an increase in the number of young people as compared to dependents- children and older people. So as long as the demographic dividend persists, the ratio of the very old to the very young will shrink.
- Statement 3 is incorrect : The passage does not discuss the relationship between demographic dividend and population growth. It cannot be said directly that the population growth rate will soon stabilise on the operation of the demographic dividend.

71. With reference to the passage, which of the following inferences can be drawn ?

1. Demographic dividend is an essential condition for a country to rapidly increase its economic growth rate.

2. Promotion of higher education is an essential condition for a country for its rapid economic growth.

Select the correct answer using the code given below

(A) 1 only (B) 2 only

(C) Both 1 and 2 (D) Neither 1 nor 2

71. (D) • Statement 1 is incorrect: According to the passage, demographic dividend provides a (great) opportunity for economic growth. However, this does not mean that it is a "necessary condition" for economic development. This means that even if a country is not in its demographic dividend phase, economic growth is possible.

• Statement 2 is incorrect : The passage only talks about the importance of education (acquisition of skills and human capital). Vocational education also helps in the acquisition of skills. Therefore, based on the information given in the passage, we cannot infer that higher education is a necessary condition for rapid economic development of a country.

Passage-I

In an economic organization, allowing mankind to benefit by the productivity of machines should lead to a very good life of leisure, and much leisure is apt to be tedious except to those who have intelligent activities and interests. If a leisured population is to be happy, it must be an educated population, and must be educated with a view to enjoyment as well as to the direct usefulness of technical knowledge.

72. Which of the following statements best reflects the underlying tone of the passage ?

(A) Only an educated population can best make use of the benefits of economic progress.

(B) All economic development should be aimed at the creation of leisure.

(C) An increase in the educated population of a country leads to an increase in the happiness of its people.

(D) Use of machines should be encouraged in order to create a large leisured population.

72. (A) Option (a) is correct: The passage clearly outlines the advantages of an educated population. Educated masses are happy, they are aware of intelligent activities and interests and enjoy technical knowledge

etc. to make the best use of their free time. Using only makes it an extreme statement. In spite of its extreme nature, option (a) is the most suitable of all the available options.

Passage-II

If presents bring less thrill now that we are grown up, perhaps it is because we have too much already; or perhaps it is because we have lost the fullness of the joy of giving, and with. it the fullness of the joy of receiving. Children's fears are poignant, their miseries arc acute, but they do not look too forward nor too far backward. Their joys are clear and complete, because they have not yet learnt always to add 'but' to every proposition. Perhaps w.e are too cautious, too anx. ious, too skeptical. Perhaps some of our cares would shrink if we thought less about them and entered with more single minded enjoyment into the happiness that come our way.

73. With reference to the passage, which one of the following statements is correct ?

(A) It is not possible for adults to feel thrilled by presents.

(B) There can be more than one reason why adults feel less thrilled by presents.

(C) The author does not know why adults feel less thrilled by presents.

(D) Adults have less capacity to feel the joy of loving or being loved.

73. (B) • Option (a) is incorrect: This option is an excessive exaggeration of the words given by the author in the passage. The author speaks only of the tendency for adults to be less thrilled by pleasant events- he refers to the giving and receiving of gifts to illustrate an example for the same. The author makes no claims or assumptions anywhere that adults cannot be enthralled by gifts at all.

• Option (b) is correct: The author states that adults feel less thrilled due to several reasons. For example, being very cautious, very worried, very suspicious etc.

• Option (c) is incorrect: According to the passage, the author has properly argued why adults are not happy with gifts, for example, the author reasoned, "If gifts bring less thrill now that we have grown up , so perhaps it is because we already have too much, or perhaps because we

have lost the fullness of the joy of giving and the fullness of the joy of receiving gifts."

• Option (d) is incorrect: The author does not talk about the adult's "ability" to feel love or happiness. The author only focuses on the reasons why an adult is not thrilled.

74. The author of the passage is against :

(A) worrying too much about the past and future

(B) being in the habit of thinking about presents

(C) not being thrilled by new things

(D) giving and receiving joy only partially

74. (A) Option (a) is correct: Worrying too much about the past and future is the result of excessive thinking which is reflected in the lines, "Maybe we are too cautious, too worried, too sceptical". Hence option (a) is correct.

Passage-I

The majority of people who fail to accumulate money sufficient for their needs, are generally easily influenced by the opinions of others. They permit the newspapers and the gossiping neighbours to do their thinking for them. Opinions are the cheapest commodities on the earth. Everyone has a flock of opinions ready to be wished upon by anyone who will accept them. If you are influenced by opinions when you reach decisions, you will not succeed in any undertaking.

75. Which one of. the following is implied by the passage ?

(A) Most of the people do not accumulate money for their needs.

(B) Most of the people never fail to accumulate money for their needs.

(C) There are people who fail to accumulate money for their needs.

(D) There is no need to accumulate money

75. (C) • Option (c) is correct as the passage talks about the majority of people who are not able to accumulate enough money to meet their needs. This would mean that there are groups of people who are not able to accumulate money to meet their needs.

- Option (a) is incorrect as the passage is referring to people who are not able to accumulate enough money to meet their needs. It does not tell in what proportion people are able to accumulate wealth or fail. Thus, statement 1 that most people do not accumulate wealth to meet their needs is not contained in this passage.
- Similarly option (b) is also incorrect, the implication given in statement 2 that most people do not fail to deposit money is also false.
- Option (d) is incorrect: The passage mentions the need to accumulate money to meet one's needs. And if one does not do this, he/she will be misled by the plethora of ideas and ultimately will never be successful in life.

76. What is the main idea of the passage ?
   (A) People should not be influenced by the opinions of others
   (B) People should accumulate as much money as they can.
   (C) People should neither give nor accept the opinions.
   (D) People will succeed in any undertaking if they do not accept any opinion at all.

76. (A) Option (a) is correct as the author of the passage says that to be successful in any undertaking, people should not be influenced by the opinion of others while taking decisions.
   - Option (b) is incorrect as the author is not suggesting the need to "accumulate" wealth beyond one's need. It only talks about "enough money for their needs".
   - Option (c) is incorrect as the passage states that opinion is the cheapest commodity, but does not state that people should stop giving or accepting advice altogether.
   - Option (d) is wrong because the passage says that people will not be successful if they accept the opinion of others when arriving at a decision. However, we cannot predict that one will be successful in his venture if one does not accept such an opinion, as it may depend on many other factors as well.

Passage-II

"The social order is a sacred right which is the basis of all other rights. Nevertheless, this right does not come from nature, and must therefore be founded on conventions."

77. With reference to the above passage, which of the following statements is/are correct ?
   1. Conventions arc the sources of rights of man.
   2. Rights of man can be exercised only when there is a social order.
   Select the correct answer using the code given below.
   (A) 1 only   (B) 2 only
   (C) Both 1 and 2   (D) Neither 1 nor 2

77. (C) Statement (1) is correct. The passage clearly mentions, "Social order is a sacred right which is the basis of all other rights. Nevertheless, this right does not come from nature, and must therefore be based on conventions."
   - Statement (2) is correct. The first line of the passage clearly states that the right to social order is the basis of all other rights. From this we can safely infer that human rights can be exercised only if there is a social order.

Passage-I

To encourage research is one of the functions of a university. Contemporary universities have encouraged research, not only in those cases where research is necessary, but on all sorts. of entirely unprofitable subjects as well. Scientific research is probably never completely valueless. However silly and insignificant it may seem. however mechanical and unintelligent the labours of the researchers, there is always a chance that the results may be of value to the investigator of talent, who can use the facts collected for him by uninspired but industrious researchers as the basis of some fruitful generalization. But where research is not original, but consists in the mere rearrangement of existing materials, where its object is not scientific but literary or historical, then there is a risk of the whole business becoming merely futile.

78. The author's assumption about scientific research is that :
   (A) it is never very valuable
   (B) it is sometimes very valuable
   (C) it is never without some value
   (D) it is always very valuable

78. (C) Option (c) is correct. The author clearly states that research is always valuable. It can be seen in these lines, "Scientific research is prob-

ably never completely valueless. However silly and insignificant it may seem, however mechanical and unintelligent the labours of the researchers, there is always a chance that the results may be of value to the investigator of talent, who can use the facts collected for him by uninspired but industrious researchers as the basis of some fruitful generalisation."

79. According to the authour :
   (A) not many research results can be of value to an intelligent investigator
   (B) a research result is always valuable to an intelligent investigator
   (C) any research result can be of value to an intelligent investigator
   (D) a research result must always be of some value to an intelligent investigator

79. (C) Option (c) is correct: From the line "Scientific research is probably not entirely useless" we can infer that any result can be valuable. It denotes the possibility that any outcome could be valuable.

Passage-II

"How best can the problems of floods and droughts be addressed so that the losses are minimal and the system becomes resilient ? In this context, one important point that needs to be noted is that India gets 'too much' water (about 75% of annual precipitation) during 120 days (June to September) and 'too little' for the remaining 245 days. This skewed water availability has to be managed and regulated for its consumption throughout the year.

80. Which one of the following best reflects the practical, rational and lasting solution ?
   (A) Constructing huge concrete storage tanks and canals across the country
   (B) Changing the cropping patterns and farming practices
   (C) Interlinking of rivers across the country
   (D) Buffer stocking of water through dams and recharging aquifers

80. (D) Option (d) is correct; Buffer stocking of water through recharging dams and aquifers will mean that excess water is being stored in a practical and cost-effective manner. Other than that, there are no stability issues involved. The recharged aquifers will also ensure that groundwater is available for longer duration and also during the rainy season.

❑❑