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	TEST BOOKLET	Test Booklet Series
T.B.C: P-SIA-A-GS	GENERAL STUDIES - PAPER – II	
Serial: GSPII-2025AIMT3	CSAT	**B**
	ALL INDIA MOCK TEST – III	
	EXPLANATION	

Time Allowed: Two Hours   *Maximum Marks: 200*

I N S T R U C T I O N S

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES *NOT* HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.

2. ENCODE CLEARLY THE TEST BOOK SERIES **A, B, C or D** AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE ANSWER SHEET.

3. You have to enter your Roll Number on the Test Booklet in the Box.

   Provided alongside. *DO NOT* write anything else on the Test Booklet.

4. This Test Booklet contains **80 items** (questions). Each item is printed in **English**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ONLY ONE response for each item.

5. You have to mark all your responses ONLY on the separate Answer Sheet provided. See directions in the Answer Sheet.

6. All items carry equal marks.

7. Sooner than you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.

8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator *only the Answer Sheet.* You are permitted to take away with you the Test Booklet.

9. Sheets for rough work are appended in the Test Booklet at the end.

10. Penalty **for Wrong Answers**.

THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE

TYPE QUESTION PAPERS.

   (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third (0.83)** of the marks assigned to that question will be deducted as penalty.

   (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to   be correct and there will be same penalty as above to that question7.

   (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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S.(1) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 1

Economics is very much based on the idea that people care about outcomes. If they work, they work for money. If they judge politics, they think about the benefits of public policies. If they look at inequality- to name a very current topic-they worry about the unequal distribution of income and wealth. But there is more to human welfare than outcomes. The process also matters. People attach value to the process through which outcomes like money, public policies, or inequality are achieved. While outcomes clearly are relevant, economics needs to integrate the process to account for human utility and behaviour.

1. Which of the following can be most appropriately derived as a corollary from the ideas presented in the passage?
   1. A fair legal process, even if it leads to a harsh sentence, may be perceived as more acceptable by the public than an arbitrary or biased trial that results in leniency.
   2. Countries will support trade agreements purely based on the economic gains they offer, without concern for the negotiation process or whether the terms are seen as fair.
   3. As long as inflation is kept under control, the public does not care whether the central bank's actions were independent or politically motivated.
   4. People are more likely to support climate policies that involve inclusive decision-making, even if the immediate benefits are unevenly distributed.

   Select the correct answer using the code given below:
   (a) 1 and 2 only
   (b) 1 and 4 only
   (c) 2 and 3 only
   (d) 3 and 4 only

   EXPLANATION:
   Option 1: The passage talks about how the process matters as much as the outcome. A fair legal process, even if it leads to a harsh sentence, might be more acceptable than an arbitrary trial. This directly connects to the idea that people value the fairness and transparency of processes. Option 4: This statement suggests that people care about how decisions are made (inclusive decision-making), even if the outcomes are unevenly distributed. This aligns with the passage's argument that the process matters, not just the final outcome. The other options (2 and 3) are focused more on outcomes and ignore the importance of the process, so they do not match the argument in the passage as well as options 1 and 4.

S.(2) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE – 2

There is also growing concern over the polarisation of the media on political and ideological lines. Neutrality has become the casualty as rhetorical debates have overtaken substantive discussions and the newsroom has been turned into the new battleground for ideologies rather than new ideas. The language of the media has also undergone a sea change not just in terms of grammar and literary aspects but also the tone and tenor. Aggression has become the new language with even anchors turning often into activists. Indeed, it would not be an exaggeration to say that activism is fast replacing journalism.

2. Which of the following statements best reflect the most logical and rational inferences that can be made from the passage?
   (a) Meaningful dialogue is being sidelined as newsrooms morph into stages for ideological warfare, with impartial journalism eroding under the weight of confrontational narratives.
   (b) Media discourse has transformed dramatically, moving beyond changes in language and style to embrace a sharper, more combative tone—where aggression dominates and anchors shift from informing the public to influencing it.
   (c) The media's role has shifted from impartial reporting to an arena of ideological divides, where combative rhetoric now eclipses meaningful discussions, and advocacy increasingly replaces conventional journalism.
   (d) Media today is sharply divided along political lines, with many anchors abandoning neutrality for activism, and aggressive rhetoric replacing balanced reporting.

   EXPLANATION:
   The option (c) captures the shift described in the passage, including the polarization of the media, the decline in neutrality, the rise of aggressive rhetoric, and the replacement of traditional journalism with activism.

S.(3-4) Directions for the following 2 (Two) items: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 3

In light of the increasing commodification of nocturnal cultural practices, and the intensity of their regulation, it is possible to envisage the development of urban lifestyles based on acts of 'being out'. In a majority of cases, people imagine street space as far removed from the experience of being safe, as unable to provide friendly encounters. 'People see the street as a frightening space, a space for disputes. An important sign of this is that people feel safer when there are less people on the street. We believe that there is a very close relationship between the street, safety and cultural practices that needs to be understood if inclusion policies aimed at marginal groups are to succeed.

3. Which one of the following statements best reflects what is implied by the passage?
   (a) There is a deep-rooted fear and mistrust associated with public street spaces, where social presence is seen not as a source of safety but as a potential threat.
   (b) Despite increasing regulation of night-time spaces, understanding the relationship between street spaces, safety, and cultural practices is crucial for reclaiming them, especially for marginalized groups.
   (c) Commercialized and regulated urban streets, perceived as unsafe, need policies that address safety and culture to help marginalized groups reclaim them.
   (d) To create effective inclusion policies for marginalized groups, it's essential to understand how street spaces, safety, and cultural practices are interconnected.

   EXPLANATION:
   Option (d) emphasizes that effective inclusion policies for marginalized groups require an understanding of how street spaces, safety, and cultural practices are interconnected. This insight is key to creating spaces where marginalized groups can feel safe and included.

4. Based on the above passage, the following assumptions have been made:

1. City administrations, in partnership with private entities, could attract urban crowds at night through free entertainment and food trucks, shifting the perception of unsafe, conflict-ridden streets.

2. If the Urban Planning Commission forms a task force to study the interplay of street space, safety, and cultural practices in the top 5 cities and implements nationwide nightlife and street initiatives, it would promote the effective inclusion of marginalized groups.

Which of the statements given above is/are valid?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

EXPLANATION:

Assumption 1 is invalid. While such initiatives may help shift the perception of unsafe streets, there is a risk that they could phase out or overshadow the informal cultural practices followed by marginalized groups, potentially leading to greater exclusion rather than inclusion. Assumption 2 is invalid. Assumption 2 is invalid. The interplay between street space, safety, and cultural practices is nuanced and varies from city to city and town to town. A top-down, nationwide initiative might not address local contexts effectively. A bottom-up, community-driven approach would be more suited to promote the inclusion of marginalized groups in urban spaces

5. The smallest number which is a common multiple of two different natural numbers is 1271. When 10 is added to the larger number, we get a new number 'n'. When 10 is subtracted from the smaller number, we get a new positive number 'm'. What is the largest natural number that can divide both 'm' and 'n'?

(a) 1

(b) 2

(c) 3

(d) 4

EXPLANATION:

1271 = 1*1271. LCM = 1271

1271 = 31*41. LCM = 1271

There are no other factors for 1271.

If the smaller number is 1, when 10 is subtracted from 1, we get a negative number. Hence, the originals numbers are not 1 and 1271.

The original numbers are 31 and 41.

m = 31-10 = 21

n = 41+10 = 51

HCF of 21 and 51 = 3.

6. Four boys and four girls need to be seated on eight numbered chairs (1 to 8). However, only two of the boys are permitted to occupy the chairs labelled with even numbers. In how many ways can they be arranged?

(a) 1234

(b) 2345

(c) 3456

(d) 5678

EXPLANATION:

Even numbers from 1 to 8 are: 2, 4, 6 and 8.

Event 1: Select two boys out of four boys and arrange then in in four chairs that are labelled with an even number.

Number of ways = 4C2 * 2! = 12

Event 2: Arrange the remaining 2 boys in two of the four odd numbered chairs.

Number of ways = 4*3 = 12

Event 3: Arrange the four girls in the remaining 4 chairs.

Number of ways = 4! = 24

Total number of arrangements = 12*12*24 = 3456

7. Out of 150 students who took both English and Math exams, 20% failed in both subjects, while one-tenth passed in both. The number of students who passed English is twice the number who passed Math. How many students passed only in Math?

   (a) 45

   (b) 30

   (c) 25

   (d) 15

   EXPLANATION:

   The number of students who passed in at least one of the two subjects = 150-(20% of 150) = 120

   The number of students passed in Math and English = (1/10)*150 = 15.

   Let the number of students passed in English be 'E', and the number of students passed in Math be 'M'.

   Number of students passed in English alone = E-15

   Number of students passed in Math alone = M-15

   (E-15)+(M-15)+15 = 120

   E+M-15=120

   E+M = 135

   Given that, E=2M. Hence,

   2M+M = 135

   M = 45

   Number of students passed in Math = 45

   Number of students passed in Math alone = 45-15 = 30.

Directions 8:

8. Consider the following statements and conclusions. Assume the statements to be true, even if they appear to contradict commonly known facts. Read all the conclusions carefully and then decide which of the given conclusions logically follow(s) from the statements.

   Statement I: All comets are asteroids.

   Statement II: Every meteor is a comet.

   **Statement III:** Some satellites are asteroids.

   Conclusions:

   I. All asteroids being meteors is a possibility.

   II. No satellite is a meteor.

(a) Only Conclusion I follows

(b) Only Conclusion II follows

(c) Both Conclusions I and II follow

(d) Neither Conclusion I nor II follows

EXPLANATION:
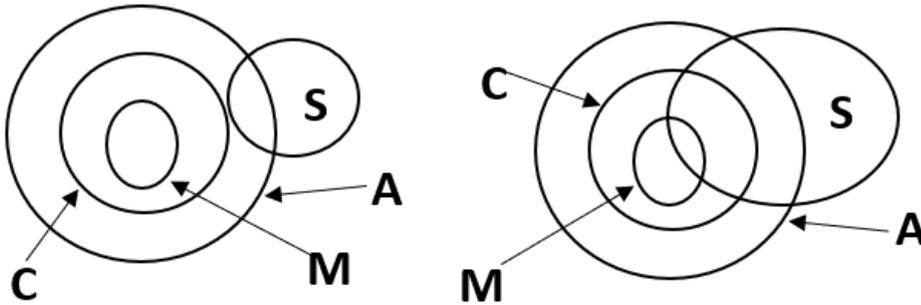
9. Let w and x be two distinct odd numbers, and y and z be two distinct even numbers. Consider the following statements.

   1. If (w-x*y-z) is positive, then the result is an odd number.
   2. (w*x)/(y*z) is never a natural number.
   3. If $(w-y)^2 - (x-z)^2$ is a positive integer, then the result is an even number.

   Which of the statements given above are correct?

   (a) 1 and 2 only

   (b) 1 and 3 only

   (c) 2 and 3 only

   (d) 1, 2 and 3

   EXPLANATION:

   Statement 1:

   x*y = even number.

   odd number – even number – even number = odd number.

   Statement 1 is true.

   Statement 2:

   w*x = odd number

   y*z = even number

   (Odd number)/(even number) is never a natural number.

   Statement 2 is true.

   Statement 3:

   (w-y) is odd. Square of odd number is odd.

   (x-z) is odd. Square of odd number is odd.

   Odd number – odd number = even number.

   Statement 3 is true.

S.(10) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 1

Unilateral and arbitrary interventions to circumvent mutually worked-out multilateral treaties can only be a no-win game that throws the markets and the global economy into turmoil. Globalisation has made national economies so mutually dependent that consensual policies are often more appropriate.

10. Which one of the following statements best reflects the logical inference from the passage given above?

(a) In today's globalized, free-trade economy, the subtle undercurrent of dominance by the Global North over the Global South should be minimized.

(b) In a globalized economy, nations with abundant natural resources, such as oil or uranium, should refrain from leveraging power dynamics for trade advantages.

(c) Attempts by powerful nations to steer global trade often strain interdependent economies, fuelling geopolitical tensions and deepening crises like unemployment and poverty.

(d) The primary role of international governing bodies such as the UN, WTO, and IMF is to ensure fair global trade practices between developed and developing economies.

EXPLANATION:

Option (c) is correct because it reflects the passage's core message that unilateral actions in a globally interdependent economy create instability. It highlights the resulting tensions and crises, aligning with the idea that such moves benefit no one.

S.(11) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 2

There is no universal benchmark defining a developed country. However, the World Bank's per capita income threshold for high income countries currently set at $14,006 for 2024-25 is widely accepted as the threshold for a developed country as well. This threshold has risen from $9646 in 1997-98, marking an annual increase of $176.33. Extrapolating this trend, the target income level for 2047-48 could be around $18,414. India's per capita income as of 2022-23 is $2381. This shows the challenge before us. Some have calculated the target per capita income at a higher level of $21,664. Obviously, a higher per capita income target would require a higher rate of growth.

11. Which one of the following is the most important implication of the passage?

(a) Though not a standard benchmark, the per capita income threshold of World Bank can be used by India to chart its growth path.

(b) Growth-driven economy is the need of the hour for India to match the per capita incomes of developed countries.

(c) The challenge before India is to at least match up to the annual rate of growth that is inferred from the past income thresholds determined by the World Bank.

(d) The increase in income threshold, which has been significant after 1997-98 and is likely to continue in the same rate till 2047-48, can be applied to Indian context as well.

EXPLANATION:

Option (a) is only partially correct, as it is a direct interpretation of the passage, but not its 'implication,' which the question seeks to answer. Option (b) is a policy prescription, which is not the main implication of the passage. Also, the passage only talks about "higher rate of growth" required to attain the high per capita income threshold and not about that being the solution for India to stand on par with the

developed countries. Option (d) is wrong, because of its emphasis on the annual threshold increase of $176.33, which is not prescribed by the passage to be the benchmark for India. Option (c) is the only realistic implication of the passage, which also captures its essence.

S.(12) Directions for the following 1 (One) item: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 3

The greatest advantage of economics over other social sciences was that many aspects of it could be measured. Knowing what people earned, spent, saved, and invested was a window onto human behaviour which could be graphically illustrated by curves showing demand and supply. The real meaning of money was the power it gave to achieve "all kinds of ends, high as well as low, spiritual as well as material." Human beings are driven by a range of things, including social approval, the desire to protect one's family, duty and patriotism, and the desire to alleviate the suffering of others. Many other decisions are far from "optimal." It was therefore wrong to see economics as merely the science of selfish gain.

12. **According to the author,**
    (a) Economics is a scientific study of human behaviour and decisions in the context of money and moral values.
    (b) In Economics, the impact of money is studied in terms of both quantifiable and non-quantifiable things
    (c) Economics considers money as one of the driving factors for humans, with the underlying belief that not all of them are selfish.
    (d) Economics is study about the power of money and the decisions taken by humans in different contexts.

EXPLANATION:

Option (a) is incorrect, as it implies that moral philosophy is an integral part of the scientific study of economics, while the passage merely implies that that selfless values too are acknowledged in it. While the passage defends Economics as a subject where things involving monetary transactions could be measured, it does not say that the non-quantifiable things (moralistic human values) are impacted by money too. This makes option (b) wrong. Option (c) comes close to the underlying message of the passage, which states that money is just one of the factors that is driving human beings and outlines various other selfless values that drive humans to take certain decisions. Though option (d) is partially true, it fades in comparison to option (c), as it fails to capture one of the important nuances of the passage, i.e. the selfless and non-optimal behaviours that are specifically mentioned.

13. A question is followed by two statements I and II. Consider the question and the statements.

    Question:

    The heaviest book is how many grams heavier than the average weight of the books?

    Statement-I:

    The lightest book is 150 grams lighter than the heaviest book.

    Statement-II:

    Each of the other 5 books are 5 grams heavier than the average weight of the books.

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

    (a) The Question can be answered by using one of the Statement alone, but cannot be answered using the other Statement alone

(b) The Question can be answered by using either statement alone

(c) The Question can be answered by using both the Statements together, but cannot be answered using either Statement alone

(d) The Question cannot be answered even by using both the Statements together

EXPLANATION:

Statement-I alone is insufficient since it compares the weights of only two books.

Statement-II alone is insufficient since it gives information about only five books.

Combining the statements:

Assume that the average of the seven books is 'a'.

Total weight of the 5 books that are 5 grams heavier than the average weight = 5*(a+5)

= 5a + 25 grams

Assume that the heaviest book is x grams. Weight of the lightest book is (x-150) grams.

Total weight of all the 7 books = 5a+25+x+x-150

= 5a+2x-125

Average weight of the 7 books is 'a'. Hence,

$$\frac{5a + 2x - 125}{7} = a$$

$5a + 2x - 125 = 7a$

$2x - 125 = 2a$

$2x - 2a = 125$

$x - a = 62.5$

The question can be answered by combining the statements.

14. Babu works for a constant period every day. He can make 4 chairs in a day or 3 tables in a day. Time taken for him to make a chair is 10 minutes less than the time taken for him to make a table. For how long does Babu work in a day?

    (a) 2 hours
    (b) 6 hours
    (c) 8 hours
    (d) 12 hours

    EXPLANATION:

    Assume that the time taken to make a table is 'x' minutes.

    The time taken to make a chair is (x-10) minutes.

    Given that, he can make 4 chairs in a day or 3 tables in a day.

    Hence, 4*(x-10) = 3x

    4x – 40 = 3x

    x = 40 minutes

    Total duration for which Babu works in a day = 3x = 3*40 = 120 minutes.

    120 minutes = 2 hours.

15. A chemical solution contains 12% acid. Another solution contains 4% acid. How many litres of the second solution must be added to 16 litres of the first solution to make a solution that contains 8% acid?

    (a) 16
    (b) 32

(c) 18

(d) 24

EXPLANATION:

Let's denote the volume of the second solution (4% acid) to be added as 'x' liters.

Given:

Solution 1: 16 liters of 12% acid

Solution 2: x liters of 4% acid

Final mixture should contain 8% acid

Using the conservation of acid content: (Amount of acid in Solution 1) + (Amount of acid in Solution 2) = (Amount of acid in final mixture)

Amount of acid in Solution 1 = 16 liters × 12% = 16 × 0.12 = 1.92 liters Amount of acid in Solution 2 = x liters × 4% = x × 0.04 = 0.04x liters

Amount of acid in final mixture = (Total volume) × (Final concentration) = (16 + x) liters × 8% = (16 + x) × 0.08 = 1.28 + 0.08x liters

Now I can set up the equation: 1.92 + 0.04x = 1.28 + 0.08x

Rearranging terms: 1.92 - 1.28 = 0.08x - 0.04x 0.64 = 0.04x x = 0.64 ÷ 0.04 = 16

Therefore, 16 liters of the second solution (4% acid) must be added to 16 liters of the first solution (12% acid) to create a solution that contains 8% acid.

ALTERNATE SHORTCUT

· Solution A: 12% acid

· Solution B: 4% acid

· Final mixture: 8% acid

We apply the allegation rule: se cross-difference to find the ratio:

A:B= (8−4) : (12−8) = 4:4 = 1:1.

Therefore, 16 liters of the second solution (4% acid) must be added to 16 liters of the first solution (12% acid) to create a solution that contains 8% acid.

16. There are two Theatres, PVR and INOX. Both Theatres have four different types of tickets viz. Premium class, Elite class, Executive class, and Supreme class. In PVR there are total 700 customers. INOX has thirty percent more customers than PVR. Twenty percent of the customers of PVR are in Premium class. One-fourth of the total number of customers of PVR are in Supreme class. Twenty three percent of the customers of PVR are in Elite class. Remaining customers of PVR are in Executive class. Total number of customers in Supreme class in both the Theatres together is 480. Thirty percent of the number of customers of INOX is in Elite class. Ten percent of the total customers of INOX are in Executive class. Remaining customers of INOX are in Premium class. Total number of customers in Premium Class in both the Theatres together is approximately what percentage of total number of customers in INOX?

(a) 35

(b) 42

(c) 46

(d) 38

EXPLANATION:

Total customers in PVR = 700

=> Total customers in INOX = $\frac{130}{100}$ x 700 = 910

Number of customers in PVR in the class:

Premium = $\frac{20}{100}$ x 700 = 140

Supreme = $\frac{1}{4}$ x 700 = 175

Elite = $\frac{23}{100}$ × 700 = 161

Executive = 700 – (140 – 175 – 161) = 224

Number of customers in INOX in the class:

Supreme = 480-175 = 305

Elite = $\frac{30}{100}$ x 910 = 273

Executive = $\frac{10}{100}$ x 910 = 91

Premium = 910 – (305 – 273 – 91) = 241

CLASSES	PVR	INOX
Premium	140	241
Elite	161	273
Executive	224	91
Supreme	175	305
TOTAL	700	910

Total number of customers in Premium Class in both the Theatres together =

140 + 241 = 381

Total number of customers in INOX = 910

=> Required % = $\frac{381}{910}$ ×100

= 41.86% ≈ 42%.

17. Ganesh and Madhavi invested the same amount of money in a Mutual Funds separately. Ganesh's amount kept getting reduced by 50% every month. Madhavi's investment also reduced every month, but in an arithmetic progression with a common difference of Rs. 15000. They both withdrew their respective amounts at the end of the sixth month. They observed that if they had withdrawn their respective amounts at the end of the fourth month, the ratio of their amounts would have been the same as the ratio after the sixth month. What amount of money was invested by Ganesh in the Mutual Funds?

(a) **Rs. 100000**

(b) Rs. 120000

(c) Rs. 150000

(d) Rs. 180000

EXPLANATION:

Let their initial amounts be Rs. x

After 4 months:

Ganesh's investment after 4 months = $x \times \left(\frac{1}{2}\right)^4$ = x/16

Madhavi's investment after 4 months = x - 15000 x 4 = x - 60000

After 6 months:

Ganesh's investment after 6 months = $x \times \left(\frac{1}{2}\right)^6$ = x/64

Madhavi's investment after 6 months = x - 15000 x 6 = x - 90000

Ratio of their investments after 4 months = Ratio of their investments after 6 months.

$$\frac{x/16}{x-60000} = \frac{x/64}{x-90000}$$

4(x - 90,000) = x - 60,000

3x = 3,00,000

⇒ x = 1,00,000

Hence, option (a).

Directions for Questions 18 to 20: *Study the following information given below to answer these questions.* There was a cycle racing championship in which four people participated. The colour and brand of each of the cycles is different. Those colours are White, Black, Red and Brown and the brands are - Hero, BSA, Hercules and Urban Terrain. The persons mentioned got four Prizes I, II, III and IV where I Prize is for the best performance in the race.

(i)   The colour of Rita's cycle who finished in the fourth position is not Red.

(ii)   Urban Terrain, which is not white, got either first position or the last position.

(iii) Chitra's got one position ahead of Rita's but one position below the black cycle.

(iv)   Padma's cycle was positioned just above Hercules, but was just below the white cycle.

(v)   Padma's cycle is not BSA. Meera, who is the friend of Padma, was also one of the participants in the race.

18. Whose cycle won the first Prize?
   (a) Meera
   (b) Padma
   (c) Chitra
   (d) Rita

19. Which of the following depicts the colour of Rita's cycle?
   (a) White
   (b) Black
   (c) Red
   (d) Brown

20. Which of the following statements is true?
   (a) BSA is owned by Chitra
   (b) The colour of Padma's cycle is brown
   (c) Urban Terrain is owned by Padma
   (d) The colour of Meera's cycle is White
   EXPLANATION:

Position	Person	Cycles	Colour
I	Meera	BSA	White
II	Padma	Hero	Black
III	Chitra	Hercules	Red

21. A Volvo Bus approaches a tunnel XY. Inside the tunnel is a dog located at a point that is 3/8 of the distance XY measured from the entrance X. When the Volvo Bus horns, the dog runs. If the dog moves to the entrance of the tunnel X, the Volvo Bus catches the dog exactly at the entrance. If the dog moves to the exit Y, the Volvo Bus catches the dog at exactly the exit. What is the ratio of speed of Volvo Bus and dog?

(a) 3:1

(b) 4:1

(c) 5:1

(d) 2:1

EXPLANATION:

Let the length of the tunnel be x and distance of the Volvo Bus to entrance A be y.

Let the speeds of Volvo Bus and dog be v and d respectively.

Hence, when the dog runs 3x / 8 the Volvo Bus covers y.

=> $\frac{3x/8}{d} = \frac{y}{v}$ .... (1)

When the dog runs 5x/8 to the other end, the Volvo Bus covers x + y

=> $\frac{5x/8}{d} = \frac{x+y}{v}$ ...... (2)

Taking ratio of (1) to (2)

=> $\frac{3}{5} = \frac{y}{(x+y)}$

=> 3x = 2y .... (3)

Substituting (3) in (1)

=> $\frac{\left(\frac{2y}{8}\right)}{d} = \frac{y}{v}$

=> v = 4d

Hence the ratio v : d is 4:1.

22. In each of the questions below consists of a question and two statements numbered I and II given below it. You must decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and Give answer

(a) If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question

(b) If the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question

(c) If the data given in both statements I and II together are not sufficient to answer the question

(d) If the data in both statements I and II together are necessary to answer the question.

What is the present age of the father?

I. Present age of the father five times of the present age of his son

II. 5 years ago, age of the father is 15 times of the age of his son

EXPLANATION:

Statement I: Let present age of son = x years

=> Present age of father 5x years.

There is no other information, so statement I is not sufficient.

Similarly, II alone is not sufficient.

Combining both statements, we get:

=> (5x – 5) = 15(x – 5)

=> 5x – 5 = 15x – 75

=> 10x = 70

=> x=70/10 = 7

Hence, father's age = 5 x 7 = 35 years.

Thus, both statements are sufficient to answer the question.

S.(23-24) Directions for the following 2 (Two) items: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 1

Democratic systems rest on the romantic ideal of an informed citizenry—individuals capable of rational deliberation and collective decision-making. Yet in an age of information excess, being informed is less about knowledge and more about navigation. Algorithms curate what we see, echo chambers reinforce what we believe, and the noise of endless content drowns quiet reflection. In such an environment, does voting remain a rational act, or has it become a performance—an act of belief rather than reason?

23. Which of the following most logical corollary from the author's argument?

(a) The quality of democratic decision-making is compromised in an algorithmically filtered world.

(b) People should avoid using social media to remain rational voters.

(c) A return to traditional forms of media is essential for democracy.

(d) Rationality can be preserved only through complete information access.

EXPLANATION:

The passage questions whether voting remains rational amid information overload and algorithmic curation. **A** logically follows as a **corollary**. **B** and **C** go beyond the text (not stated). **D** brings in a condition not discussed—there's no claim that complete access ensures rationality.

24. What is the central idea the passage is trying to convey?

(a) Democracy cannot survive without informed voters.

(b) Information abundance has transformed how citizens engage with democracy.

(c) Voting in the digital age is more symbolic than substantive.

(d) Social media has irreparably harmed democratic practices.

EXPLANATION:

The **main idea** is not to say democracy has failed, but to examine **how the nature of being "informed" has changed**, and what that means for democratic engagement. **A** and **C** are partial interpretations, and **D** is too narrow and judgmental.

S.(25-26) Directions for the following 2 (Two) items: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 2

Technology often presents itself as the harbinger of progress, yet progress is not always synonymous with improvement. Replacing handwritten letters with instant messages may be efficient, but does it enrich communication? Automating work increases speed, but does it deepen meaning? When every innovation is

framed as forward motion, we risk confusing substitution for evolution. The question is not what we've gained, but what we've ceased to notice we've lost.

25. What is the author most likely to agree with?

(a) Progress must be constantly questioned for its human implications.

(b) Communication is more meaningful when it is slower and personal.

(c) All technological advancements need ethical regulation.

(d) Replacing old methods with new ones leads to cultural loss.

EXPLANATION:

The passage critiques the **assumption that all innovation = progress**, urging readers to reflect on **what is lost**. **A** captures this evaluative stance. **B** and **D** are specific instances but not the central evaluative point. **C** introduces regulation, which is **not mentioned** in the passage.

26. Which one of the following is implied by the author's argument?

(a) The emotional and qualitative aspects of life are being sidelined by technical efficiency.

(b) Society should reject new technologies that replace traditional forms.

(c) People prefer instant communication because it saves time.

(d) Automation inherently leads to alienation.

EXPLANATION:

The author implies that in the rush toward efficiency, **deeper qualitative elements like emotional connection, meaning, and reflection are overlooked**. **A** captures this **implied concern**. **B**, **C**, and **D** make absolute or simplistic claims not present in the text.

S.(27) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 3

If we believe leading economists, the blessing of using technology to do things faster, better and cheaper could turn into a tsunami in global labor markets, leading to economic and social repercussions unseen before.

27. Which of the following can be inferred or implied from the passage?

1. Technological efficiency may have unintended consequences on employment structures.
2. Increased reliance on technology can potentially lead to global economic instability.
3. All sectors of the labor market will experience uniform disruption due to technology.
4. Economic progress through technology may conflict with social stability.

Choose the correct answer:

(a) Only 1 and 2

(b) Only 2 and 4

(c) Only 1, 3, and 4

(d) Only 1, 2, and 4

EXPLANATION:

A is correct: the idea of a "tsunami" in labor markets implies unintended, sweeping consequences on jobs.

B is correct: the mention of "global labor markets" and "economic repercussions" suggests global instability.

D is correct: "blessing" vs "repercussions" juxtaposes technological progress with social disturbance, implying a conflict.

C is incorrect: the passage does not claim uniform disruption across all sectors; that is an overgeneralization.

28. Suseendran usually buys lottery ticket and he is a very superstitious person. According to the suggestion of an astrologer, he must buy the next ticket in such a way that it will be a 2-digit number which is less than 100, not a multiple of 2,3 or 5 and is not a perfect square or a perfect cube. If he wants to buy all the tickets which have a possibility of becoming the winning ticket, how many tickets should he buy?
    (a) 22
    (b) 21
    (c) 24
    (d) 23
    EXPLANATION:
    To find all the numbers that suits Suseendran, we just subtract the ones that are not possible from the total number of possibilities.
    Since it is a 2-digit number, so the number of possibilities 99-9 = 90
    Thus, within all the 2-digit numbers:
    Number of multiples of 2 = 90/2 = 45
    Number of multiples of 3 = 90/3 = 30
    Number of multiples of 5 = 90/5 = 18
    Number of perfect squares = 1 (only 49 matches the requirements)
    Number of perfect cubes = 0 (all the cubes are already multiples of the prohibited numbers)
    Here, we need to account for using a few numbers from the set more than once.
    Thus, multiples of 6,10,15,30 (LCM of (2,3), (2,5), (3,5), (2,3,5) respectively) have been counted more than once.
    Multiples of 6 =16-1 = 15
    Multiples of 10 = 9
    Multiples of 15 = 6
    Multiples of 30 = 3
    Thus, we need to add the multiples of 6,10,15 to the sum and deduct the multiples of 30 to get the actual number of numbers.
    Thus, number of numbers = 90 – (45+30+18+1) + (15+9+6)-3= 23 numbers
    ALTERNATIVE SHORTCUT
    There are 25 primes less than 100, out of which 21 are 2-digit primes
    These primes are relatively co-prime to 2, 3 and 5
    We know the prime numbers are 2,3,5,7,11,13,17....
    The lowest possible number which is not a prime, not divisible by 2,3, and 5 and not a perfect square is 7*11=77
    The only other possible number is 7*13=91
    Hence, total such numbers = 21+2 = 23

29. An office which has x people had birthdays of three employees – Arun, Lakshmi and Merina on a particular day. Arun bought 212 chocolates and distributed them equally among the other employees

and then had some chocolates left. Lakshmi bought 142 chocolates and distributed equally among the other employees. She was also left with the same number of chocolates as Arun. Merina bought 352 chocolates did the same thing and had the same number of chocolates as the other two. What could be the maximum value of x?

(a) 70

(b) 71

(c) 140

(d) 141

EXPLANATION:

Let n be the number of chocolates left with each of them after distributing equally and c1, c2 and c3 be the number of chocolates distributed by Arun, Lakshmi and Merina respectively.

Let y = x – 1 (This is because each person distributing the chocolates distributes them only among the other children. The distributor himself does not take any chocolate)

According to the question,

cly + n = 212 .... (1)

c2y + n =142 .... (2) and

c3y + n = 352 .... (3)

HCF Difference shortcut - subtracting (2) from (1) and (3) and (1) from (2) we get,

(c1 – c2) y = 70,

(c3 – c2) y = 210 and

(c3 – c1) y = 140

The maximum value of y will occur at the HCF of (70, 140, 210)

The required HCF value y = 70

Total number of employees x = y + 1 = 71

30. If in the certain code language 'TRACTOR' is written as '2913269', 'WAT' is written as '512', then how will 'MANAGEMENT'

(a) 4151724552

(b) 2131733231

(c) 2131733131

(d) 4151754552

EXPLANATION:

T   R   A   C   T   O   R

(2+0) (1+8) (0+1) (0+3) (2+0) (1+5) (1+8)

2   9   1   3   2   6   9

W   A   T = (2+3) (0+1) (2+0) = 512

M   A   N   A   G   E   M   E   N   T

(1+3) (0+1) (1+4) (1+0) (0+7) (0+5) (1+3) (0+5) (1+4) (2+0)

 4   1   5   1   7   5   4   5   5   2

Directions for Questions 31: *Study the following information given below to answer these questions.*

Arjun and Sneha are two colleagues. They begin walking from the same point but in opposite directions. Arjun walks towards the East. After walking 10 km, Arjun takes a right turn and walks 5 km, then takes a 90-degree clockwise turn and walks 20 km to reach his client site, and finally takes a left turn and walks 5

km to reach the cafeteria. Sneha follows the same sequence of movements as Arjun, but starts in the opposite direction.

31. If Sneha takes another left turn from cafeteria and walks 20 km to reach her home. Then find the shortest distance between Sneha's home to Sneha client site?

    (a) $10\sqrt{12}$

    (b) $4\sqrt{37}$

    (c) $5\sqrt{17}$

    (d) $13\sqrt{5}$

    EXPLANATION:
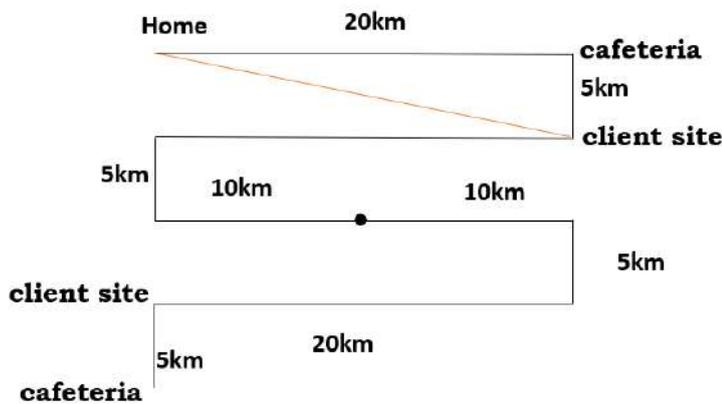
Shortest Distance = $\sqrt{20^2 + 5^2}$ = $\sqrt{400 + 25}$ = $\sqrt{425}$ = $5\sqrt{17}$.

32. Head and Shoulders produces two Shampoos X and Y, such that X consists of 5% egg white and 10% Coconut oil and Y consists of 10% egg white and 6% Coconut oil. For producing the Shampoos X and Y, the company requires at least 7 gm of Egg white and at least 7 gm of Coconut oil. If Shampoo X costs ₹10.50 per gm and Shampoo Y costs ₹7.80 per gm, what is the minimum cost at which the company can meet the requirement by using a combination of both types of Shampoos?

    (a) ₹810

    (b) ₹850

    (c) ₹537

    (d) None of these

    EXPLANATION:

    Let the quantity of Shampoo x & y be x gm and y gm respectively.

    According to the question:

    0.05x + 0.1y ≥ 7

    0.1x + 0.06y ≥ 7

    On solving the above two inequalities, we get x >= 40, y >= 50

    Minimum possible cost = 40 × 10.5 + 50 × 7.8 = ₹810.

    Option (a) is correct.

S.(33) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 1

Is it better to be loved rather than feared, or vice versa? The answer is that one would prefer to be both but, since they do not go together easily, if you have to choose, it is much safer to be feared than loved. We can say this of most people: that they are ungrateful and unreliable; they lie, they fake, they are greedy for cash and they melt away in the face of danger. As long as a ruler is generous and not in immediate danger, everyone would stand by his side and vow to give their lives and belongings to him. However, when a situation presents, these people would go into hiding. The ruler who has relied entirely on their promises and taken no other precautions is lost.

33. The author of the passage holds the view that,

   (a) Both the ruler and his subjects are focused on their self-preservation and change their attitude according to the situation.

   (b) Since people are inherently selfish, fear is a potent weapon in the hands of rules to control the masses.

   (c) Every ruler is faced with a dilemma of whether to be feared or loved by his subjects, and he must decide on it.

   (d) When a person is in an authoritative role, being feared is desirable than being admired by his subjects.

   EXPLANATION:

   While the passage critiques subjects to change their stance based on the situation, it does not hold the same view about the rulers. Instead, the passage advocates for a principled stand (choosing fear over being loved) by the ruler, given the unreliability of people around the ruler. This makes option (a) incorrect and option (b) correct. Option (c) is incorrect, as the passage addresses the dilemma and stresses on the need for the ruler to instil fear in his subjects irrespective of the situation. Option (d) is incorrect, as the term 'admired' does not match the term 'loved' in the context of this passage. Further, the passage focuses only on 'rulers' and could not be generalized to everyone in an 'authoritative role.'

S.(34-35) Directions for the following 2 (Two) items: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 2

To address challenges in the development of Quantum Technology, the developed countries are not only making huge budgetary allocations but are also revamping their policies to support Quantum R&D. These policies seek to bring together people from the industry and academia for effective and immediate translation of research into applications. The policies also support capacity building through the establishment of Centres of Excellence or Innovation hubs, calling project proposals specifically in the area of Quantum Technology research, inviting fresh ideas in the field through competitive events, and providing financial assistance to startups in the field. Issues pertaining to the socio-economic and legal ramifications of Quantum Technology have been addressed only by a few countries, given the uncertainty around the wide-ranging applications that can emerge from the technology. For the others, it is a wait-and-watch situation.

34. According to the author, which of the following is/are of paramount importance for the advancement of Quantum Technology.

   i) Funding by government and an effective public-private partnership to explore operational avenues.

   ii) Making policy decisions to address future issues on socio-economic and legal grounds.

   iii) Increased spending on both the academia as well as the industries.

   Select the correct answer using the code given below:

   (a) i only

(b) i & ii only

(c) i & iii only

(d) None of the above

EXPLANATION:

Point (i) derives directly from the passage about increased budgetary allocation by the government and revamping policies to promote cooperation between the industry and the academia. Point (ii) is not considered of paramount importance in the passage, as it conveys that only a few countries are concerned about it. The passage implies targeted spending for specific projects of academia and industry (financial assistance to startups, competitive events, establishment of centres – all of which requires funding). However, option (iii) makes a sweeping generalization about increased spending on a large-scale as opposed to the targeted spending implied in the passage.

35. What is the essential message in the passage?

(a) Quantum Technology research is possible only for the developed countries as it involves huge spending.

(b) Quantum Technology has an uncertain future in terms of utility and its subsequent implications.

(c) Without a comprehensive policy decision, funding of Quantum Research will not yield the desired results.

(d) Policy decisions on Quantum Technology advocates varied methods to push R&D.

EXPLANATION:

While the passage details about the efforts being made by developed countries, it does not intend to convey that it is possible only by them. This makes option (a) incorrect. Option (b) captures the essence of the passage i.e., uncertainty about the applications of the research on quantum technology, and the socio-economic and legal ramifications that could arise out of it. Option (c) is incorrect, as the passage does not establish the cause-effect relationship between funding and policy decisions. Only a subtle inference can be made in this regard. Option (d) addresses just one aspect of the passage, which is more of an example than an essence of the entire passage.

S.(36-37) Directions for the following 2 (Two) items: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 3

Authoritarians used various devices to enforce cooperation of the press including licensing censorship of material before publication, the granting of exclusive printing rights to favoured units of the press, and the swift-harsh punishment of government critics. In fact, in certain societies, not only is the press prohibited from criticizing the government, but it is also required to perform functions for the good of the State. These might include omitting certain news reports that would be embarrassing or harmful to the government and explaining other events in a light favourable to the ruling powers.

36. Which of the following is the most logical, rational, and crucial message given by the passage?

(a) Media is a tool in the hands of the authoritarian rulers to shape public opinion.

(b) Authoritarian rulers restrict the media to ensure stability of the government.

(c) Authoritarian governments use both coercive tactics as well as rewards to win over media.

(d) Media has no voice of its own when an authoritarian government is in power.

EXPLANATION:

Options (a) conveys the core message, i.e., control of media by authoritarian governments to propagate news that they deem acceptable/desirable to them. While the passage does mention the authoritarian rulers fearing media to be a source of embarrassment/harm to their governments, option (b) introduces a new element, i.e. stability, which is not specifically addressed by the passage. Option (c) is only partially correct, and does not address other opinions expressed in the passage. Option (d) overstates the situation by implying complete silencing of the media, whereas the passage describes only regulation and manipulation rather than total suppression.

37. With reference to the above passage, the following assumptions have been made. Which of these assumption(s) is/are valid?

Assumption I: The authoritarian model of handling a country's media is required sometimes to prevent portrayal of a country in a bad light.

Assumption II: Absence of an independent media contributes to the continuance of authoritarian governments.

Select the correct answer using the codes given below:

(a) I only

(b) II only

(c) Both I and II

(d) Neither I nor II

EXPLANATION:

Assumption I is wrong, as the general tone of the passage is about exposing the authoritarian government's abuse of power to control media, and does not offer justification for this in any context. Even when the passage deals with the "good of the state," it conveys that the government decides what is good for the state. Assumption II is an over-generalization, and no such causality is implied in the passage.

38. If it is possible to make only one meaningful word with the 1st, 2nd, 3rd and 5th letters of the word "TECHNOLOGY', which of the following would be the 4th letter of that word from the right? If no such word can be made, give 'X' as your answer and if more than one such word can be formed, give your answer as 'Y'.

(a) T

(b) **C**

(c) X

(d) Y

EXPLANATION:

T E C H **N** O L O G Y
↓ ↓ ↓   ↓
1st 2nd 3rd   5th

The only one word formed= CENT

∴4th letter from the right = C

Directions for Questions 39: *Study the following information given below to answer these questions.*

39. Study the following information carefully and answer the questions given below:

Eight boxes — A, B, C, D, E, F, G, and H — contain different quantities of books.

F contains more books than at least three other boxes.

E contains just fewer books than C, but just more than A.

B or D has a quantity of books immediately higher or lower than G.

G contains more books than exactly two boxes.

H contain more book than F. but not contain highest or lowest number of books.

Which of the box contains the second highest number of books?

(a) C

(b) **E**

(c) F

(d) G

EXPLANATION:

The arrangement according to the given clues will be

C > E > A > H > F > G > B/D > B/D.

Directions for Questions 40: *Study the following information given below to answer these questions.*

A family consists of nine members – P, Q, R, S, T, U, V, W, and X – and there are more than two married couples. R is the sister-in-law of V, and vice versa. P is the father of U. W is the cousin of U. V is the only daughter of S. Q is the father-in-law of R. Both T and P are siblings. U is the niece of V. X is the uncle of U. T is unmarried. R has no siblings.

40. Which of the following statement(s) is/are true with respect to T?

(a) T and R are married couples

(b) T is the son of S

(c) T is the father of W

(d) T is the sister-in-law of R

EXPLANATION:
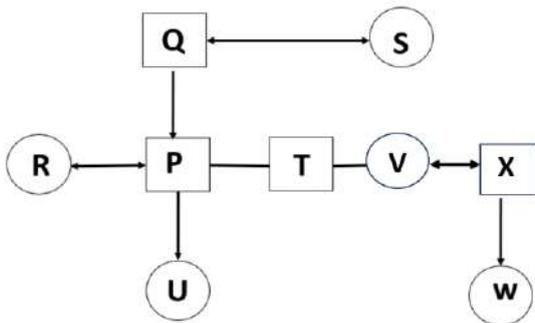
41. A prisoner escapes from the Shaw shank prison. He runs away at a speed of 20 km/hr. Two hours later the warden sees that a prisoner is missing. He immediately sends a team to catch him. The police team chases him in a car which runs at a speed of 40 km/hr. The police team has a dog with them which runs at a speed of 50 km/hr. As soon as the police start the chase, the dog runs towards the prisoner. Once he reaches the prisoner, he turns back and returns to the police car. The dog continues this to and fro journey till the prisoner is caught. What is the distance run by the dog in the direction of the police (from prisoner to police)?

(a) 90 km

(b) 10 km

(c) 80 km

(d) 20 km

EXPLANATION:

The prisoner gets a 2-hour head start.

Hence, he would have travelled 40 km by then.

The relative speed of the police and the prisoner is 20 km/hr. Hence, the police will catch the prisoner in 2 hrs.

The dog keeps running for this entire duration. Hence, the distance run by the dog 50*2 = 100 km.

Now when the dog is running away from the police, his relative speed is 10 km/hr. When he is running towards the police, the relative speed is 90 km/hr

Hence, the distance covered by him towards the police and away from the police will also be in the same ratio. i.e 1:9

Hence, the distance run by dog towards the police 100/10 = 10 km.

42. Liquid A costs Rs. 400 per litre. Liquid B costs Rs. 100 per litre. Liquid C is obtained by mixing liquids A and B in a certain ratio. When Liquid C is sold at Rs. 96 per litre, there is a 20% loss. What is the ratio of Liquids A and B in Liquid C?

(a) 1:12

(b) 1:14

(c) 12:1

(d) 14:1

EXPLANATION:

0.8*(cost price of C) = 96

Cost price of C = 96/0.8 = Rs. 120 per litre.

Find ratio using allegation rule.

```
400              100
     ↘        ↙
         120
     ↙        ↘
20              280
```
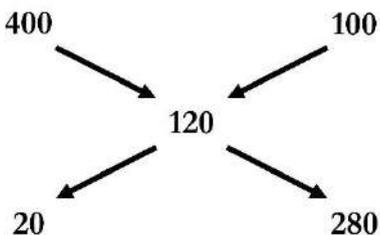
Required ratio = 20:280 = 1:14.

S.(43-44) Directions for the following 2 (Two) items: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 1

Natural forests evolve due to the constant interplay of inter and intra species along with unique environmental conditions and play an important role in mitigating the greenhouse gases, while also acting as oxygen factories. In comparison, tropical and savannah forests produce more oxygen than other forests. Studies have established that the natural regeneration potential of the forest has been decreasing due to continuous deforestation. Ecologists opine that the restoration of natural forests is the ideal way to overcome the global warming impacts. However, restoration of a natural forest with its unique zonation pattern is an almost impossible task.

43. The most logical corollary to the above passage is that,

    (a) Afforestation is one of the viable options to mitigate global warming.
    (b) Afforestation must focus on the restoration of the local biodiversity, as the purpose is defeated otherwise.
    (c) If not done properly, afforestation would have undesirable consequences too.
    (d) Stopping deforestation in the first place is a better option than going for afforestation, as the latter is a difficult task.

    EXPLANATION:

    The passage talks about the ideal situation wherein restoration of forests through natural regeneration is preferred over afforestation efforts, as the latter is an "almost impossible task." This makes option (d) the best corollary. Though option (a) derives directly from the passage, it is weak in comparison to option (d) in terms of overall soundness of logic. Options (b) and (c) go beyond the scope of issues addressed in the passage and hence, are incorrect.

44. With reference to the above passage, the following assumptions have been made. Which of these assumption(s) is/are valid?

    I. Afforestation strategies are difficult to implement, as they require major changes for each ecological setting.
    II. Pace of deforestation must be brought down to enable natural regeneration of forests.

    Select the correct answer using the codes given below:

    (a) I only
    (b) II only
    (c) Both I and II
    (d) Neither I nor II

    EXPLANATION:

    Assumption I is valid, as the passage states that "restoration of a natural forest with its unique zonation pattern is an almost impossible task." This implies that each setting is "unique" and would require change in strategy, which in turn makes it a difficult task. Assumption II is also valid, as it could be inferred as a logical solution to the concern raised in the passage about the decrease in natural regeneration potential of forests due to continuous deforestation.

S.(45) Directions for the following 1 (One) item: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

<p align="center">**PASSAGE -** 2</p>

Forest regeneration begins once an opening has formed in the canopy. During the gap phase seedlings become established, and many of the light demanding species will rapidly grow into saplings. Advanced growth of secondary species closes the canopy within a few years. The composition of the forest gradually changes as conditions become more favourable for the slower growing forest dominants during the building phase. After many years the forest reaches the relatively stable mature phase which persists until the cycle is repeated by the death of a tree. A small gap normally stimulates the growth of saplings, however, in larger openings the young growth usually cannot tolerate the greatly altered environment.

45. Which of the following can be most logically inferred from the passage?

    (a) The regeneration of a forest begins with rapid light penetration that always accelerates sapling growth.

(b) Forest succession is a result of adaptive species turnover influenced by dynamic environmental conditions.

(c) Larger canopy gaps allow more rapid and sustained forest regeneration due to increased light availability.

(d) Mature forests are dominated by slow-growing species that have been present since the gap phase.

EXPLANATION:

Option B synthesizes the full dynamic — regeneration depends on *changing conditions*, and different species dominate at different *phases*. A and C are too simplistic and contradict the passage's warning about *large gaps*. D is misleading — slow-growing dominants come in *later,* not from the start.

46. In an IT company, Testing Department has 35 Employees while Coding Department has 40 Employees. Each Employee is giving a handshake with other Employee from the same department only. The number of handshakes among the men alone in Testing Department is 136, while the number of handshakes among the women alone in Coding Department is 231. How many handshakes would happen if women from one department are giving handshake to men of the other department?

(a) **698**

(b) 789

(c) 940

(d) 1043

EXPLANATION:

In Testing Department,

Number of handshakes among 'n' men alone = 136

i.e., nC_2 = 136

$\dfrac{n(n-1)}{2}$ = 136

n (n − 1)= 272 = 17 x 16

So, n = 17

Number of men = 17

Number of women = 35 – 17 = 18

In Coding Department,

Number of handshakes among 'm' women alone = 231

i.e., mC_2 = 231

$\dfrac{m(m-1)}{2}$ = 231

m (m − 1)= 462 = 22 x 21

So, m = 22

Number of women = 22

Number of men = 40 – 22 = 18

No., of handshakes between men and women = [Women (X) & Men (Y)] + [Women (Y) & Men (X)]

= (18 x 18) + (22 x 17) = 324 + 374 = 698.

47. Pointing to a photograph, Revi said, He is the son of the only daughter-in-law of the father-in-law of my father, whose wife is standing next to him in the picture. How is the person in the photograph related to Revi?

    (a) **Cousin**
    (b) Brother
    (c) Nephew
    (d) Uncle

    EXPLANATION:

    1. Father-in-law of Revi's father = Revi's maternal grandfather (father of Revi's mother).
    2. Only daughter-in-law of the grandfather = Revi's aunt (wife of Revi's uncle, the grandfather's son).
    3. Son of the aunt = Revi's cousin.

    Answer: (a) Cousin.

48. In a school quiz, Class A scored an average of 16 points, and Class B scored an average of 12 points. The overall average score of both classes combined was 14.8 points. In a second quiz, Class A scored an average of 15 points, and Class B scored an average of 11 points. If the number of students in each class remained the same in both quizzes, what was the overall average score in the second quiz?

    (a) 15.8
    (b) 12.8
    (c) 7.8
    (d) 13.8

    EXPLANATION:

    Given from the first quiz:

    Average of Class A = 16, Average of Class B = 12 & Overall average = 14.8.

    Let number of students in Class A = A & Let number of students in Class B = B

    Using the weighted average formula:

    $$\frac{16A + 12B}{A + B} = 14.8$$

    16A + 12B = 14.8A + 14.8B

    16A – 14.8A = 14.8B – 12B

    1.2A=2.8B

    $$\frac{A}{B} = \frac{7}{3}$$

    ratio of students in Class A to Class B is **7:3**

    Class A average = 15 & Class B average = 11

    Use the ratio A:B = 7:3 to compute combined average:

    Overall average = $\frac{(7\times15)+(3\times11)}{7+3} = \frac{105+33}{10} = \frac{138}{10} = 13.8$

    SHORTCUT:

    Average will increase or decrease proportionately.

	First quiz competition	Second quiz competition
Class A	16	(16-1) = 15
Class B	12	(12 -1) = 11

Overall average in quiz competition	14.8	− 1) = 13.8

49. Pipes A and B are emptying pipes and can empty a tank in 4 hours and 18 hours respectively. C is a filling pipe. All the three pipes were opened together. They took 90 minutes to empty $5/16^{th}$ of the tank. Pipe C alone can fill the tank in:

(a) 7 hours

(b) 7 hours 25 min

(c) **10 hours 12 min**

(d) 10 hours 25 mins

EXPLANATION:

Determine Combined Rate:

They emptied $\frac{5}{16}$ of the tank in 1.5 hours.

Combined rate $= \frac{\text{Work}}{\text{Time}} = -\frac{\frac{5}{16}}{\frac{3}{2}} = -\frac{5}{24} =$ per hour (negative for emptying).

Set Up Equation:

Pipe A: $-\frac{1}{4}$, Pipe B: $-\frac{1}{18}$, Pipe C: $+\frac{1}{c}$.

$$-\frac{1}{4} - \frac{1}{18} + \frac{1}{C} = -\frac{5}{24}$$

$$\frac{1}{c} = -\frac{5}{24} + \frac{1}{4} + \frac{1}{18}$$

$$\frac{1}{c} = \frac{7}{72}$$

C = 10 hours 12 minutes.

50. Raju and Sameer have salaries that jointly amount to Rs. 12,000 per month. They spend the same amount monthly, and it is found that the ratio of their savings is 5:1. Which of the following can be Raju's salary?

(a) **Rs. 8000**

(b) Rs. 5500

(c) Rs. 5000

(d) Rs. 6000

EXPLANATION:

Total salary of Raju and Sameer is 12000.

Their expenses are same. Ratio of saving is 5: 1

i.e. S_R: S_S = 5: 1, E_R = E_S

From the ratio that very clear Raju savings are more than Sameer savings.

If saving of Raju is more and expenses are equal, then income of Raju is greater than Sameer.

$I_R > I_S = I_R > 6000$

Go with option: option A is more than 6000.

S.(51) Directions for the following 1 (One) item: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 1

The police is a political magistracy, which, apart from its special functions, should co-operate by methods, irregular perhaps, but just, legitimate and benevolent, in augmenting the effectiveness of every measure of government. In the social order there are invisible strata; things are not always immediately apparent; there is, as it were, a secret world in the midst of the public world; ordinary authority cannot reach it, its sources are out of reach.

51. What is the central idea conveyed about the role of the police in the passage?

    (a) Effective governance requires the police to extend beyond visible enforcement into invisible societal domains.

    (b) Police functioning must remain strictly within the boundaries of formal authority to retain legitimacy.

    (c) The unpredictability of hidden social strata renders traditional law enforcement redundant.

    (d) Political magistracy should enforce laws through formal and visible mechanisms to preserve order.

    EXPLANATION:

    The passage stresses that the *police must reach hidden, secret domains* of society using *irregular but just* means. A captures this nuance. B and D are invalidated by the passage's endorsement of unorthodox methods. C goes too far in claiming traditional enforcement is *redundant.*

S.(52) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 2

Natural selection can occur whenever there exist reproduction and heritability, and can act at any level of biological organization. Viewed in this way, cancer is the result of natural selection favoring proliferating cells within an individual, selection that has the incidental effect of lowering fitness at the next organizational level, the level of the individual. Thus a conflict is created between natural selection acting at the cell and individual levels. The success of cancer occurs because evolution is blind to the future, and, if all else is equal, selection acting at the shortest timescale is the most effective. As we know to our cost, once established, a cancer is very hard to eliminate, and cancer cells succeed even though they jeopardize their own evolutionary future by causing the premature death of the individual.

52. Which of the following best follows from the passage?

    (a) Evolutionary processes can sometimes select traits that are immediately beneficial but detrimental in the long term.

    (b) Cancer cells emerge primarily due to external environmental carcinogens rather than evolutionary dynamics.

    (c) Natural selection at the cellular level is regulated by organism-level evolutionary constraints.

    (d) The success of cancer cells reflects an error in the long-term objectives of evolution.

    EXPLANATION:

    The passage clearly says evolution is *short-term-focused* and blind to the future, allowing cancer cells to thrive despite harming the host. A fits. B introduces an irrelevant factor. C is the opposite of what the passage states (i.e., there is *conflict* between levels). D is a *teleological fallacy* — evolution has no "objectives."

53. In the below diagram, six different positions of a single standard dice are given without any of the top faces given.

(I)   (II)   (III)   (IV)   (V)   (VI)
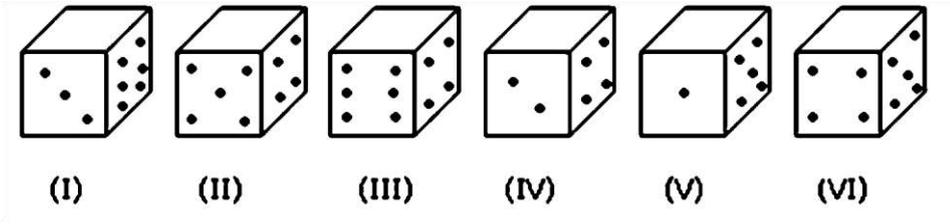
Which of the following statement(s) is/are true with respect to the above diagrams?

Statement 1: If an even numbered dice has an odd number on the top face, the addition of top faces in the respective dice will be 3.

Statement II: Dice (I), (II) and (III) has an odd number on the top face and Dice (IV), (V) and (VI) has even number on top face difference between the total number of top faces of the two set of dice is 4.

Statement III: Dice (I), (II) and (III) has an even number on the top face and Dice (IV), (V) and (VI) has odd number on top face difference between the total number of top faces of the two set of dice is 5.

(a) I and II only

(b) I and III only

(c) II and III only

(d) All I, II and III

EXPLANATION:

Rule of Standard dice – Addition of Opposite faces must give 7.

Statement I:

(I)   (II)   (III)   (IV)   (V)   (VI)
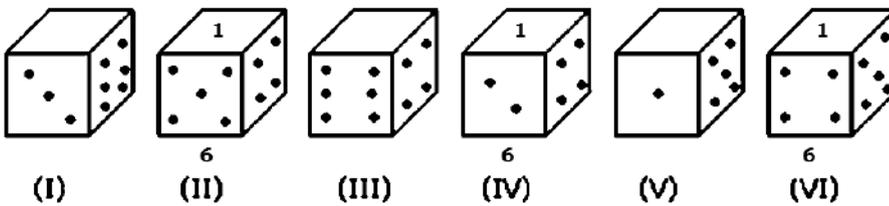
By the given condition

Dice II – Top face will be 1

Dice IV – Top face will be 1

Dice VI – Top face will be 1

Addition value = 3.

Hence, statement I is correct.

Statement II:

(I)   (II)   (III)   (IV)   (V)   (VI)
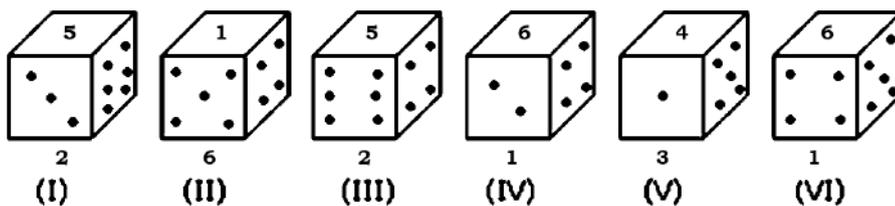
By the given condition

Dice I – Top face will be 5

Dice II – Top face will be 1

Dice III – Top face will be 5

Addition value = 11.

Dice IV – Top face will be 6

Dice V – Top face will be 4

Dice VI – Top face will be 6

Addition value = 16.

Difference = 16 – 11 = 5

Hence, statement II is incorrect.

Statement III:
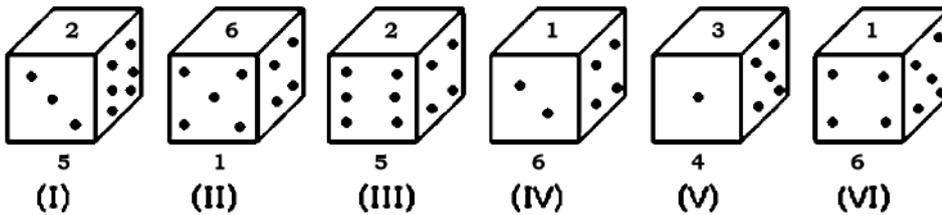
By the given condition

Dice I – Top face will be 2

Dice II – Top face will be 6

Dice III – Top face will be 2

Addition value = 10.

Dice IV – Top face will be 1

Dice V – Top face will be 3

Dice VI – Top face will be 1

Addition value = 5.

Difference = 10 – 5 = 5

Hence, statement III is correct.

54. In a bookstore, there are three types of items: novels, magazines, and bookmarks in the ratio 1: 56: 3. The store owner launches a promotional scheme to boost sales:

For every 12 magazines purchased, 1 bookmark is given free. For every 9 free bookmarks received, 1 novel is given as a bonus. A customer buys some magazines and receives 10 novels along with some bookmarks. After this, the store owner is left with no bookmarks. How many magazines are left in the store?

(a) 700

(b) 600

(c) 450

(d) 300

EXPLANATION:

Free Bookmarks from Novels:

Customer received 10 free novels. Each novel requires 9 free bookmarks:

10 × 9 = 90 free bookmarks.

Magazines Bought for Free Bookmarks:

To earn 90 bookmarks, with 1 bookmark per 12 magazines:

90 × 12 = 1,080 magazines bought.

Initial Stock Using Ratios:

Let novels = (n).

Ratios: Novels: Magazines: Bookmarks = 1:56:3.

Initial bookmarks = (3n). Since all bookmarks were used:

(3n = 90) → (n = 30).

Initial magazines = 56 × 30 = 1,680.

Magazines Remaining: Subtract magazines sold from initial stock:

1,680 – 1,080 = 600 magazines left.

Answer: 600 magazines remain in the store.

S.(55) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 1

Groundwater can be very low in dissolved oxygen and enriched in carbon dioxide due to microbial processing of organic matter as water passes through soil. Localities that receive substantial groundwater inputs and have had little opportunity for equilibration with the atmosphere may reflect this.

55. Which assumption underlies the explanation of dissolved oxygen and CO_2 in groundwater?

   (a) The interaction of groundwater with the atmosphere is necessary for gas levels to approach equilibrium.

   (b) All groundwater flows through similar types of soil and undergoes uniform microbial processing.

   (c) Microbial activity in soil increases oxygen levels while reducing carbon dioxide concentrations.

   (d) The solubility of gases in water is unaffected by subterranean microbial processes.

   EXPLANATION:

   The passage assumes that lack of "equilibration with the atmosphere" leads to oxygen-poor, CO_2-rich water — so atmospheric interaction affects gas levels. B generalizes wrongly. C directly contradicts the passage. D is scientifically inaccurate in this context.

S.(56) Directions for the following 1 (One) item: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 2

The effects of flowing water on the biota are complex. Not only is flow itself difficult to understand and measure, but size, shape and lifestyle of organisms profoundly influence how they will be affected by hydrodynamic forces. Clearly, we do not expect the same forces to be encountered by a salmon swimming upstream, a sculpin in contact with the stream bottom, an insect clinging to a stone, or an algal cell attached to the substrate by its gelatinous sheath. Current is important in every instance, as the following examples will illustrate, but not necessarily in the same manner.

56. Which of the following most accurately reflects the passage's perspective on organismal interaction with flow?

   (a) The impact of hydrodynamic forces depends on both the physical characteristics and ecological strategies of organisms.

(b) All aquatic species adapt uniformly to changes in current due to evolutionary convergence.

(c) Stream flow intensity primarily determines species distribution regardless of morphology.

(d) Organisms with minimal contact with substrates are more resilient to hydrodynamic forces.

EXPLANATION:

The passage directly mentions "size, shape, and lifestyle" influencing how organisms experience flow — pointing to both *form and strategy*. B is false — the passage emphasizes difference, not convergence. C oversimplifies; morphology matters. D is unjustified — the passage doesn't claim this.

S.(57) Directions for the following 1 (One) item: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 3

There is a pleasure in philosophy, and a lure even in the mirages of metaphysics, which every student feels until the coarse necessities of physical existence drag him from the heights of thought into the mart of economic strife and gain. Most of us have known some golden days in the June of life when philosophy was in fact what Plato calls it, "that dear delight"; when the love of a modestly elusive Truth seemed more glorious, incomparably, than the lust for the ways of the flesh and the dross of the world.

57. Which of the following best captures the central idea of the passage?

(a) Philosophy is ultimately impractical in the face of economic realities that demand urgent attention.

(b) Youthful fascination with philosophy fades with age and the increasing weight of worldly responsibilities.

(c) The pursuit of truth through philosophy, though noble, is often surrendered to the demands of material life.

(d) Plato's vision of philosophy as a "dear delight" is idealistic and no longer relevant in modern times.

EXPLANATION:

The passage evokes nostalgia for a time when philosophy was more than an academic exercise — it was a joyful pursuit of truth. However, this passion is often *overpowered by material necessities*. C precisely captures that contrast.

A is partly true but too reductive — it neglects the emotional and idealistic tone.

B is tempting but misses the idea of *external compulsion* (necessities dragging one away, not mere aging).

D is dismissive and contradicts the author's reverence for Plato.

Directions for Questions 58 to 59: *Read the following information carefully and answer the questions that follows:*

A family of eight members planned to go to dinner treat for the day and they booked a square table at the restaurant. All of them are facing towards the centre and are seated in such a way that four of them are sitting at corners while four of them are sitting at the middle of each edge of the table. Each of them is having some money in their purse for emergency purpose in rupees such that no two members have the same amount of money. The members sitting at corners of the table have money in such a way that it is in multiple of 3 rupees and the money with members sitting at the edge of the table is in a multiple of 4 rupees.

R is sitting second to the left of P, whose Is having 36 rupees. Only one member Is sitting between R and the one, whose is having 72 rupees. The member who is having third less amount and the member who is having third highest amount are not sitting adjacent to each other. V is sitting to the immediate right of Q, who is not sitting at corner of the table. The one, whose is having 60 rupees, is sitting to the immediate right of the one, whose is having 42 rupees. The one, who is sitting third to the left of the one, whose amount is

having 42 rupees, is having 24 rupees lesser than Q. W is sitting to the immediate left of S, who is having 81 rupees. Two members are sitting between W and the one, who is having 84 rupees. Difference between the amount of R and one of the immediate neighbors of R is 3 rupees. Amount with of T is twice as the amount with U, who is sitting second to the right of T.

58. If the one, whose is having 48 rupees, is related to W, the one, whose is having 51 rupees, is related to U and in same way the one, who is having 84 rupees, is related to _____ of the following?

   (a) S

   (b) R

   (c) V

   (d) Q

   EXPLANATION:
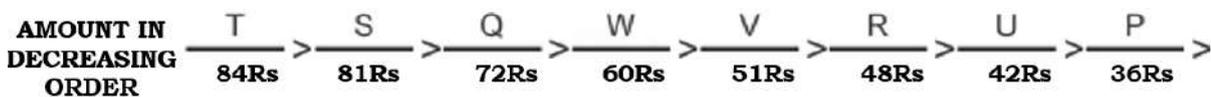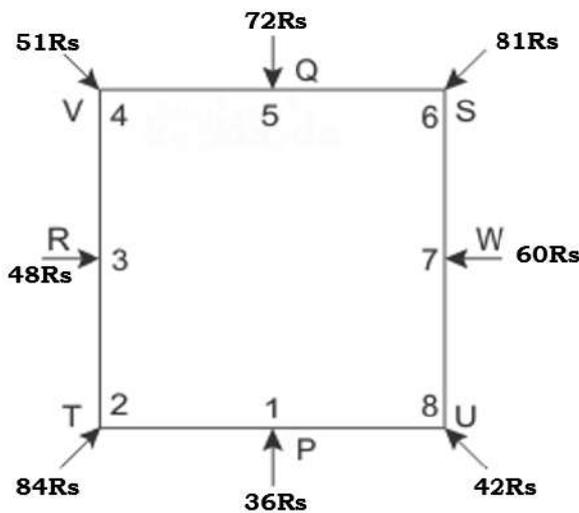
Following the common explanation, we get "S".

Relation: R's amount is 48 rupees and sitting opposite to W

V's amount is 51 rupees and sitting opposite to U

Similarly, T's amount is 84 rupees and sitting opposite to S

Hence, option A is correct.

59. Sum of the amounts of T and the one, who is sitting to the immediate left of U, is equal to the sum of the amounts of _____ and _____ respectively?

   (a) P and V

   (b) S and W

   (c) Q and R

   (d) T and U

   SOLUTION:

   Following the common explanation, we get "Q and R".

   P is sitting to the immediate left of U & P's amount is 36 rupees. Also, T's amount is 84 rupees

   Sum = 36 rupees + 84 rupees = 120 rupees---- (1)

   Q's amount is 72 rupees & R's amount is 48 rupees

Sum = 72 rupees + 48 rupees = 120 rupees-----(2)

Sum (1) and (2) are equal

Hence, option C is correct.

60. Some fruits are bought at a rate of 12 for Rs. 100 and an equal number at a rate of 8 for Rs. 100. If all the fruits are sold at a rate of 10 for Rs. 100, what is the overall gain or loss percent in the entire transaction?

(a) 2% Profit

(b) 2% Loss

(c) 4% Profit

(d) 4% Loss

EXPLANATION:

Fruits → Price

12	100
8	100

Balance the number of fruits

Fruits → Price

12 x 8	100 x 8
8 x 12	100 x 12
Total now 192	2000

Fruits → Selling price

10	100
192	1920

Clearly there is a loss of 2000 – 1920 = 80

Percentage loss = $\frac{80}{2000} \times 100 = 4\%$.

61. A 13 feet long ladder leaning against a wall reaches the wall at a point 5 feet high. By how much distance should the ladder be moved towards the wall so that its top reaches a point 12 feet high?

(a) 8 feet

(b) 9 feet

(c) 6 feet

(d) 7 feet

EXPLANATION:

Step 1: Find initial distance from the wall (base of ladder)

Using Pythagoras theorem:

Let x_1=initial base distance

$x_1^2 + 5^2 = 13^2 \Rightarrow x_1^2 + 25 = 169 \Rightarrow x_1^2 = 144 \Rightarrow x_1 = 12$ feet

Step 2: Find new distance from the wall

Let x_2 = new base distance

$x_2^2 + 12^2 = 13^2 \Rightarrow x_2^2 + 144 = 169 \Rightarrow x_2^2 = 25 \Rightarrow x_2 = 5$ feet

Step 3: Distance moved = Initial base – New base

12 – 5 = 7 feet

Final Answer: 7 feet

***Directions for Questions 37:*** *Study the following information given below to answer this question.*
Study the following diagram and answer the question
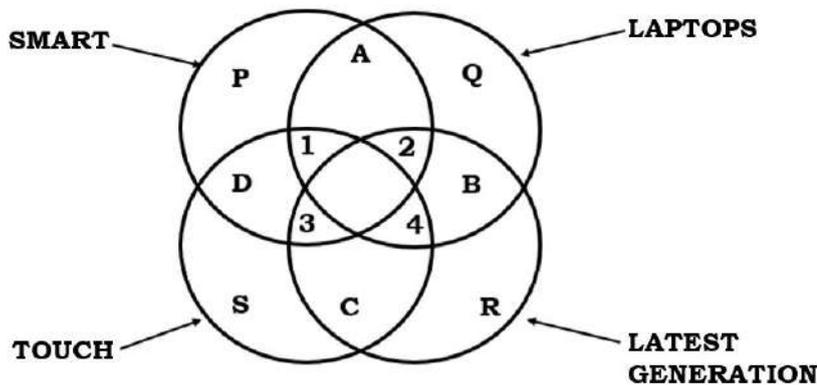
62. What does the area marked 1 in the figure given below represent?
    (a) Laptops which are not Latest Generations but Smart
    (b) Latest Generations which are Laptops and Smart but not Touch
    (c) Smart which are Touch but not Latest generation and Laptops
    (d) Laptops which are Smart and Touch but not Latest Generations
    EXPLANATION:
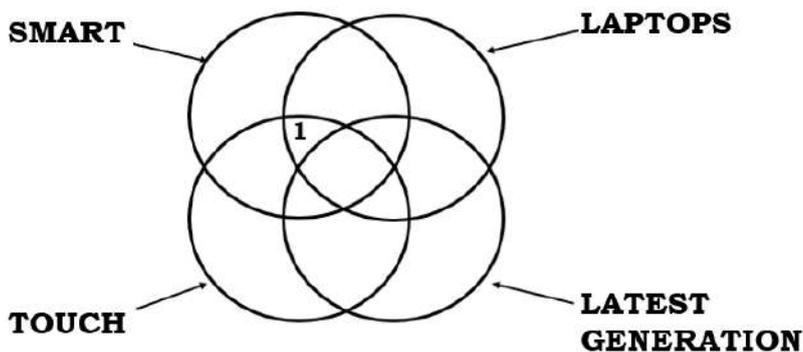
Area marked 1 in the given figure represents "**Laptops who are Smart and Touch but not Latest Generations**"

Directions for Questions 63: *Read the following information carefully and answer the questions that follows:*
63. In the following question, one figure 'X' is given as problem figure and four figures marked A, B, C and D are given. Study the figures carefully and find out the water image of the figure X.
    PROBLEM FIGURE

X

ANSWER FIGURES

A

B

C

D
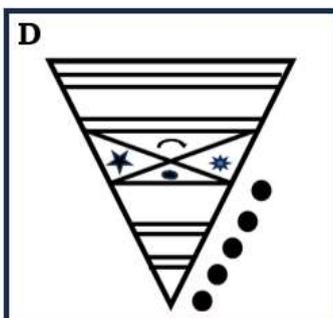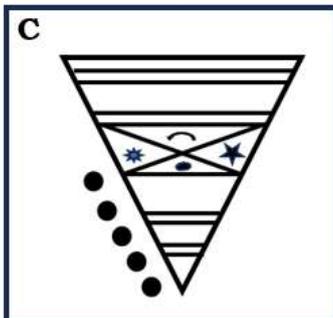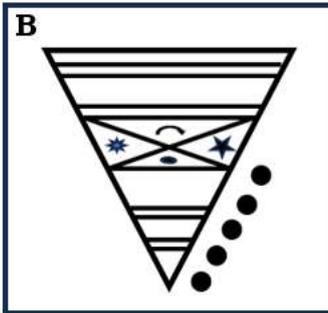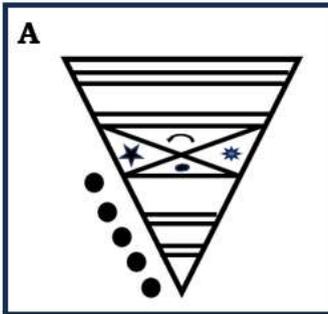
(a) D

(b) C

(c) A

(d) B

EXPLANATION:

Figure B is the proper water image of X. Option (d) is correct answer.

S.(64) Directions for the following 1 (One) item: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE – 1

She could feel the walls close in on her as a sense of déjà vu gripped her body. Move, her brain commanded. But she stood frozen, her hands clammy and shaking, the rhythmic beat of her heart galloping until she could hear it thudding in her chest. Fear took over, producing an adrenaline rush. Fight or flight. Fight or flight. Forcing her body to move, she numbly climbed on the windowsill and jumped. She hit the ground hard, the impact sending a sharp bout of pain across her body. It exploded like a bomb, making it difficult to breathe. She lay on the hard concrete, her eyes open and vision blurred, as blackness fought to take over. As she felt her life ebb away, she tried to forget the grotesque details of what she'd just read, but they swam before her eyes, teasing her, taunting her. Until she finally gave in to the darkness.

64. Which of the following can be most logically inferred from the passage?

(a) The protagonist's physical pain eventually becomes a distraction that alleviates her psychological trauma.

(b) The emotional and physiological symptoms she experiences are consistent with an acute stress response.

(c) Her attempt to escape physical confinement is unsuccessful due to the overwhelming nature of her fear.

(d) The grotesque content she read influenced her decision to jump and led to irreversible psychological damage.

EXPLANATION:

The passage describes textbook symptoms of **acute stress** — déjà vu, paralysis, adrenaline surge, galloping heartbeat, pain, blurred vision, and eventual blacking out. B is clinically accurate and supported by all elements.

A is unsupported — the physical pain adds to, not distracts from, the trauma.

C is false — her escape is successful; she *does* jump.

D assumes irreversible damage, which is not stated, and misinterprets the sequence.

S.(65-66) Directions for the following 2 (Two) items: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

PASSAGE - 2

Ethanol is considered as one of the most suitable alternatives blending transportation fuels due to its better fuel quality, higher flame speed and environmental benefits. In India, petrol vehicles (2-wheelers and 4-wheelers) are designed for running on pure petrol and can be material-wise (plastic and rubber components) with 10% ethanol blended petrol (E10). However, for 20% ethanol blended petrol (E20), the vehicle's material should be compatible and tuned for it accordingly. Therefore, newer vehicles based on E20 will have to follow

the BS-VI (Bharat State Emission Standards). The challenges for the implementation of Ethanol Blending Program are less production of ethanol fuel and its compatible vehicle, limited availability of water resources required for ethanol production and handling issues in terms of its safe handling and storage. However, by reducing the dependence on imported fossil fuels, domestic biofuels provide energy security as well as a low-carbon economy to the country.

65. What is *not* the essential message conveyed in the passage?

   (a) Despite the disadvantages associated with ethanol fuel, it is still the best available alternative to fossil fuels.

   (b) The successful implementation of the Ethanol Blending Program (EBP) would benefit India in the international oil market.

   (c) Given the shortcomings associated with production of ethanol fuel in India, the implementation of EBP would be delayed.

   (d) Macro-economic factors, and not the micro-economic ones, should be guiding force behind the implementation of policy decisions like EBP.

   EXPLANATION:

   Option (a) is correct, as the passage clearly states that ethanol is just one of the suitable alternatives available and does not imply that it is the best available alternative. Further, the passage only lists the challenges in production of ethanol fuel and does not describe ethanol itself as disadvantageous. Option (b) is a logically inferred message from the passage, as a reduced dependency on fossil fuels would inherently strengthen India's position in the international oil market. Option (c) is a reasonable inference given the constraints mentioned in the passage – all of which could contribute to delays. Option (d) is also incorrect, as the passage makes a clear policy advocacy for consideration of macro-economic factors (energy security and environmental concerns) over micro-ones (production limits and technical compatibility of vehicles).

66. Based on the above passage, the following assumptions have been made:

   1. Government must incentivize BS-VI compliant vehicles for EBP to succeed.

   2. Given the unstable international dynamics in the oil sector, reliance on domestically produced biofuels must be increased.

   3. As an immediate measure, E10 can be promoted till E20 becomes a sustainable reality.

   Which of the assumption(s) given above is/are correct?

   (a) 1 & 2 only

   (b) 2 only

   (c) 3 only

   (d) 1, 2 & 3

   EXPLANATION:

   Assumptions 1 & 2 are based on extrapolations that are not implied in the passage. The passage does mention about changing the specifications for BS-VI compliant vehicles that can use E20, but it does not address the increase in cost factor, which forms the basis of Assumption 1. While the passage calls for increased reliance on domestic biofuels to reduce import dependency on fossil fuels, it does not address the issue of international factors that are affecting the latter's price level. Assumption 3 is the only logical assumptions that aligns perfectly with the data provided in the passage.

67. The ratio of the numbers of sides of two regular polygons is 1:2. If each interior angle of the first polygon is 120°, then the measure of each interior angle of the second polygon is

(a) 100°

(b) 150°

(c) 180°

(d) 360°

EXPLANATION:

For a regular polygon with n sides, the formula to calculate the interior angle A is:

$$A = \frac{(n-2) \times 180}{n}$$

Where: n = number of sides of the polygon

Step 2: Find the number of sides of the first polygon

We know the interior angle of the first polygon is 120°. Let the number of sides of the first polygon be n.

Substitute the values into the formula for the interior angle: $120 = \frac{(n-2)\times180}{n}$

$120n = (n-2) \times 180$

120n = (n-2) x 180

120n = 180n – 360

360 = 6n

n = 6

So, the first polygon has 6 sides.

Step 3: Number of sides of the second polygon

Since the ratio of the number of sides is 1:2, the number of sides of the second polygon is:

2 × 6 =12 sides

Step 4: Find the interior angle of the second polygon

Now, using the same formula for the interior angle of the second polygon, with n =12 sides:

$A = \frac{(12-2)\times180}{12}$ = 10 x 15 = 150°

68. A rectangle has a length of 18 cm and an area of 216 cm². If the area is increased to 1½ times the original area by increasing its length only, then what is the new perimeter of the rectangle?

(a) 60 cm

(b) 78 cm

(c) 84 cm

(d) 96 cm

EXPLANATION:

Step 1: Find original breadth

Area = length × breadth ⇒216 = 18 × b ⇒b= 216/18 =12

Step 2: New area = 1.5 × 216 = 324 cm²

Step 3: Let new length = L′

L′= 324/12 =27 cm

Step 4: New perimeter = 2 × (length + breadth)

= 2 × (27 + 12) = 2 × 39 = 78 cm.

69. There are 100 pair of Socks of different designs which is jumbled inside a box. You pick up the socks one by one blindfolded. What is the probability that u get one pair of socks from the same design in worst case scenario?

(a) 100

(b) 101

(c) 120

(d) 102

EXPLANATION:

100 pair of socks mean each pair has two socks of the same design.

In worst case scenario, ie in completely unlucky condition, we can pick 100 single socks of different designs.

Once 101st sock is picked, it will be of the design of any one of the 100 socks.

Hence, number of chances required is 101.

Directions for Questions 70 : *Read the following information carefully and answer the questions that follows:*

Study the following information carefully and answer the question that follows:

In a certain code language:

'Math is not easy' is written as 'ma ka ru ji'

'English was not difficult' is written as 'dm bj ka vc'

'Difficult subject is costly' is written as 'vc tv ru pi'

'Easy was cheap subject' is written as 'ji bj jp tv'

70. What is the code for 'Math was difficult subject' in the given code language?

(a) ka ru vc bj

(b) ru tv jp bj

(c) tv ma bj vc

(d) ru ma vc ka

EXPLANATION:

By comparing the 1st and 2nd statements, the only common word is 'not', and the common code is 'ka'. Hence, 'not' = ka.

Next, comparing the 1st and 3rd statements, the common word is 'is', and the shared code is 'ru'. Thus, 'is' = ru.

Then, from the 1st and 4th statements, the common word is 'easy', and the corresponding code is 'ji'. Therefore, 'easy' = ji.

After decoding these, the remaining word in the 1st statement is 'Math', and the remaining code is 'ma'. So, 'Math' = ma

Code for was is bj

Code for difficult is vc

Code for subject is tv.

Hence the answer is option (c).

71. Find the wrong term in the series

12, 4, 9, 22.5, 78.75, 354.375

(a) 12

(b) 4

(c) 9

(d) 22.5

EXPLANATION:

Odd multiples of $\frac{1}{2}$ are multiplied

$12 \times \frac{1}{2} = 6$ <= Correct term

$6 \times \frac{3}{2} = 9$

$9 \times \frac{5}{2} = 22.5$

$22.5 \times \frac{7}{2} = 78.75$

$78.75 \times \frac{9}{2} = 354.375.$

72. Sandeep counted the digits of the page numbers of his newly bought Polity by Lakshmikanth book. If he counted 5929 digits in all, what is the last page number of the book?

(a) 1756

(b) 1757

(c) 1758

(d) **1759**

EXPLANATION:

Single digit numbers = 1 to 9 = 9*1 = 9 digits

Double digit numbers = 10 to 99 = 90*2 = 180 digits

Triple digit numbers = 100 to 999 = 900*3 = 2700 digits

Total digits until 999 = 9 + 180 + 2700 = 2889

Remaining digits = 5929 – 2889 = 3040

Number of remaining four-digit numbers = 3040 / 4 = 760

Total number of pages in the book = 999 + 760 = 1759(which is also the last page).

S.(73-74) Directions for the following 2 (Two) items: Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.

PASSAGE - 1

Millets were the first grains to be domesticated at least 7000 years ago. They were considered a boon in arid and semi-arid areas. Different regions had their own millets. Migrations and trade lead to their spread. Domestication of millet led to better diets, food security and stability for mankind. In India, millets became popular during the pre-Harappan and the Harappan period. Many proofs have been unearthed in several parts of India, right from North to South, East to West. Millets reigned till the 20th century. Thereafter, for various reasons, they were reduced to cattle-feed and bird-feed in developed countries and later the developing countries. In India, millets were forced to take a back seat after the Green Revolution – the years during which food security for masses was of paramount importance.

73. Based on the above passage, the following assumptions have been made:

1. Preference in cultivation of certain crops can be attributed to the increase in migrating population.

2. Marginalization of millets could be attributed to policy changes and technological advancements that prioritized high yields over dietary diversity.

3. Perception of food modernization in developed countries has an impact on the developing countries as well.

Which of the assumption(s) given above is/are correct?

(a) 1 & 2 only

(b) 2 only

(c) 3 only

(d) 1, 2 & 3

EXPLANATION:

The passage attributes migration of people to the spread of various types of millets but does not address the topic of 'preference' in this context. Even while referring to 'Green Revolution years,' the passage implies that the other crops were preferred over millets to feed large number of people. It does not state that the large numbers were due to the migration. Hence, assumption 1 is wrong. Assumption 2 is only partially correct, as 'Green Revolution' is attributed only to the policy decision to feed a large population, while the technological advancement behind that is not implied. It can be assumed from the passage that the reason behind the developed countries using millets as cattle and bird feeds is due to change in their perception about what a modern diet is – a thought process that found resonance with the developing countries subsequently. Thus, only assumption 3 is correct.

74. What is *NOT* the essential message of the passage?
    (a) Changes in cropping patterns are inevitable due to the underlying human perceptions.
    (b) Food security is a strong guiding force behind the decision to prefer one crop over another.
    (c) India could do a course-correction to return to a millet-staple diet given the favourable climatic conditions and the long historical association.
    (d) Millets can ensure food security too, but it was not considered during famine condition in India, due to the 'Green Revolution' push by developed countries.

EXPLANATION:

Option (a) is supported in the passage through the example of developed countries using millets for non-human consumption, thus influencing the developing countries to adopt it as well. Option (b) is also well-reasoned in the passage, since feeding the masses became a priority in selecting one crop over the other during the 'green revolution years.' Option (c), though slightly interpretive, is a logical follow-up of the passage. Though the 'Green Revolution' example follows the observation about the impact of food preferences by developed countries, they are two separate entities with unique reasoning for each. Hence, option (d) is not the essential message of the passage, making it the correct option for this question.

Directions for Questions 75 : *Read the following information carefully and answer the questions that follows:*

75. Shankar starts walking in the north direction and covers 10 meters to reach a traffic signal. He then turns 90° anticlockwise and walks 5 meters, followed by a right turn, after which he walks 20 meters to reach a library. From the library, he turns 135° clockwise, then 45° anticlockwise, and walks 40 meters to reach Railway Station A. If Shankar had follow the same path. But reversed all turns (i.e., turned anticlockwise instead of clockwise and vice versa, left instead of right and vice versa) and then walked 40 meters from library, he would have reached Railway Station B.

In which direction is Railway Station A from Railway Station B?

(a) West

(b) East

(c) North

(d) South

EXPLANATION:
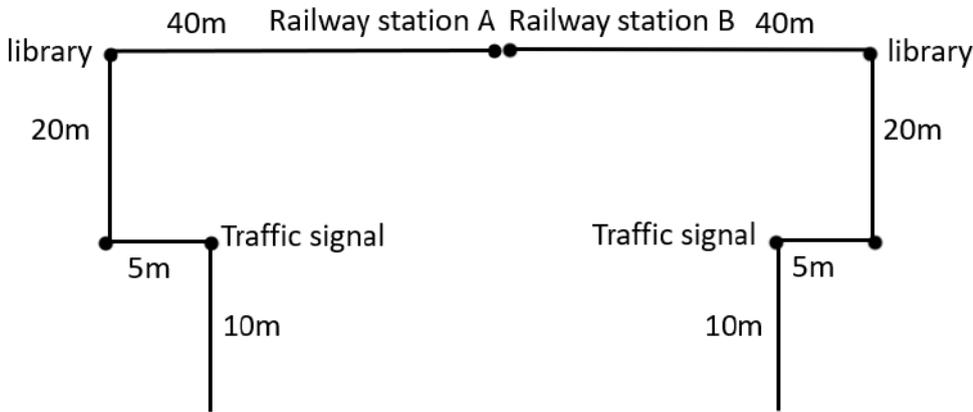
76. Balaji, a cricket enthusiast, was excited to play on the turf on Saturday. Today is November 4th, 1994. As he checked the calendar, he wondered: how many days before or after that Saturday was it?

What is the correct number of days?

(a) 0 days

(b) 1 day before

(c) 1 day after

(d) 2 days before

EXPLANATION:

First find what day is November 4th 1994

= 1600 + 300 + 93(23 leap year + 70 nonleap years) + (Jan – 4th Nov)

Odd days = 0 + 1 + (46 odd days for leap year + 70 odd days for nonleap year)/7 + (3+0+3+2+3+2+3+3+2+3+4) odd days are from (Jan -4th Nov)

= (0 + 1 + 4 + 0)/7

= 5 odd days (Friday)

Today is Friday

Saturday was one day after Friday

Option C is correct.

77. Find the missing number in following figure.
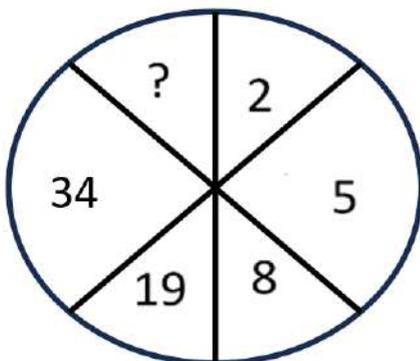
(a) 63

(b) 25

(c) 73

(d) 79

EXPLANATION:

2 x 2 +1 = 5,

5 x 2 - 2 = 8,

8 x 2 + 3 = 19,

19 x 2 - 4 = 34,

34 x 2 + 5 = 73.

78. A positive integer is considered prime if it has no divisors other than 1 and itself. Given that p is a prime number greater than 3, determine the remainder when p^2+17 is divided by 12.

(a) 0

(b) 1

(c) 8

(d) 6

EXPLANATION:

I need to find the remainder when $p^2 + 17$ is divided by 12, where p is a prime number greater than 3.

All prime numbers greater than 3 must be of the form 6k±1 (where k is a positive integer), since:

Numbers of form 6k are divisible by 2 and 3

Numbers of form 6k+2 and 6k+4 are divisible by 2

Numbers of form 6k+3 are divisible by 3

Let me analyze both possible forms:

Case 1: p = 6k-1: $p^2 = (6k-1)^2 = 36k^2 - 12k + 1$: $p^2 + 17 = 36k^2 - 12k + 18 = 12(3k^2 - k + 1) + 6$

Case 2: p = 6k+1: $p^2 = (6k+1)^2 = 36k^2 + 12k + 1$: $p^2 + 17 = 36k^2 + 12k + 18 = 12(3k^2 + k + 1) + 6$

In both cases, the remainder is 6 when divided by 12.

ALTERNATE SOLUTION:

Let me verify with examples:

For p = 5: $5^2 + 17 = 25 + 17 = 42 = 12×3 + 6$

For p = 7: $7^2 + 17 = 49 + 17 = 66 = 12×5 + 6$

For p = 11: $11^2 + 17 = 121 + 17 = 138 = 12×11 + 6$

Therefore, the answer is (d) 6.

79. How many factors are there for the number $(7591)^{237}$?

(a) 236

(b) 237

(c) 238

(d) 239

EXPLANATION:

General rule - (Prime number)^N will have (N + 1) factors

7591 is a prime number.

Hence, $(7591)^{237}$ will be having 238 factors.

80. What is the remainder when $(3427)^{3018} – (835)^{432}$ is divided by 10?

(a) 2

(b) **4**

(c) 5

(d) 9

EXPLANATION:

Unit digit of $(3427)^{3018}$ = 9

Unit digit of $(835)^{432}$ = 5

$(3427)^{3018} - (835)^{432}$ = (xxxxxxx9) − (yyyyyy5)

Unit digit of the expression = 4

When a number with unit digit 4 is divided by 10, the remainder is the same unit digit.

Hence, remainder = 4.