SHANKAR IAS ACADEMY

SINCE 2004

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PRESTORMING™

EXPLANATION

GENERAL STUDIES - PAPER – II

CSAT

ALL INDIA MOCK TEST – I

T.B.C: P-SIA-A-GS

Serial: GSPII-242520

Test Booklet Series

A
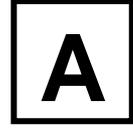
Time Allowed: Two Hours   *Maximum Marks: 200*

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.(1-2) 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

Most writing is a private activity but a public service. You may dash off a protest letter in the solitude of your study, compile a report in the office after everyone has gone home for the night, or scribble a few secret paragraphs of your romantic novel at the kitchen table while your family sleeps. Yet, in each case, your intention is the same: that eventually your writing will become the reading matter of someone else – that your private words will 'go public.' Writing, in other words, is above all for communication. Even when taking lecture notes, or recording a funny incident in your secret diary, you are still writing to communicate – to communicate with your future self.

1. Which of the following assumption(s) is/are implicit in the author's argument:
    I.   Written words would become public one day.
    II. Writers have a general intention to convey things.
    III. Writing anonymously enhances our communication.

    Select the correct answer using the codes given below:
    (a) I & II only
    (b) II & III only
    (c) III only
    (d) II only

    EXPLANATION:
    Assumption I is incorrect because the passage clearly tells that 'Most Writing' becomes public, whereas it is implied here that all written words would become public. Assumption III is also incorrect, because even though the passage uses mostly the examples of anonymous writings, the intention was to establish the point that writing is an act of communication. Further, the examples towards the end about taking lecture notes or writing a secret diary, is about an 'act of privacy' and not 'anonymity,' like in the previous examples. Hence, 'Assumption II' the only right response to this question, as communication with both the public and/or our future self, is the intention behind writing.

2. Which one of the following examples best suit the central theme of the above passage?
    (a) Someone who journals their everyday activities, would review it in the future and make it public based on their mood at that point.
    (b) Anonymous complaint to Civil Authorities through social media platforms invites faster action, as 'private writing' comes with the advantage of plausible objectivity.
    (c) When even an ordinary person writes a personal diary, there is a probability that it would one day become public, if found to have broader relevance.
    (d) Exam Toppers' Notes were once written for personal reference, but were made public later due to the success of the candidates.

    EXPLANATION:
    Options (a) and (b) capture only a limited scope of the passage and incorporates elements that are not even implied in the passage (like objectivity, mood of the writer). While both options (c) and (d) appear to have captured the central theme of the passage, 'Toppers Notes' could not be considered a 'private

writing' when compared with a 'personal diary,' as the former has an academic intent, which makes it 'quasi-private' at the best. Since the passage stresses that most private writing become public, option (c) is correct in this context.

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 - 1

In Photography, aesthetic refers to the production of visually pleasing pictures by utilizing colour, composition, lighting, and subject matter. Aesthetic is a highly subjective term, but there are certain elements that make a photograph immediately appealing to majority of the onlookers across the world. 'Aesthetic' differs from 'style,' as the latter is about the specific approach of the photographer, whereas the former is rooted in time-tested principles on both technical aspects as well as in the way the photographer uses the visual elements.

3. Which one of the following statements best capture the definition of 'Aesthetic' in the context of photography?
    (a) Aesthetic is the art of capturing pictures that are appealing to a wider audience.
    (b) Aesthetic is about the photographer's touch that makes the pictures more pleasing to a majority.
    (c) Aesthetic is about utilizing established concepts to get the most appealing pictures.
    (d) Aesthetic is achieved if the photographer combines their style with the basic tenets.

    EXPLANATION:

    Option (a) is incorrect, as it is focused more on the appeal to the audience, rather than on the technical aspects involved in it. Option (b) hints at 'style,' which is explained in the passage to be different from 'aesthetic.' Option (d) also fails for the same reason, leaving only option (c) to be the best possible definition of the term among the other alternatives.

4. Which one of the following statements is not correct according to the passage?
    (a) A photograph can be aesthetically pleasing irrespective of who the photographer is.
    (b) Style can complement aesthetics, if the photographer is skilled enough.
    (c) Aesthetic makes a photograph technically correct.
    (d) The goal of stressing on aesthetic is to invite attention of the viewer.

    EXPLANATION:

    Option (a) is an assumption from the passage that though the photographer can have his/her own style, the picture can be aesthetically pleasing if he/she follows the time-tested principles. Option (c) derives directly from the last portion of the passage, which states that the time-tested principles for aesthetics are rooted on technical aspects. Option (d) spells out the objective of focusing on aesthetics and is explained in the passage as well. Option (b) is the only incorrect statement, as it is well-established in the passage that style and aesthetics are totally different things. Further, it could not be inferred from the limited information provided in the given passage if there is scope for style to complement the aesthetics.

5. The question 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 statements carefully and choose the correct answer:

   (a) Statement I alone is sufficient, but Statement II alone is not.
   (b) Statement II alone is sufficient, but Statement I alone is not.
   (c) **Both statements together are sufficient, but neither alone is sufficient.**
   (d) Even both statements together are not sufficient.

   David is making deliveries along a straight route. What is the total distance he travelled?

   Statement I: David travelled the first part of his journey at a speed of 3 mph. For the next stretch, which was twice as long as the first, he travelled at 4 mph. He covered the remaining distance, which was the same as the first part, also at 4 mph.

   Statement II: The total time taken by David to complete the entire journey was 6.5 hours.

   EXPLANATION:

   David is making deliveries along a straight route, and we need to find the total distance he travelled.

   Let the distance of the first part be x. The second part is twice the first part, so its distance is 2x. The third part is the same as the first part, so its distance is x.

   Thus, the total distance traveled by David is: D = x + 2x + x = 4x

   calculating the time taken for each part:

   Time for first part = $\frac{x}{3}$, Time for second part = $\frac{2x}{4} = \frac{x}{2}$, Time for third part = $\frac{x}{4}$.

   $T = \frac{x}{3} + \frac{x}{2} + \frac{x}{4}$

   $T = \frac{13x}{12}$

   Since we do not know the total time taken, we cannot solve for x and determine D.

   Thus, Statement I alone is insufficient.

   The total time taken by David is 6.5 hours. However, we do not have any information about the distances or speeds.

   Thus, Statement II alone is insufficient.

   Combining Both Statements:

   From Statement I, we derived the equation: $\frac{13x}{12} = 6.5$

   $X = \frac{6.5 \times 12}{13} = 6$

   D = 4x = 4 x 6 = 24 miles.

   Since we can determine the total distance travelled, **both statements together are sufficient to answer the question**.

6. A work can be completed by 30 men in 50% of X days. The same work can be completed by 20 women in 40% of X days. How much work will be completed by 5 men and 5 women in X days?

   (a) 3/4
   (b) 5/6
   (c) 11/12
   (d) 23/24

EXPLANATION:

Number of men required to complete the work in X days = 30*50/100 = 15.

Number of women required to complete the work in X days = 20*40/100 = 8.

Fraction of work done by 5 men in X days = (5/15) = 1/3

Fraction of work done by 5 women in X days = 5/8

Total quantity of work completed in X days by 5 men and 5 women = (1/3)+(5/8)

= (8/24)+ (15/24)

= 23/24.

7. The quantity of chemicals X and Y in liquid A is 3:8. The quantity of chemicals X and Y in liquid B is 4:9. 66 litres of liquid A is mixed with 26 litres of liquid B to make liquid C. 46 litres of this mixture is mixed with 44 litres of liquid A to make liquid D. What is the concentration of chemical X in liquid D?
   (a) 13/18
   (b) 11/18
   (c) 7/18
   (d) 5/18

EXPLANATION:

X in 66 litres of liquid A = 66×(3/11) = 18 litres

Y in 66 litres of liquid A = 66-18 = 48 litres

X in 26 litres of liquid B = 26×(4/13) = 8 litres

Y in 26 litres of liquid B = 26-8 = 18 litres

Total quantity of X in liquid C = 18+8 = 26 litres

Total quantity of Y in liquid C = 48+18 = 66 litres

Ratio between X and Y in liquid C = 26:66 = 13:33

Quantity of X in liquid C = 46×(13/46) = 13 litres

Quantity of Y in liquid C = 46-13 = 33 litres

X in 44 litres of liquid A = 44×(3/11) = 12 litres

X in 44 litres of liquid B = 44-12 = 32 litres

Total quantity of X in liquid D = 13+12 = 25 litres

Total quantity of Y in liquid D = 33+32 = 65 litres

Concentration of X in liquid D = 25/(25+65) = 25/90 = 5/18.

8. Products A and B were sold at the same price. Product A was sold at a 25% profit, whereas product B was sold at a 40% profit. If each product were sold at 50% above the average of their cost prices, the profit obtained was Rs. 760 more than the profit obtained earlier. What is the total cost price of products A and B?
   (a) Rs. 3680

(b) Rs. 4240

(c) Rs. 4320

(d) Rs. 4400

EXPLANATION:

Assume that the cost price of product B is Rs. 100.

Selling price of product B = 100 + 40% of 100 = 140

Hence, selling price of product A = Rs. 140

Cost price of product A + 25% of cost price of product A = 140

Hence, cost price of product A = Rs. 112.

Total cost price of products A and B = 100+112 = Rs. 212

Total selling price of products A and B = 140+140 = Rs. 280

Profit obtained = 280-212 = Rs. 68.

Average of their cost prices = (100+112)/2 = 106

Selling price of each product = 106 + 50% of 106 = Rs. 159.

Total selling price = 159+159 = 318

Increase in profit = 318-280 = 38

For 38 rupees increase in profit, the total cost price of the products is Rs. 212.

For 760 rupees increase in profit the total cost price of the products is Rs. X.

$$\frac{X}{212} = \frac{760}{38}$$

X = Rs. 4240.

9. A rectangular prism with dimensions 6cm × 9cm × 15cm is painted such that opposite faces share the same color: red for the 6cm × 9cm faces, blue for the 6cm × 15cm faces, and green for the 9cm × 15cm faces. The prism is then cut into identical smaller cubes (not cuboids), each with integer side lengths. After cutting, some of the smaller cubes have paint on their faces. How many small cubes have paint of exactly two different colors on their faces? Additionally, what is the side length of each small cube?

   (a) 88, 3

   (b) 60, 3

   (c) 26, 3

   (d) **16, 3**

EXPLANATION:

First, I need to find the size of the small cubes. For these cubes to have integer side lengths and be identical, their side length must be a common divisor of all three dimensions (6cm, 9cm, and 15cm).

Finding the greatest common divisor (GCD):

- GCD of 6, 9, and 15
- 6 = 2 × 3
- 9 = 3 × 3

- 15 = 3 × 5
- The GCD is 3cm

So, each small cube has a side length of 3cm.

Now I can determine how many cubes fit along each dimension:
- Along 6cm: 6 ÷ 3 = 2 cubes
- Along 9cm: 9 ÷ 3 = 3 cubes
- Along 15cm: 15 ÷ 3 = 5 cubes

This gives us a grid of 2 × 3 × 5 = 30 small cubes.

Using the formula for cubes with exactly two colors: 4(a + b + c - 6) = 4(2 + 3 + 5 - 6) = 4(4) = 16

Therefore:
1. There are 16 small cubes with paint of exactly two different colors
2. Each small cube has a side length of 3cm

S.(10-11) 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

'Hypodermic Needle Theory' of communication views audience as a helpless recipient of the message propagated by the media. The mass media is considered all-powerful and capable of manipulating the audience to any extent, at the behest of the government and the corporates. One of the earliest examples of this theory's validity is the 1938 radio broadcast about an alleged alien invasion that created mass panic among the New York residents, who thronged to the streets because of it. Subsequent studies on this theory have pointed out that the audience are active to at least some extent (filter messages from more than one source, react in their unique way, and interpret based on demographics). However, the era of social media is now vindicating this theory, as we are witnessing large-scale misinformation/disinformation influencing the masses, despite the access to multiple sources.

10. What of the following statements is not inferred in the above passage?

    (a) Mass media has rendered the public passive to its propaganda, since its inception.
    (b) Mass media has been a highly useful tool in the hands of those in power.
    (c) The public are led to believe more misinformation/disinformation in social media, proving that the audience can be passive even if they have access to filters.
    (d) Hypodermic Needle Theory has been right all along.

EXPLANATION:

Option (a) is an over-generalization. It is nowhere implied in the passage that it has been a continuous process since the inception. Options (b) and (c) could be directly inferred from the passage. Option (d) might appear incorrect too, but when compared with option (a), the former is not an over-statement, as the passage concludes with the vindication/resurgence of the theory despite the doubts raised by certain studies in between.

11. Which of the following statements best reflect the intention of the above passage?

    (a) Mass Media has consistently demonstrated its profound influence on the public in terms of propaganda.

(b) Since the audience are largely passive, propaganda works irrespective of the type of media involved.

(c) Propaganda is always carried out at the behest of those in the topmost hierarchy of the society and mass media is the powerful tool for that.

(d) Audience has access to filters to analyse and react to the message conveyed to them through media, but is not active enough to use them.

EXPLANATION:

The passage provides example from 1938 and concludes with the continuation of media's influence in today's digital era, thus making option (a) closest to the intention of the passage. Option (b) looks correct too, but fades in relevance when compared to option (a). Further, the central premise of the passage is more about the power of the media than the passiveness of the audience, though both are addressed in the passage. Option (c) is inferred from the passage, but is not the central point of discussion. Option (d) is a generalization that all audience have access to such filters, but choose to neglect them.

S.(12-13) 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

Advocacy, as distinct from mere proposal, requires sketching a path from here to there. The forms to true advocacy have changed with shifting circumstances. For instance, since the mid-1970s, when Palestinian national rights became a salient issue, the only plausible form of advocacy has been as a staged process beginning with a two-state settlement. No other path has been suggested that has even a remote chance of success. Proposing a binational settlement without moving on to advocacy in effect provides support for the third option, the realistic one taking shape before our eyes.

12. Which of the following assumptions are true about the above passage?

    I. Palestinian issue could not be resolved as the lines between advocacy and proposal are blurred.

    II. Binational settlement is the only possible advocacy given the changed circumstances.

    Select the correct answer using the codes given below:

    (a) I only

    (b) II only

    (c) Both I and II are true

    (d) Neither I nor II is true

EXPLANATION:

Assumption I is wrong, as the issue is not about blurring of lines between advocacy and proposal. The passage makes it clear that it is because of proposals lacking advocacy, in this case, the binational solution, not moving forward. Assumption II is also wrong, as the passage mentions the binational settlement is just the beginning of a staged process that is being advocated since the 1970s. The passage does not provide information about the changed circumstances after this.

13. What is the primary idea conveyed in the passage?

    (a) Proposals must complement advocacy to reach the most plausible solution.

    (b) Proposal without advocacy leads to undesirable alternative outcomes.

    (c) Proposals and their advocacies tend to change with changing circumstances.

    (d) Realistic solutions emerge when there is a lack of strong advocacy.

EXPLANATION:

Option (a), although partially true, is not central to the passage. The passage focuses on criticism of standalone proposals and the lack of advocacy even in that direction. Option (c) is also directly inferred in the passage, but is not central to it. Option (d) quotes the word 'realistic' from the last line of the passage, but it does not reflect the tone of the passage, which implies that this realistic solution is an undesirable/negative one. This makes option (b), the only correct response.

14. A and B, with speeds in the ratio of 3:1, are running on a circular track with centre O. They start together from point P and run in the same direction. Every time they meet, B reverses direction, while A continues in the same direction. If they meet for the third time at point T, what is the value of ∠POT?
    (a) 90^0
    (b) 120^0
    (c) 240^0
    (d) 270^0

    EXPLANATION:

    Let speeds be: A = 3k, B = 1k
    We assume the circular track's full angle is 360°.
    First Meeting (both in same direction)
    Relative speed = 3k – 1k = 2k
    A covers 360° more than B when they meet
    Let ∠POQ be the angle B has covered. Then: A has covered ∠POQ + 360°, B has covered ∠POQ
    Using the speed ratio: $\frac{<poq}{<poq} + 360° = \frac{1}{3}$

    <POQ = 360^0 X $\frac{1}{2}$ = 180^0

    Second Meeting (now opposite directions):
    Now B reverses, and they are moving in opposite directions
    So relative speed = 3k + 1k = 4k
    They will meet after covering 360° together.
    Since total relative speed = 4k, B's share of the angle is:
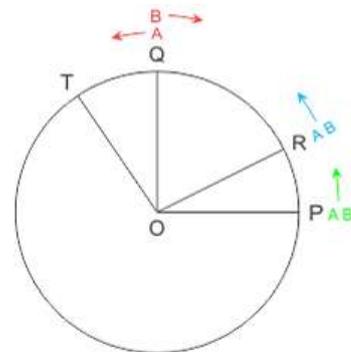 $\frac{1}{4} \times 360°$ = 90°⇒∠QOR=90^0

    Third Meeting (again opposite directions):
    From point R, A continues in the same direction and B starts moving in the opposite direction. When they meet for the third time at point T Again, the angle covered by B.
    ∠ROT = $\frac{1}{2} \times 360°$ = 180°⇒∠ROT=180°
    ∠POT=∠POQ−∠QOR+∠ROT=180°−90°+180°

15. Three workers — A, B, and C — are appointed to do a job. They together started the job but C left after 5 days when 40% of the job was done. The remaining job was completed by A and B in 10 days. The ratio of efficiency of A and B is 1 : 5. Find the number of days required by the slowest worker to complete the entire job alone?
    (a) 50 days
    (b) 100 days

(c) 150 days

(d) 200 days

EXPLANATION:

Step 1: Let the efficiencies be

A's 1-day work = x.

Then B's 1-day work = 5x.

Combined 1-day work = x + 5x = 6x

Work done by them 10 days = 10 × 6x = 60 ⇒ x = $\frac{60}{60}$ = 1%

A's 1-day work = 1% ⇒ 100 days alone

B's 1-day work = 5% ⇒ 20 days alone

Work done in first 5 days:

A + B = 5 × 6x = 30%

But total work done in 5 days = 40%

So C's contribution = 40% − 30% = 10%

So his 1-day work = $\frac{10}{5}$ = 2% ⇒ 50 days alone

A takes 100 days (slowest)

Answer: 100 days.

16. In a college of 400 students, every student needs to choose among the three subjects (i.e. Economics, Accounts & Taxation) offered along with the main course. The students who chose each of these subjects are 130, 100 & 110 respectively. The number of students who chose more than one of the three subjects is 40 more than the number of students who chose all three subjects. If there are no students who chose none of the three subjects, how many students study all three subjects?

   (a) 340

   (b) 250

   (c) 100

   (d) 60

EXPLANATION:

There are 400 students in this question. The number of students who choose more than one subject (i.e., either two or three subjects) is 40 more than those who chose all three subjects. This means the number of students who chose exactly two subjects is 40. Now,

Using the inclusion-exclusion principle for three sets (Economics, Accounts, and Taxation):

(A∪B∪C) = A + B + C − (A∩B) − (B∩C) − (C∩A) + (A∩B∩C)

400 = 130 + 100 + 110 − 40 + x

X = 400 − 340 = 60

Thus, the number of students who chose all three subjects is 60.

17. Write the English alphabet in capital letters and reflect each letter first in water, then in a mirror. Identify the letters that remain unchanged letter after both transformations. Out of these unchanged letters, Then, sort these letter's respective number codes based on their remainder when divided by 4, in ascending order. How many pairs of alphabets are there which are having same remainder?

   (a) Only 1 pair
   (b) Only 2 pairs
   (c) Only 3 pairs
   (d) No such pair is possible.

EXPLANATION:

To determine the last letter in the sorted sequence, follow these steps:

Identify Letters Unchanged After Both Reflections:

Letters that remain unchanged after a 180-degree rotation (equivalent to water and mirror reflections) are **H, I, N, O, S, X, Z**.

Assign Alphabet Positions:

H: 8, I: 9, N: 14, O: 15, S: 19, X: 24, Z: 26.

Calculate Remainders When Divided by 4:

H: 8÷4=2 → remainder 0

I: 9÷4=2 → remainder 1

N: 14÷4=3 → remainder 2

O: 15÷4=3 → remainder 3

S: 19÷4=4 → remainder 3

X: 24÷4=6 → remainder 0

Z: 26÷4=6 → remainder 2

Letters having same remainder

(H, X) remainder = 0

(N, Z) remainder = 2

(O, S) remainder = 3

Hence, there are three possible pairs.

Directions for Questions 18: Read the following information carefully and answer the question that follows.

At the ISRO Galactic Research Center, five space missions - Apollo, Titan, Orion, Vega, and Nova - and three satellites - Echo, Helix, and Quark - were showcased during the annual Space-Tech Expo.

Apollo had the highest launch speed among all space missions. Quark had the lowest transmission range among the satellites. Orion had a higher development cost than Vega, but lower than Titan. Among the missions, Apollo was second most expensive. Vega cost less than Nova, and no other mission had a cost between them. Nova had a higher launch speed than three other missions and all satellites. Helix cost more than Quark but less than Echo. Echo had a higher transmission range than Helix. Each space mission had a unique development cost.

18. If satellite model Echo was more costly than space mission Nova, how many space missions at the ISRO Galactic Research Center were less costly than satellite model Echo?

(a) 1

(b) 2

(c) 3

(d) Cannot be determined
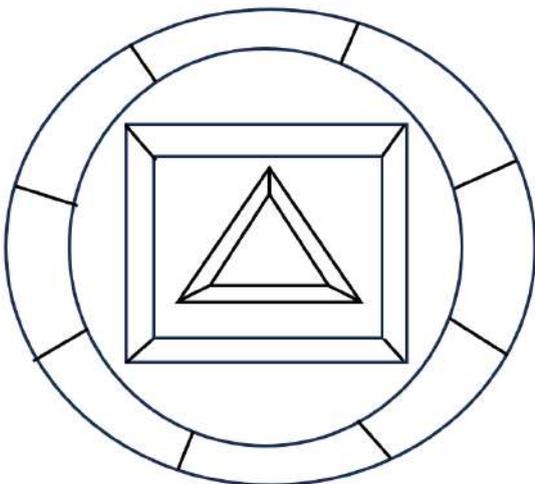
EXPLANATION:

We are told:

Echo > Nova (in cost)

But we do not know Echo's position relative to other missions like Titan, Orion, or Apollo

So, we cannot determine exactly how many missions are cheaper than Echo

It could be 2, 3, 4, or even all 5 depending on Echo's position.

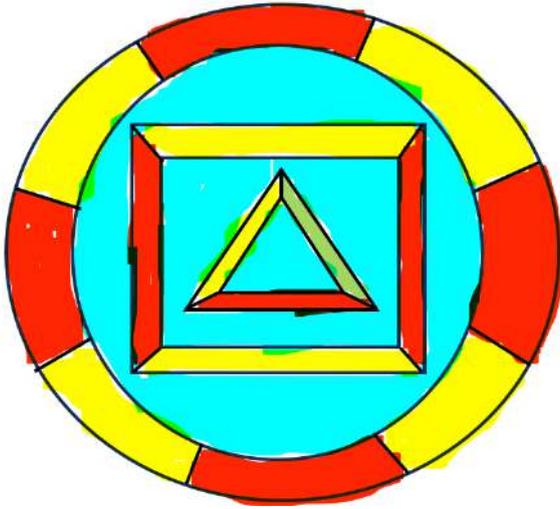Hence, the answer is: Cannot be determined

19. Analyse the given figure.

What is/are the minimum number of colour(s) required to paint the above figure in such a way that no two adjacent faces have the same colour?

(a) 3

(b) 7

(c) 6

(d) 4

EXPLANATION:

The number of colours required will be Four as per the diagram given below

S.(20-21) 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

In one form of semi-structured interviews used in English literature research, interviewers contribute narratives about their own experiences, a stance usually adopted when the interviewer and the interviewee share certain traits. For example, they may both be avid readers of romantic fiction. The underlying idea of such an interview is to create a situation of 'intimate reciprocity' where trust between interviewer and interviewee, an important factor in encouraging interviewees to give full and frank responses, is built out of the notion of shared experiences. One danger is, of course, that such disclosures on the part of the interviewer may become too dominant in the interview.

20. Which of the following sentences convey the crux of the passage in the best possible manner?
    (a) Semi-structured interviews can elicit comprehensive responses from the subjects who are part of the study.
    (b) Some of the techniques used in semi-structured interviews may turn counter-productive at a point.
    (c) Semi-structured interviews are not always feasible, as the underlying requirements for some of its techniques may not always be met.
    (d) English literature research focused on studying fiction would benefit more from semi-structured interview techniques.

EXPLANATION:

Option (a) over-emphasizes the method's utility, but does not include the crucial warning conveyed in the passage. Option (c) hints at a limitation, which is not explicitly pointed out as a concern in the passage. Option (d) is a misrepresentation of facts, as romantic fiction is given only as an example to explain the technique, and not suggested as a recommendation. Option (b) clearly refers to an important aspect addressed by the passage while also providing contextual interpretation (there are various techniques and they might have certain limitations). Though option (b) does not capture the entire essence of the passage, it still stands out to be the closest to the crux of the passage, when compared to other options.

21. Which of the following assumption(s) is/are correct about 'intimate reciprocity?'

    I.   It is a trust-building exercise based on commonality and intends to ascertain views on the subject under study in a comprehensive manner.

    II. The scope for bias, though a possibility, is limited.

Select the correct answer using the codes given below:

(a) I only

(b) II only

(c) Both I and II are correct

(d) Neither I nor II are correct

EXPLANATION:

Assumption I is correct, as it explains the concept based on all the available information provided in the passage. Assumption II is incorrect, because the passage clearly warns about the danger of interviewer's disclosures on the subject becoming the dominant voice, while this assumption relegates it to a limited risk.

22. A number X is multiplied with 6.

Consider the following statements

Statement 1: The unit digit of the product is same as the unit digit of X, only when X is an even number.

Statement 2: The tens digits of the product is half the unit digit of the product, if the unit digit of X is 8.

Which of the given statement(s) is/are true?

(a) Only statement 1 is true

(b) Only statement 2 is true

(c) Both the statements are true

(d) Neither statement is true

EXPLANATION:

Statement 1:

Unit digit of X can be (0, 2, 4, 6 or 8), if X is even.

0*6 = 0. Unit digit of the product is same as the unit digit of X.

2*6 = 12. Unit digit of the product is same as the unit digit of X.

4*6 = 24. Unit digit of the product is same as the unit digit of X.

6*6 = 36. Unit digit of the product is same as the unit digit of X.

8*6 = 48. Unit digit of the product is same as the unit digit of X.

Unit digit of X can be (1, 3, 5, 7 or 9), if X is odd. Odd number multiplied with even number will give even number as the product. None of the even numbers end in 1, 3, 5, 7 and 9.

Statement 1 is true.

Statement 2:

X= 8. Hence, 8*6 = 48. Ten's place is half of unit's place. The condition is satisfied.

X = 18. Hence, 18*6 = 108. Ten's place is not half of unit's place. The condition is not satisfied.

Statement 2 is false.

23. The sum of three consecutive even numbers is 648. The average of four consecutive odd numbers is 80. If the product of the largest even number and the smallest odd number is divided by the sum of the second largest odd number and the second smallest even number, what is the square of the resulting value?

    (a) 3136
    (b) 3456
    (c) 4236
    (d) 5036

    EXPLANATION:

    Let the three consecutive even numbers be:

    x−2, x, x+2

    Given:

    (x−2) + x + (x+2) = 3x = 648 ⇒ x = 216

    So, the even numbers are: **214, 216, 218**

    Largest even number = 218 & Second smallest even number = 216

    Let the four consecutive odd numbers be:

    y−3, y−1, y+1, y+3

    Given:

    Average = y = 80 ⇒ Sum = 4y = 320 y = 80

    So, the odd numbers are: **77, 79, 81, 83**

    Smallest odd number = 77 & second largest odd number = 81

    Expression becomes:

    $$\frac{(Largest\ even) \times (Smallest\ odd)}{(Second\ largest\ odd\ ) \times (Second\ smallest\ even\ )} = \frac{218 \times 77}{81 + 216} = \frac{16786}{297} = 56$$

    Finally: $56^2 = 3136$.

24. A school conducted a mathematics test for 40 students, and the average score of all students was 7 out of 10. After evaluating the papers, the teacher observed that 25 students scored 7 marks or less. What is the maximum possible average score of these 25 students?

    (a) 3.5
    (b) 4.5
    (c) 6.4
    (d) 9.3

    EXPLANATION:

    Average $= \frac{Total\ Sum}{Number\ of\ values}$

    So here: Total score of all 40 students = 40 × 7 = 280

    Group the students

    - 25 students scored ≤ 7
    - So, 15 students scored > 7

    We are asked to maximize the average of the 25 students, i.e., maximize their total score.

To do that, we should minimize the total score of the 15 students who scored more than 7.

Minimize the other group

Since the 15 students scored more than 7, the minimum they can score (assuming integer scores) is 8.

So, if each of the 15 scores 8:

Sum of those 15 = 15 × 8 = 120.

Total score = 280 ⇒ Score left for the 25 students = 280 – 120 = 160

Average for 25 students = $\frac{160}{25}$ = 6.4.

25. A and B entered a partnership investing Rs. I and Rs. (I + 60000) respectively. At the end of one year, A and B share the profit equally even though B withdrew his entire investment 4 months before the end of the year. What is the value of I?

    (a) 120000
    (b) 150000
    (c) 180000
    (d) 210000

    EXPLANATION:

    Duration for which A invested = 12 months

    Duration for which B invested = 12-4 = 8 months

    $\text{Profit}_A : \text{Profit}_B = \text{Investment}_A \times \text{Duration}_A : \text{Investment}_A \times \text{Duration}_B$

    $1 : 1 = I \times 12 : (I + 60000) \times 8$

    $12I = 8I + 480000$

    $4I = 480000$

    $I = 120000$

26. There are 420 pens and 465 pencils. These pens and pencils must be packed into boxes such that no box contains both pens and pencils. Each box must contain at least two pens or at least two pencils, depending on its type. A gift pack consists of one box of pens and one box of pencils. The price of a gift pack depends on the number of pens and pencils in the respective boxes. If the number of pens in a box is equal to the number of pencils in a box, how many different gift pack prices are possible?

    (a) 2
    (b) 3
    (c) 4
    (d) 5

    EXPLANATION:

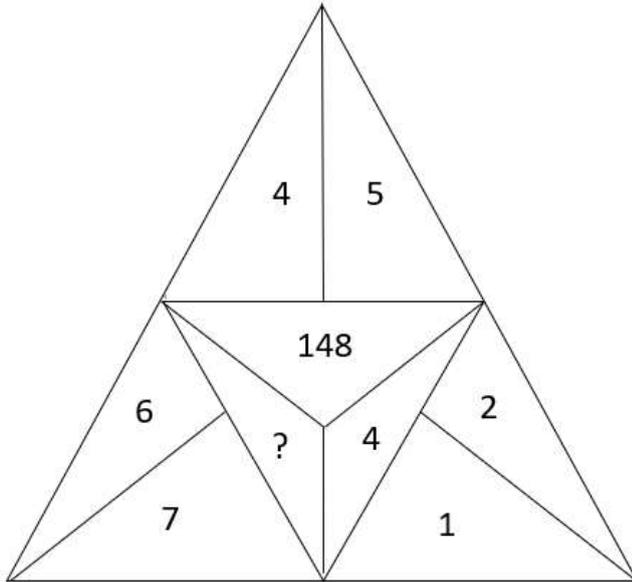   H.C.F of (420 and 465) = 15

    The number of pens in the box or the number of pencils in the box can be:

    15 or 5 or 3 or 1.

    We are restricted to use 2 or more items in a box. Hence, there can be 15 or 5 or 3 items per box.

    Hence, three different pricings are possible.

27. Find the missing character in the diagram.

(a) 559

(b) **474**

(c) 644

(d) 345

EXPLANATION:

$4^3 + 5^3 - (4^2 + 5^2) = 189 - 41 = 148$

$1^3 + 2^3 - 1^2 + 2^2 = 9 - 5 = 4$

$6^3 + 7^3 - 6^2 + 7^2 = 559 - 85 = 474$.

S.(28-29) 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

Traditional e-Commerce is fast losing sheen. For all their size and scale, the e-commerce platforms are grappling with user fatigue, seller disillusionment, and a workforce walking a tightrope. Customers now routinely question whether "guaranteed delivery" means "next day" or "next neighbour." Sellers feel increasingly like contestants in a game show where rules change without warning – navigating shifting commission structures, opaque algorithms, and arbitrary suspensions. The Platform workers are often treated like code – easily replaced, endlessly scalable, yet largely invisible. Even ultra-fast delivery, which was once a novelty, is starting to feel unsustainable.

28. Which of the following is the most logical and rational inference that can be made from the above passage?

(a) Traditional methods of buying like from Kirana Stores and the locally available retail/wholesale shops would see a resurgence because of the problems being faced by e-Commerce

(b) E-Commerce is grappled with tensions that are affecting almost all its participants.

(c) E-Commerce platforms have failed to deliver on their promises, as their models are unsustainable.

(d) Those who own the E-Commerce platforms are not affected much by the issues plaguing this sector.

EXPLANATION:

Option (a) is an overreach, as it is beyond the scope of the passage. Option (b) captures the essence of the passage, as it is about how each section that is dependent on the e-commerce platform are affected, viz., buyers, sellers, and platform workers. Option (c) oversimplifies the issue, as it is not only the sustainable model that is at play here. While Option (d) might also feel correct, as the Platform Owners are not mentioned to have had any negative impact because of these developments, it fades in relevance when compared to option (b), which encapsulates most of the points.

29. Which of the following examples is the most logically corollary to the above passage?
    (a) The increase in tariffs by one country on the other would lead to cancellation of seller's orders by multinational e-commerce platforms, due to the question of profitability.
    (b) Unionization of e-Commerce Gig workers is the need of the hour.
    (c) Drone-delivery being experimented by e-Commerce platforms is a step towards ensuring ultra-fast and accurate deliveries.
    (d) Multinational e-commerce platforms should be brought under stricter legislations to ensure that the rights of the sellers and the buyers are protected.

EXPLANATION:

Though option (a) addresses the arbitrary cancellation of seller's orders by the e-commerce platforms, the passage does not attribute it to the macro-economic policies of the governments. The focus of the passage is more on the internal issues of these platforms. Option (b) addresses the 'visibility issue' of e-commerce platform workers who are facing the looming threat of being replaced at will. Option (c) is against the core message of the passage, i.e. a critique on the emphasis on ultra-fast deliveries. Option (d) is about a policy regulation, but it involves only the buyers and sellers, while leaving out the platform workers. Further, the passage delves more into the issues that could be addressed by the platforms themselves and does not require an external legislation (unsustainable models of operation like promising ultra-fast deliveries to buyers and having opaque algorithms that affect the sellers).

S.(30-31) 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

Page 102 of the Constitution of India, features a scene from 'Gupta Art' – a bejewelled Gandharva (celestial being in Hindu Mythology associated with music and depicted as messengers between humans and gods) and trees in bloom. The artwork is followed by the section of the Constitution that deals with 'The States in Part C of the First Schedule.' One author of mythology books had interpreted it as a scene depicting the fleeing of Lord Kubera from Lanka to India, after being banished by his brother Ravana. The author refers to Kubera as a refugee, who recreates his fortune in India, after given protection by Lord Shiva.

30. Which of the following is the most logical and rational inference that can be made from the above passage?
    (a) Interpretation of artwork is an intricate job and requires knowledge from various fields.
    (b) The artwork can be seen as a metaphor about certain States in India or about refugees coming to India.
    (c) Artworks require a careful interpretation, when they appear in legal documents.
    (d) Artworks in the Constitution of India provides context to the passage that follows them.

EXPLANTION:

Option (a) is wrong, as the passage makes it clear that the interpretation of art is largely subjective, but does not imply about the requirement of an inter-disciplinary knowledge. Option (b) is partially right because one author interpreted it as a 'refugee issue.' However, it is not a metaphor about 'certain states,' as the passage only states that the section about 'The States in Part C of the First Schedule' following the artwork in order, and does not make any explicit inference about those two being contextually related. Option (d) is an over-generalization. Option (c) implies that interpreting art is a subjective thing and cautions that it should not be overdone when it is in the backdrop of a legal document like the Constitution of India.

31. With reference to the above passage, the following assumptions have been made. Which of the above assumptions is/are valid?

 I. Knowledge of both art and law is required for a nuanced reading of the Constitution of India.

 II. Art has a limited scope when used in legal documents, like the Constitution.

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 passage does not infer about the knowledge required for reading the Constitution of India. Further, the core is about the subjective interpretation. Assumption II is also wrong, as the passage does not discuss about the scope of art in legal documents, and focuses solely on the interpretive freedom that the art provides.

Directions (32-34): Study the following information carefully and answer the given questions.

Eight individuals—X, Y, Z, and W (women) and M, N, O, and L (men)—are seated around a circular table, all facing the center.

There are players of four sports: Football, Volleyball, Cricket, and Basketball, and

Each sport has a maximum of two players. People who are facing each other are playing the same sport.
Conditions:

No two women are seated next to each other. X does not sit directly across Y.

N, who is an immediate neighbor of Z, faces M. O is seated next to W but not next to Z.

W is not positioned second to the right of Z. At least one person sits between X and O.

L is a Football player. O and Z play different sports, but neither of them is a Basketball player.

The person sitting to the immediate left of M is a Cricket player.

32. If the entire seating arrangement is seen in a mirror, who will be seated to the immediate left of Z in

the mirror image?

(a) X
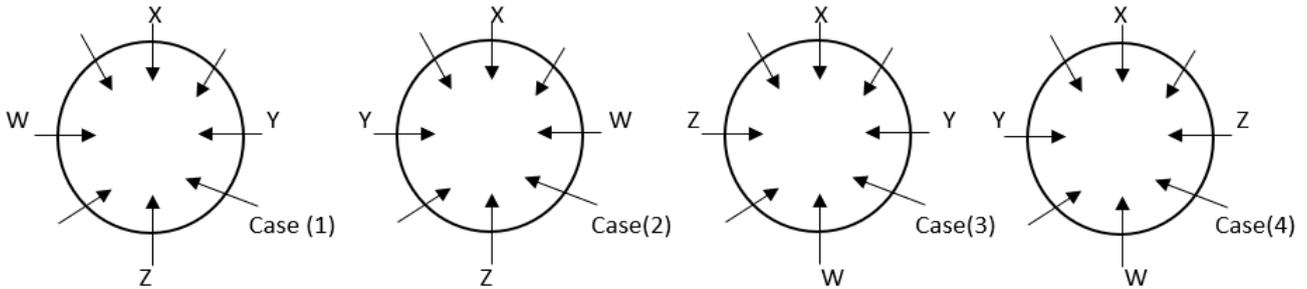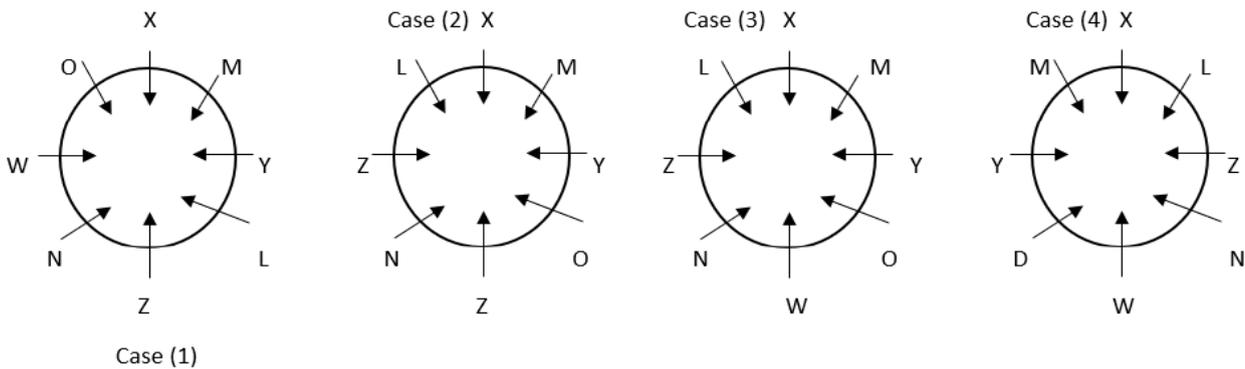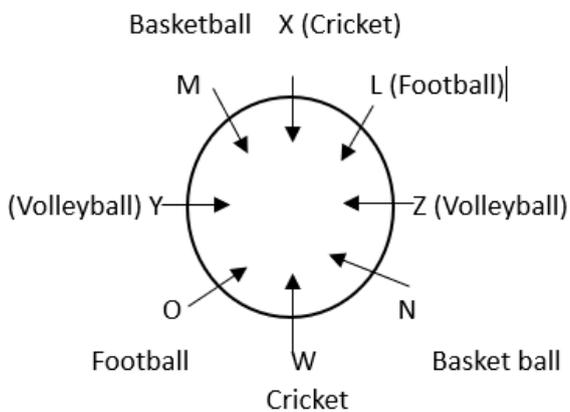
(b) W

(c) N

(d) L

EXPLANATION:

X does not sit directly across Y.

Case (1)   Case(2)   Case(3)   Case(4)

N, who is an immediate neighbor of Z, faces m O is seated next to W – but not next to Z.

Case (1)

W is not positioned second to the right of Z. At least one person sit between X and O. According to this condition case 4 is correct

Basketball   X (Cricket)
M   L (Football)
(Volleyball) Y   Z (Volleyball)
O   N
Football   W   Basket ball
Cricket

L is immediate left of Z in mirror image (Refer the diagram given in question number 34).

33. If the seating arrangement is placed near a water surface and its reflection is seen without changing the respective sports position, which of the following statement(s) is/are true?

 I.   L is a Basketball player

 II. O is seated Immediate left of W but not next to Z

 III. N is an immediate left of Z and faces Y

 IV. The person sitting to the immediate right of M is a Cricket player

 (a) I, II and IV only

 (b) I and III only

 (c) I, III and IV only

 (d) **I and IV only**

EXPLANATION:

WATER IMAGE
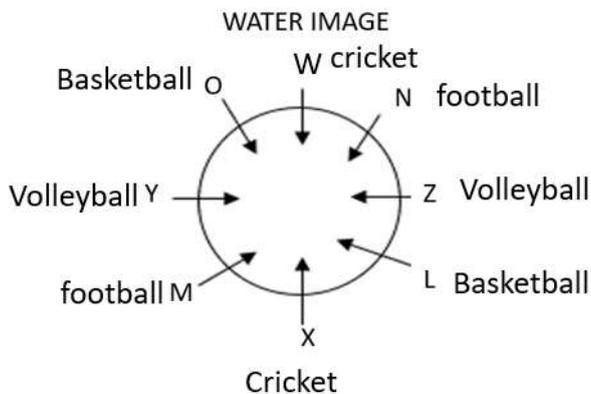
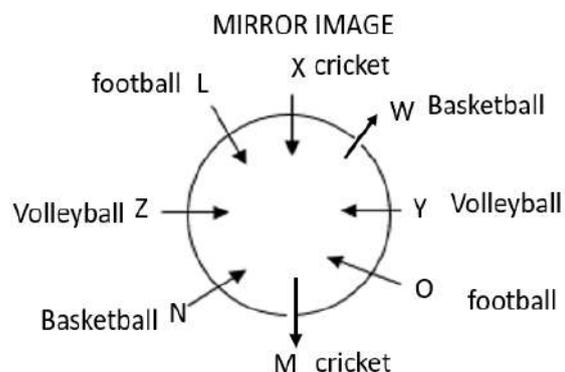According to the above diagram, statements I and IV are true.

34. If the seating arrangement is placed near a mirror and the positions of W and M are inter changed and they face outside the center. Which of the following statements is true?

 (a) The person to left of Y and person who is left of M is facing each other.

 (b) L is second to the left of W in clock wise direction.

 (c) Z is second to the right of M in Anti clock wise direction.

 (d) The person who is right to W and person who is left to N are facing each other.

EXPLANATION:
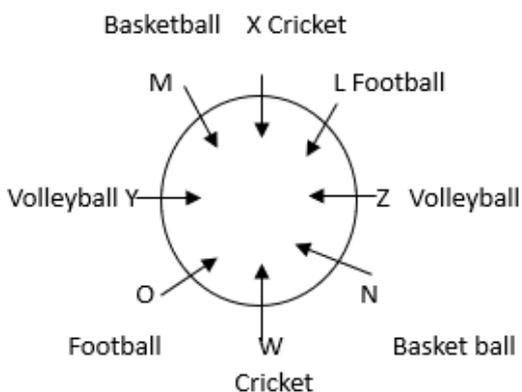
BEFORE INTER CHANGING   **AFTER INTER CHANGING**

According to the above diagram, option (d) is correct answer.

Directions 35:

In the following question four statements followed by four conclusions numbered I, II, III and IV have been given. You have to take the given statement to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follows from the given statements. Give answer.

35. **Statements:**

All apples are baskets.

Some baskets are jugs.

No jug is a jar.

Some jars are not baskets.

Conclusions:

I. At least some baskets are apples.

II. No apple is a jar.

III. Some baskets are not jars.

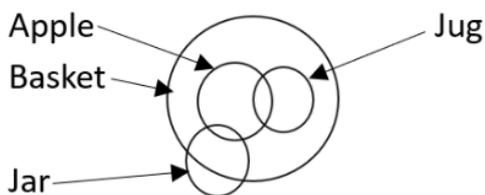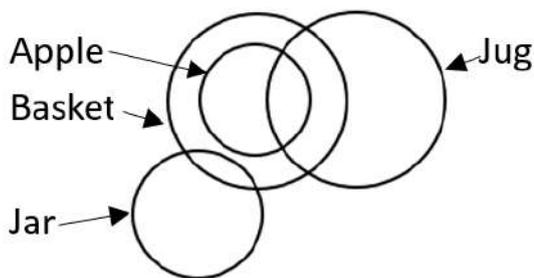IV. All jugs being baskets is a possibility.

(a) If only Conclusions I and III follow.

(b) If only Conclusions II and IV follow.

(c) If either Conclusions I or III follows.

(d) If both Conclusions I, III and IV follow.

EXPLANATION:

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 - 1

On a Piano, there are 88 keys. When we look at a piano, we do not point out specific keys for no reason and say that "that key is wrong." We only think a specific key is "wrong," if we think someone is playing a specific song and hits a key that is not in the song. Inherently, the piano has no wrong keys though. There are only keys and notes that sound more or less pleasant when played consecutively. Going by this analogy, we can state that there are no "wrong" decisions in life. There is only thinking that gives us pleasant or not so pleasant feelings. Hence, when we label things as "right or wrong," "good or bad," we create duality and conditions in our lives, which determines how we feel.

36. The author of the passage holds the view that,
    (a) There are no right or wrong things in life.
    (b) Our thoughts have a direct impact on our perception.
    (c) Nothing is inherently good or bad
    (d) Personal decisions are influenced by our pleasure-seeking thoughts.

    EXPLANATION:

    Option (a) offers a moralistic point of view, which is beyond the scope of this passage. Option (c) also fails for the same reason. While in the analogy of Piano, the passage states that there is no "wrong" key, this statement goes for a moralistic generalization, which undermines the key message of the passage "our thinking matters the most." Option (d) is also wrong, as the passage only speaks about pleasant or not so pleasant feelings about our decisions, and not about the pleasure-seeking nature of humans. Option (b) captures the true essence o the passage, i.e. thinking determines how we feel about things.

37. With reference to the above passage, the following assumptions have been made. Which of the following assumptions is/are valid?
    I. Thoughts control human decisions.
    II. When it comes to policy decisions, the policymaker decides based on whether it would have a pleasant or an unpleasant outcome.

    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 passage explains how thoughts influence our perception towards the outcome of our decisions, and not about how they control the decision-making process. Assumption II is also wrong, as the passage's scope is limited to only personal thinking, and does not give any indication of it being valid in a larger context like policy decision making.

S.(38-39) 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

Under a system of perfectly free commerce, each country naturally devotes its capital and labour to such employments as are most beneficial to each. This pursuit of individual advantage is admirably connected with the universal good of the whole. By stimulating industry, by rewarding ingenuity, and by using most efficaciously the peculiar powers bestowed by nature, it distributes labour most effectively and most economically: while, by increasing the general mass of productions, it diffuses general benefit, and binds together by one common tie of interest and intercourse, the universal society of nations throughout the civilized world. It is this principle which determines that wine shall be made in France and Portugal, that corn shall be grown in America and Poland, and that hardware and other goods shall be manufactured in England.

38. What is the essential message in this passage?

   (a) Trade is the great facilitator of world prosperity, because it allows participating countries to make the most of their resources, people, and skills.

   (b) Increased international trade brings together countries across the world, as the concept of interdependent economy is a great unifier.

   (c) Each country must strategize its trade outlook based on its strengths and not on the other country's potential to become the leading player in international trade.

   (d) Protectionism would have an impact on international trade, since not all the countries in the world have access to majority of resources.

EXPLANATION:

Option (a) captures all the relevant points mentioned in the passage, viz., efficient use of resources, distribution of labour, rewarding ingenuity (skill), and universal good in terms of prosperity. Option (b) is only partially correct, unlike option (a), which covers all bases. Option (c) is wrong, as it is about strategizing/competing, while the tone of the passage is more optimistic on the greater good of a free international trade. Option (d) is also wrong, as it is only an inference, and not the essential message of the passage.

39. With reference to the above passage, the following assumptions have been made. Which of the following assumptions is/are valid?

   I. The author advocates lower protectionism and increased international trade.

   II. Governments across the world play to their strengths by prioritizing international trade of their abundant resources.

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 right, as the author advocates free trade, which is an antithesis to 'protectionism.' Though not stated explicitly, the passage is built on this subdued premise. Assumption II is wrong, as the passage is not focused on individual government-driven policies, but on the universal principles that govern "international trade."

S.(40-41) 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

Research on the effects of heat on aggression suggests that there is indeed a link between heat and aggression: When people get hot, they become irritable and may be more likely to lash out at others. However, there may be limits to this relationship, stemming from the fact that after prolonged exposure to high temperatures, people become so uncomfortable that they focus on reducing their discomfort, and not on attacking others. Short of these extreme conditions, however, there is a big grain of truth in the metaphor "the heat of anger," and when temperatures rise, tempers may, too – with serious social consequences. That is, certainly something to consider in the context of global warming and the very real possibility that all of us will soon be exposed to uncomfortably hot outdoor temperatures more frequently than was true in the past.

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

   (a) Increase in heat might cause increase in aggression.

   (b) Hot temperatures are associated with aggressive behaviours.

   (c) Global warming will have serious social consequences on all of us.

   (d) Heat explains the violent nature of people in certain regions.

   EXPLANATION:

   Option (a) fails on the ground that "association does not imply causation." The passage clearly talks about the association of heat with aggressive behaviours, while not labelling it as the main cause. This makes option (b) correct, as it is the closest to the underlying message of this passage. Option (c) is wrong, as the passage only states that there is a "real possibility" of such an outcome. A "real possibility" does not indicate certainty. However, option (c) uses the words "will have," which indicates a strong certainty. Option (d) attributes violence to certain regions that are prone to heat, which is not addressed in the passage explicitly.

41. With reference to the above passage, the following assumptions have been made. Which of the above assumptions is/are valid?

   I. In colder regions, less aggressive behaviours could be expected.

   II. Global warming could one day lead to social dysfunction.

   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 a reverse inference, that is not supported by any fact from the passage. The logic of "absence of evidence is not evidence of absence" applies here. Assumption II is correct, as the word "could" resonates with the "real possibility" mentioned in the passage. Further, assumption II is based on the outcome highlighted in the passage to justify the studies on the effect of heat on aggressive behaviours.

42. A rope is wound around a circular drum whose diameter is 140 cm, and a bucket is tied to the rope. If the bucket is raised by 22 meters, how many revolutions does the drum make?

(a) 10

(b) 8

(c) 6

(d) 5

EXPLANATION:

Convert units

- Diameter = 140 cm

- Height raised = 22 meters = 2200 cm

Circumference = π × diameter = $\frac{22}{7}$ × 140= 440cm

Number of revolutions

Revolutions = $\frac{Total\,rope\,used}{Circumference}$ = $\frac{2200}{440}$ = 5

43. A clock which moves continuously fast, lags 4 minutes behind the correct time on Monday at 9 AM, and is 6 minutes ahead of the correct time on Wednesday at 9 AM. At what time did the clock show the correct time?

(a) Thursday 4.12 AM

(b) Friday 4.30 AM

(c) Tuesday 4.12 AM

(d) Wednesday 5.30 AM

EXPLANATION:

A clock is found to be slow by 4 minutes at 9AM on Monday. It started gaining time and was found to be 6 minutes fast at 9AM on Wednesday.

Time from 9AM on Sunday to 9AM on Wednesday = 48 Hours

Clock gain (4 + 6) min in 48 hours.

Showing the correct time it must gain only 4 min.

10 min gain = 48 hours

4 min gain = ($\frac{48}{10}$ x 4) = 19.2 hours

19 hours and 12 minutes from Monday 9 AM = Tuesday 4.12 AM.

44. The question below is followed by two statements (I and II). Determine whether the data provided in the statements is sufficient to answer the question, and mark the correct option accordingly.

In a competitive exam, the minimum qualifying marks for Category A and Category B are 35% and *X%* of the total marks, respectively. One of the Category B candidates scored 1500 marks but failed by 200 marks. What are the qualifying marks for Category A?

Statement I: The qualifying marks for Category B are 50% of the total marks.

Statement II. The total marks for both categories are identical.

(a) Statement I alone is sufficient.

(b) Statement II alone is sufficient.

(c) **Both I and II together are sufficient.**

(d) Neither I nor II is sufficient.

EXPLANATION:

Given: Category A passing marks = 35% of total marks. Category B passing marks = X% of total marks.

Category B student scores 1500 but fails by 200 marks → Passing marks for Category B = 1700.

Objective: Find passing marks for Category A (i.e., 35% of Category A's total marks).

Statement I: Passing marks for Category B = 50% of total marks.

→ Total marks for Category B = 1700 / 0.5 = 3400.

(But no info about Category A's total marks.)

Statement II: Total marks for Category A = Total marks for Category B.

Statement II: Total marks for Category A = Total marks for Category B.

→ If we know Category B's total marks (from Statement I), Category A's total = 3400.

→ Passing marks for Category A = 35% of 3400 = 1190.

Conclusion: Both together give the answer.

Correct Option**: C (Both needed).**

45. A block development officer is allocating funds for constructing Primary Schools (₹3 lakh each) and Health Centers (₹4 lakh each) in a village under a rural development scheme. The total budget is ₹36 lakh. If the number of Primary Schools and Health Centers were interchanged, the total cost would reduce by ₹2 lakh, allowing the savings to be redirected for sanitation infrastructure.

How many institutions (Primary Schools + Health Centers) were originally planned?

(a) 6

(b) 7

(c) 8

(d) **10**

EXPLANATION:

Define Variables:

Let P = Number of Primary Schools.

Let H = Number of Health Centres.

Original Budget Equation:

3P + 4H = 36(in lakhs)

Swapped Quantities Equation:

4P+3H=34(since ₹36 lakh - ₹2 lakh = ₹34 lakh)

Solve the System:

Multiply Equation 1 by 4: 12P+16H=144.

Multiply Equation 2 by 3: 12P+9H=102.

Subtract: 7H=42⇒H=6.

Substitute H=6 into Equation 1:

3P + 4(6) = 36⇒3P = 12⇒P=4.

Total Institutions:
P+H = 4 + 6 = 10.

Answer: (d) 10

Directions 46 to 47: Read the given information carefully and answer the questions given below:

In this question, ↑ stands for North, ↓ stands for South, * for East, and ← for West.

Note: If two symbols are used together, both directions should be considered. For example,

X↑*Y means Y is located to the North-East of X.

Y↑*X means X is located to the North-East of Y.

Nine shops – A1, A2, A3, A4, A5, A6, A7, A8, and A9 were spread out at varying distances from one another in a shopping complex. A3 was located 18 meters * to that of A2. A1 was positioned 6 meters ↑ of A2, and A8 was 12 meters ↓ of A1. A7 was 9 meters ← of A8, while A4 was 18 meters * to A8, and A6 was 18 meters ↑ of A7. A9 was placed exactly in between A6 and A7, while A5 was positioned right in the middle of A8 and A4.

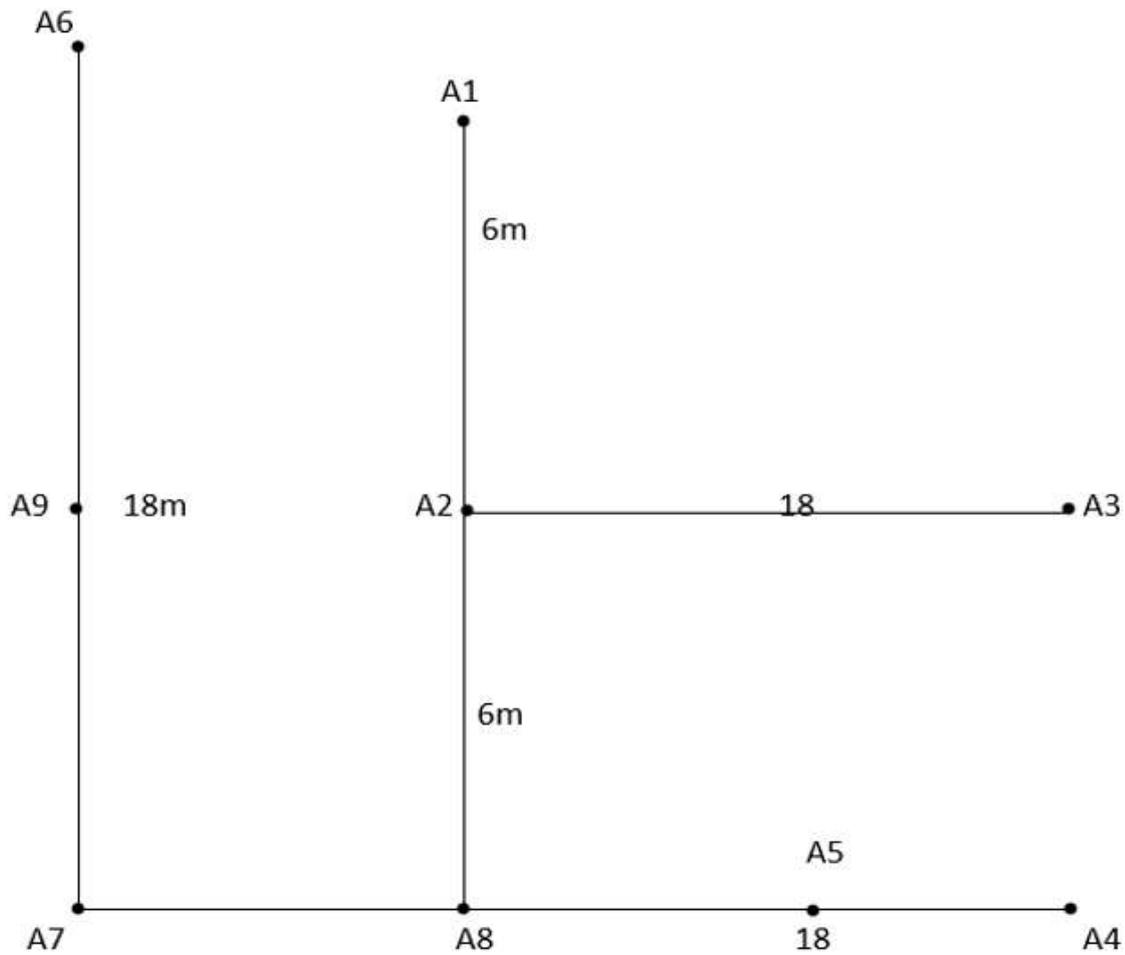46. Which of the following is/are true about A3?

    (a) A4 ↑* A3

    (b) A8 *↓ A3

    (c) A3↑* A6

    (d) A3 ↓← A7

EXPLANATION:

A6

A1

6m

A9   18m   A2   18   A3

6m

A5

A7   A8   18   A4
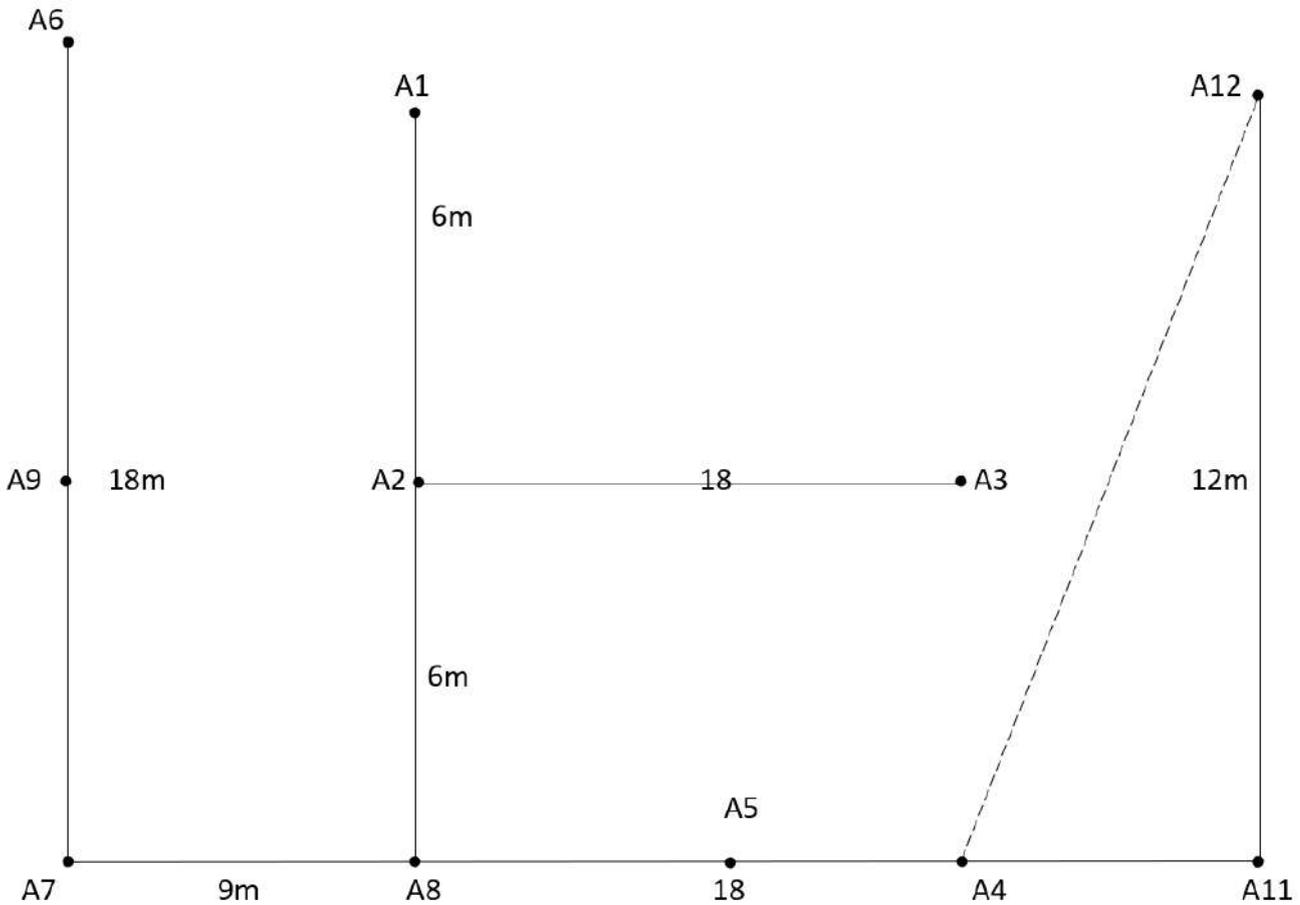
47. If A5 is 25 m to the ← of A11 and A12 is to 12 m to the ↑of A11 then what is the shortest distance between A4 and A12?

(a) 25 m

(b) 20 m

(c) 10√3 m

(d) 18 m

EXPLANATION:

S.(48-49) 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

Systemic reforms should promote an active role for the public sector beyond enablement so as to ensure universal access to adequate affordable housing. Linking housing with other parts of the economy should be strengthened to ensure economic development, employment generation and poverty reduction. Decentralized housing production and empowering different actors and modalities of housing development are to be encouraged within these frameworks. Sustainable building and neighbourhood designs and technologies are to be pursued with an aim towards more cost-effective, flexible and energy-efficient solutions. Most importantly, all efforts should result in significant and measurable improvements in housing and living conditions for all, while facilitating the role of housing as an important support for poverty reduction.

48. Which of the following statements best reflect the most logical and rational inferences that can be made from the passage?

   (a) Government should actively engage in building low-cost homes, funding housing schemes, and providing land to the rural poor, while ensuring measurable improvements in housing quality and leveraging housing as a central factor in reducing poverty.

(b) Investment in housing not only ensures a better standard of living for citizens but also drives the growth of related industries such as real estate, cement, steel, and finance, while generating significant employment opportunities.

(c) Community-driven, locally managed housing projects should be encouraged, engaging various stakeholders and development approaches, while ensuring that housing policies enhance living conditions and empower housing as a key factor in addressing poverty.

(d) Housing policies and interventions must yield quantifiable improvements in housing quality and living conditions across all population groups, positioning housing as a key lever in national poverty reduction strategies.

EXPLANATION:

Option (a) reflects the passage's emphasis on government action in building affordable housing and improving housing quality to support poverty reduction. It aligns with the goal of ensuring universal access to adequate housing.

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

   1. The government initiates a public-private partnership to develop modern apartments in emerging smart cities and satellite towns, offering them at competitive prices with a price cap.

   2. The government provides tax incentives for new homes that adopt sustainable practices, such as installing solar panels, using recycled or sustainable building materials, and incorporating water-efficient systems like rainwater harvesting.

   Which of the assumptions 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 because, while the passage supports decentralized housing and involvement of multiple actors, it prioritizes affordability and inclusivity. Developing modern apartments in smart cities with capped prices may not sufficiently address the housing needs of low-income groups or align with the broader goal of reducing poverty and ensuring universal access. Assumption 2 is invalid because it focuses on sustainable practices without ensuring affordability for all. The passage stresses that housing should be accessible to everyone, especially the economically disadvantaged. Sustainable features must be part of affordable housing initiatives to align with the goal of poverty reduction.

S.(50-51) 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

The essential condition for space to circulate freely in global markets is that space has one and only one permitted form of relationship between individuals with the territories they occupy: private property. Private property is the very base, the very condition, for titularization and financialisation. It is not necessarily the safer kind of tenure relationship, and we saw this with the housing crisis. But private property is the freest

to circulate, is the freest to be part of a market of commodities and a market of finance. To that end it is very important to deny the existence of the hundreds of other types of tenure, especially during the colonial period. Colonialism was based on the denial of these ties, and this permit- ted massive land grabbing in America, in Africa, in Asia, and in Europe as well.

50. Which one of the following statements best reflects the central idea conveyed by the passage?

   (a) Colonialism promoted the widespread adoption of private property rights, allowing land to circulate freely across global markets.

   (b) Private property drives global markets, but recognizing diverse tenure systems is vital, as their neglect during colonialism enabled widespread land takeover.

   (c) The housing crisis revealed the dangers of private property as the primary means of securing land, questioning its role in market dynamics.

   (d) Different forms of land tenure, including indigenous systems, should be recognized to prevent land grabbing and ensure fair distribution of space globally.

   EXPLANATION:

   Option (b) captures the central idea by highlighting how private property enables global market circulation. It also acknowledges that colonialism suppressed other tenure systems to facilitate land grabbing. This aligns with the passage's focus on both economic and historical dimensions of land ownership.

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

   1. The concept of private property has served as a key driver in facilitating free-market trade and advancing globalization.

   2. While colonialism deliberately suppressed the traditional, communal, or indigenous land tenure systems, it can very well be viewed as an inevitable strategy to turn property into a commodity to initiate global trade practices.

   Which of the assumptions given above is/are valid?

   (a) 1 only

   (b) 2 only

   (c) Both 1 and 2

   (d) Neither 1 nor 2

   EXPLANATION:

   Assumption 2 oversimplifies the intent behind colonialism by attributing the suppression of traditional land tenure systems as an inevitable strategy for promoting global trade, which is not the direct aim of colonialism. Colonial powers did indeed suppress these systems to serve their interests, particularly to enable land appropriation and exploitation, rather than directly to facilitate global trade.

Direction 52 – 53: Study the following information and answer the questions given below.

If,

A # B means A is father of B

A & B means B is husband of A

A@B means A is sister of B

A % B means A is son of B

A * B means A is brother of B

52. Which of the following should replace question mark(?) Such that Q is Niece to W?
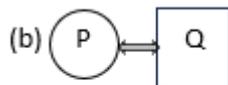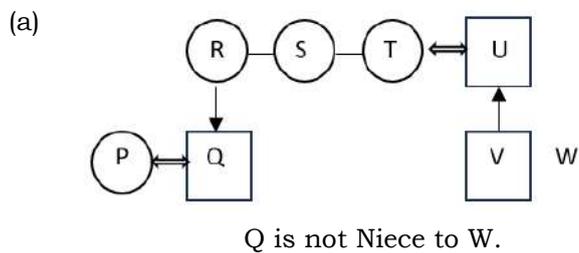
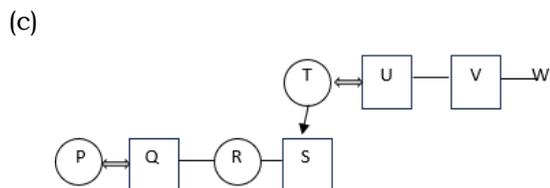   P & Q (?) R@ S (?) T & U (?) V * W

    (a) %, @, #

    (b) @, *, %

    (c) *, %, *

    (d) None of the above

    EXPLANATION:

    (a)

    Q is not Niece to W.

    (b)

    Q is Male but @ refer Q is sister of R.

    (c)

53. If A # B % C @ D & E, which of the following is differ from other?

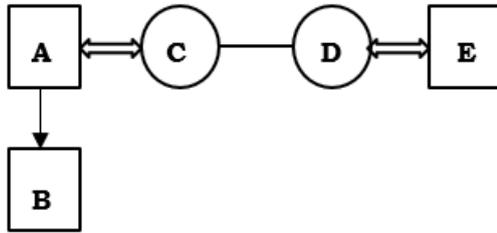   (a) D is husband of E

    (b) D is Niece of B

    (c) E is husband of D

    (d) C is brother of D

    EXPLANATION:

Direction question (54–56):

Study the given table carefully to answer the following questions.

Field name	Shape	Side (in m)	Base in(m)	Height in(m)	Radius in(m)	Cost of flooring rupees per meter	Cost of fencing (in Rs. Perm)
A	Triangle		16	12		50	20
B	Rectangle	10 x 20				30	15
C	Square	15				44	35
D	Parallelogram		22	11		50	25
E	Circle				15	45	21

54. What is the ratio of cost of flooring to that of fencing of field D?

   (a) 14: 1

   (b) 27: 12

   (c) 22: 3

   (d) 9: 1

   EXPLANATION:

   The term flooring is used for find the area and fencing is used to find perimeter of certain figures

   Ratio of cost of flooring to fencing of field D

   Area of Parallelogram (D) = Base × Height = 22 × 11 = 242 m²

   Cost of Flooring = Area × Flooring Rate = 242 × 50 = 12100

   Perimeter of Parallelogram = 2 × (Base + Side) = 2 × (22+11) = 2 × 33 = 66 m

   Cost of Fencing = Perimeter × Fencing Rate = 66 × 25 = 1650

   Ratio (Flooring: Fencing)

   = 12100:1650 = 22:3.

55. The cost of fencing of field E is approximately what percent of the cost of flooring of field C?

   (a) 20%

   (b) 12%

   (c) 14.63%

   (d) 32.17%

EXPLANATION:

Perimeter of circle = 2πr = 2 x 22/7 x 15

Cost of Fencing of circle = 2 x 22/7 x 15 x 21

Area of Square= a^2 = 15 x 15

Cost of flooring of Square = 15 x 15 x 44

= $\frac{2 \times 22/7 \times 15 \times 21}{15 \times 15 \times 44}$ = 20%.

56. The cost of fencing of field C is what percent of the cost of flooring of field B?
    (a) 25%
    (b) 23.3%
    (c) 20.45%
    (d) 35%

EXPLANATION:

Find the Cost of Fencing for Field C (Square)

Side of square = 15 m

Perimeter of square = 4×15=60

Total fencing cost for C = 60×35=2100

Length = 20 m, Width = 10 m

Area of rectangle = 20 × 10 = 200 m²

Flooring cost per m² = 30 ₹

Total flooring cost for B = 200 × 30=6000

= $\frac{2100}{6000}$ × 100 = 35%.

57. There are 8 different appointment orders and they are to be placed in 8 different addressed envelopes and sent to 8 different candidates who cleared the personality test. However, the manager misplaced few letters and only two letters were allocated in the proper envelopes. Let X be the number of ways in which this can be done. What is the sum of the digits of X?
    (a) 10
    (b) 12
    (c) 13
    (d) 16

EXPLANATION:

Out of 8 letters, the two letters which are placed in the correct envelope can be selected in $8C_2$ = 28 ways.

The remaining 6 letters are not placed in the correct envelope. The number of ways this can happen is given by derangement concept which is given by

$$n!\left[1 - \frac{1}{1!} + \frac{1}{2!} - \frac{1}{3!} + \frac{1}{4!} - \frac{1}{5!} + \cdots \frac{1}{n!}\right]$$

$6!\left[1 - \frac{1}{1!} + \frac{1}{2!} - \frac{1}{3!} + \frac{1}{4!} - \frac{1}{5!} + \frac{1}{6!}\right]$ = 265

No of arrangements possible = 28 x 265 = 7420

Sum of digits of 7 + 4 + 2 + 0 = 13.

Direction question 58:

58. Read the following statements carefully and answer the question that follows.

   Statements:

   1. All books are sources of knowledge.
   2. Some sources of knowledge are digital.
   3. No book is digital.

   Conclusions:

   I. Some books are digital.

   II. It is possible that some digital things are not sources of knowledge.

   III. All books may be digital.

   IV. Some sources of knowledge are not books.

   Which of the above conclusions logically follow from the given statements?

   (a) Only II and IV follow

   (b) Only II and III follow

   (c) Only I and IV follow

   (d) Only II, III, and IV follow

   EXPLANATION:
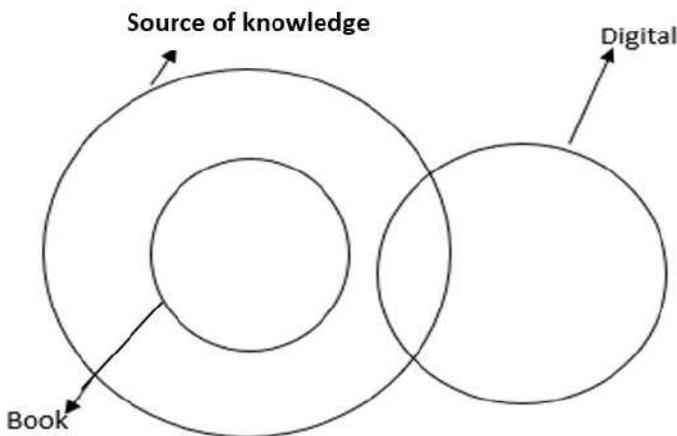
S.(59) Directions for the following 1 (One) item: *Read the following passage and answer the items that follow. Your answer to the items should be based on the passage only.*

<div align="center">PASSAGE - 1</div>

Parents' engagement in young children's learning is associated with improvements in children's literacy, behaviour, and socioemotional well-being. Parent engagement is a process that can be facilitated by provider skills in communication and joint decision making with diverse families about their children's education, but programs designed to prepare individuals to work with young children do not always include evidence-informed strategies for creating successful partnerships with families. Despite growing recognition that partnerships with families contribute to the success of early childhood programs and schools in preparing children for academic success, as well as an emphasis on family engagement in statutes and policies, programs de-signed to prepare teachers and providers often do not include professional development related to working with parents.

59. Which of the following statements is the logical corollary to the above passage?

1. A community-based early childhood education centre collaborates with local organizations to establish a support network for parents, offering counselling services, parenting workshops, and weekend group activities such as reading nights.

2. A tech company develops a mobile app designed to enhance communication between teachers and parents, allowing parents to track their child's progress, communicate with educators, and access educational resources.

3. In a tribal region with low literacy, education programs focus on teacher-led instruction and student assessments, with minimal emphasis on parental involvement due to limited educational exposure.

4. A government education policy requires all teacher training programs to include modules on cultural awareness and family involvement, ensuring educators are equipped to engage effectively with families from varied cultural backgrounds.

Which of the statements given above is/are valid?

(a) 1 and 2 only

(b) 3 and 4 only

(c) 1, 2, and 4

(d) 1, 3 and 4

EXPLANATION:

Statement 2 is invalid. The corollary is flawed because it wrongly assumes that only educated parents can contribute meaningfully, while the passage emphasizes that parental engagement supports children's growth regardless of parents' education. High education is not a mandatory condition for effective involvement.

S.(60-61) 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

Human beings have faculties more elevated than animal appetites, and when once conscious of them do not regard anything as happiness which does not include their gratification. Few human creatures would consent to be changed into any of the lower animals, for a promise of the fullest allowance of a beast's pleasures; no intelligent human being would be content to be a fool; no instructed person would be an ignoramus. It is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied. And if the fool, or the pig, are of a different opinion, it is because they only know their own side of the question.

60. Which one of the following statements best reflects the central idea conveyed by the passage?

(a) The pleasures experienced by animals and unthinking individuals are more desirable because they are simpler, more attainable, and free of dissatisfaction.

(b) **Once human beings become aware of their higher intellectual and moral faculties, they cannot find true happiness in pleasures that do not engage or fulfil these capacities.**

(c) True happiness lies in the fulfilment of basic physical needs and desires, as these provide the most consistent and attainable form of pleasure for all beings.

(d) The fool or the pig may rightfully claim to be happier because their uninterrupted satisfaction with simple pleasures suggests a more stable and attainable form of happiness.

EXPLANATION:

The author argues that once humans become aware of their higher intellectual and moral faculties, they cannot be truly happy with lower, purely physical pleasures. True happiness requires the exercise and fulfilment of these higher capacities.

61. Based on the above passage, the following assumptions have been made:
    1. A scientist, after years of research, is likely to find fulfilment in making discoveries and advancing knowledge, with true satisfaction coming from intellectual growth and contributing to a deeper understanding of the world.
    2. A person who finds fulfilment in the simplicity and stability of routine work, such as a factory worker, may believe that true happiness is about consistency and comfort, overlooking the deeper intellectual or emotional fulfilment that others seek in their professions.

    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 2 is incorrect because it assumes that someone who finds happiness in routine work (like a factory worker) lacks the capacity to appreciate deeper intellectual or emotional fulfilment. The passage doesn't suggest that such a person cannot appreciate or understand deeper happiness; it simply contrasts different forms of fulfilment, not that one is inherently more valid than the other.

62. An urn contains balls numbered using only positive integers. If a ball is drawn at random, what is the probability that the ball has the digit 3 in it?

    Statement 1: The total number of balls in the urn is the smallest three-digit number.

    Statement 2: Only two-digit prime numbers are written on the balls.

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

    (a) The question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.
    (b) The question can be answered by using either of the 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 1:

    Total number of balls = 100

Number of balls with a digit 3 in it = {3, 13, 23, 43, 53, 63, 73, 83, 93, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39} = 19

Probability = 19/100

Hence, statement 1 is alone is sufficient to answer the question.

Statement 2:

Number of two-digit prime numbers = {11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 83, 97} = 21

Number of balls with 3 in it = {13, 23, 31, 37, 43, 53, 73, 83} = 8

Probability = 8/29

Hence, statement 2 is alone is sufficient to answer the question.

Thus, the either of the statements is sufficient to answer the question separately.

63. An office space consists of a ground floor which consists square shaped floor design with square shaped tiles. Ritu from the first floor of her office randomly drops a one-rupee coin of radius 3 cm. The coin should be placed in such a way that it should not cross the edge of any tile. What is the probability that the coin will land completely within a tile if the tiles are of side 10 cm each?
(a) 0.91
(b) 0.5
(c) 0.49
(d) 0.16

EXPLANATION:

The radius of the coin is 3 cm.

For the coin to land completely within the tile, the centre of the coin must be at least 3 cm away from each edge of the tile.

Since the tile is 10 cm on each side, the effective area for the centre of the coin becomes a smaller square within the original tile. The dimensions of this smaller square can be calculated as follows:

The horizontal and vertical boundaries for the centre of the coin will be reduced by 3 cm from each side.

Thus:

o   Left boundary: 3 cm from the left edge of the tile 10 - 3 = 7 cm from the right edge → 7 cm

o   Right boundary: 3 cm from the right edge of the tile 7 - 3 = 4 cm from the left edge → 4 cm
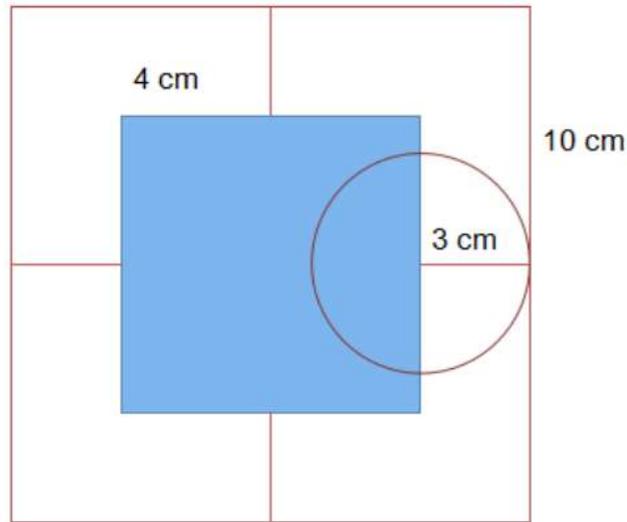
Therefore, the area in which the centre of the coin can fall is 16 square cm.

Area of the tile 100 square cm.

Required probability 16/100 = 0.16.

64. In a school, Category B has two sections: A and B. The ratio of the number of students in Section A to Section B is 2:1. In Section A, the ratio of boys to girls is 2:1, while in Section B, it is 4:2. Students from both sections are made to stand in rows for an assembly, grouped by gender, such that each row contains an equal number of students. If the maximum number of students possible in each row is 204, what is the difference between the number of boys in Section A and Section B?

(a) 238

(b) 272

(c) 136

(d) 204

EXPLANATION:

The LCM of 3 (denominator from Section A, (2:1→ 3 parts) and 6 (from Section B, 4:2 → 6 parts) is 6.

Now, multiply the section sizes by 6:

Section A = 2 × 6 = 12k, Section B = 1 × 6 = 6k

Now, we can work with whole numbers.

Find the number of boys and girls in each section

Section A (Boys : Girls = 2 : 1 → 3 parts): Boys = 2/3×12k=8k, Girls = 1/3 × 12k= 4k

Section B (Boys : Girls = 4 : 2 → 6 parts): Boys = 4/6 × 6k = 4k, Girls = 2/6 × 6k = 2k

Total students in both sections

Total boys = 8k (from Section A) + 4k (from Section B) = 12k, Total girls = 4k (from Section A) + 2k (from Section B) = 6k, Total students = 18k.

We are told the maximum number of students in each row is 204.

We calculate the HCF of the total boys and girls:

HCF(12k,6k) = k × HCF (12,6) = k × 6

So,6k = 204 ⇒ k = 204/6 = 34

Find the number of boys in Section A and Section B

Now that we know k = 34:

Boys in Section A = 8k=8×34=272, Boys in Section B = 4k=4×34=136

Final Answer:

The difference between the number of boys in Section A and Section B is:

272 – 136 = 136

Answer: C) 136

65. There is a magical box with some diamonds. For every minute $1/4^{th}$ of the diamonds disappears from the box. What is the leftover diamonds inside the box after sixth minute?

(a) 64/729 part of the diamonds

(b) 1/4096 part of the diamonds

(c) 729/4096 part of the diamonds

(d) 64/4096 part of the diamonds

EXPLANATION:

Let x be the number of the diamonds in the box.

During the first minute, ¼ of the diamonds disappear.

Number of diamonds after 1st minute = $x - \left(\frac{1}{4}\right)x = \frac{3x}{4}$

During the second minutes, ¼ of the diamonds disappear.

Number of diamonds after 2nd minute = $\frac{3x}{4} - \frac{1}{4}\left(\frac{3x}{4}\right) = \frac{3x}{4} - \frac{3x}{16}$

= $\frac{9x}{16}$ which will be $\frac{3}{4}\left(\frac{3x}{4}\right)$.

For every minute, ¾ is multiplied.

Likewise, for 6th minute = $(3/4)^6$ = 729/4096 part of the diamonds.

66. A stall sells candy and cookies in three different packet sizes: small, medium, and large. The quantities of small, medium, and large packets in stock follow the ratio 6 : 9 : 10 for candy and 8 : 10 : 12 for cookies. If the total number of candy packets equals the total number of cookie packets, what is the ratio of large candy packets to large cookie packets?

(a) 5:6

(b) 4: 7

(c) 3: 2

(d) **1: 1**

EXPLANATION:

We are given the ratios of packet sizes for candy and cookies:

Candy: 6 : 9 : 10, Cookies: 8 : 10 : 12

Let the number of small, medium, and large candy packets be 6x, 9x, and 10x, and for cookies, let the numbers be 8y, 10y, and 12y.

The total number of candy packets is 25x and the total number of cookie packets is 30y. Since these totals are equal, we set 25x = 30y, which simplifies to x = 6/5y Now, the ratio of large candy packets to large cookie packets is:

$$\frac{10x}{12y} = \frac{10 \times 6}{12 \times 5} = \frac{1}{1}$$

Thus, the ratio of large candy packets to large cookie packets is 1:1.

Answer: (d) 1:1.

67. Mr.Surjeet has planned for his packing for his upcoming Olympics game. For this journey, he has packed 3 pairs of Sneakers, 4 Tracks, 3 Trousers, 6 T-shirts, 3 Match Jersey and 2 Over coats. The outfit is defined as consisting of a pair of Sneakers, a choice of "lower wear" (either a Track or a Trouser), a choice of "upper wear" and finally he may or may not choose to wear an Over coat. How many different outfits are possible?

(a) 567

(b) 1821

(c) 743

(d) None of the above

EXPLANATION:

Let us find out the number of ways in which an outfit can be selected.

An outfit is defined as a pair of Sneakers, an upper wear, and a lower wear.

A pair of Sneakers can be selected in **3 ways**.

There are 4 Tracks and 3 Trousers.

A Track or a Trouser can be selected in **7 ways**.

A T-shirt can be selected in 6 ways.

A Match Jersey can be selected in 3 ways,

A T-shirt and a Match Jersey can be selected in 18 ways.

Therefore, an **upper wear** can be selected (it could be a T-shirt or a Match Jersey or both) in 6 + 3 + 18 = **27 ways**.

A Over coat can be worn in 1 (no Over coat is selected) + 2 (one of the 2 Over coats is selected) = **3 ways**.

Therefore, the total number of ways in which an outfit can be worn

= (Upper wear x Lower wear)

= (3*7) * (27*3) = **1701 ways.**

As the answer is not among the given choices, option D is the right answer.

S.(68-69) 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

Our mental reactions to what we actually get and what we can sensibly expect to get may frequently involve compromises with a harsh reality. The destitute thrown into beggary, the vulnerable landless labourer precariously surviving at the edge of subsistence, the overworked domestic servant working round the clock, the subdued and subjugated housewife reconciled to her role and her fate, all tend to come to terms with their respective predicaments. The deprivations are suppressed and muffled in the scale of utilities reflected by desire-fulfilment and happiness by the necessity of endurance in uneventful survival.

68. Which one of the following statements best reflects what is implied by the passage?

   (a) In the absence of deprivation, material well-being becomes the most crucial factor in determining a person's happiness, as comfort and security naturally foster contentment.

   (b) Happiness is primarily determined by internal emotional strength and is therefore largely independent of external living conditions.

   (c) Those in difficult socio-economic conditions may come to view contentment not in terms of material wealth, but through the lens of endurance and the basic ability to survive.

   (d) Individuals facing prolonged poverty and hardship may gradually redefine contentment as survival and endurance, often overlooking their true deprivation.

   EXPLANATION:

   The passage emphasizes how individuals in difficult socio-economic conditions adapt their understanding of contentment to fit their circumstances. They shift their perspective, finding satisfaction in endurance and survival rather than material wealth or external comforts.

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

   1. A single mother working multiple low-wage jobs gradually moves away from material aspirations, finding fulfilment in supporting her children and managing daily struggles. Over time, she redefines happiness through her resilience in maintaining stability and ensuring her family's well-being.

   2. A farmer in an underdeveloped region is unaware of their scarcity of resources and finds contentment by adapting to their situation, redefining happiness through endurance, resilience, and family well-being.

   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 2 is incorrect. The passage suggests that people in tough conditions (like the farmer) are aware of their deprivation, but they adapt and redefine happiness through endurance, not because they are unaware of their situation. The second option incorrectly implies that the farmer is unaware of their scarcity, which is not supported by the passage.

70. A clock at Rohan's home shows the correct time, matching an accurate clock, at 12:00 p.m. On the same day, when the accurate clock shows 4:00 p.m., Rohan's clock has its minute hand 30-minute spaces ahead of the hour hand, positioned between 4 o'clock and 5 o'clock. What time does Rohan's clock show when the accurate clock reaches 12:00 p.m. on the next day?

(a) 03:21:54 p.m.

(b) 04:24:48 p.m.

(c) 05:27:16 p.m.

(d) 06:32:05 p.m.

EXPLANATION:

Time at which the hands of a clock are in opposite directions between 4 o' clock and 5 o' clock:

$$\frac{12}{11}(5 \times 4 + 30) = \frac{600}{11} = 54\frac{6}{11}$$

$= \frac{600}{11}$ minutes past 4 o' clock

The gain made by Rohan's clock is $\frac{600}{11}$ minutes in 4 hours.

Duration from 12:00 p.m. today to 12:00 p.m. tomorrow – 24 hours.

Gain made by Rohan's clock in 24 hours $= \frac{24}{4} \times \frac{600}{11} = \frac{3600}{11}$ minutes

$\frac{3600}{11}$ minutes $= \frac{3600}{11} \times \frac{1}{60}$ hours $= \frac{60}{11}$ hours $= 5\frac{5}{11}$ hours

$= 5$ hours $+ \frac{5}{11}$ hours $= 5$ hours $+ \frac{5}{11} \times 60$ minutes

$= 5$ hours $+ \frac{300}{11}$ minutes $= 5$ hours $+ 27\frac{3}{11}$ minutes

$= 5$ hours 27 minutes $+ \frac{3}{11}$ minutes

$= 5$ hours 27 minutes 16 seconds (approximately)

Time displayed on Rohan's clock at 12:00 p.m. tomorrow

$= 12:00:00 + 05:27:16 = 05:27:16$ p.m.

71. A question is followed by two statements. Analyse the statements to determine whether they are sufficient to answer the question and choose the most appropriate option.

Question: θ_1, θ_2, θ_3, and θ_4 are angles of a quadrilateral ABCD. What is the value of θ_4?

Statement 1: ABCD is a cyclic quadrilateral.

Statement 2: ABCD is a rhombus.

(a) One of the statements alone gives the answer while the other statement does not.

(b) Each statement individually is sufficient to answer the question.

(c) Both statements together are sufficient to answer the question.

(d) The statements given are insufficient to answer the question.

EXPLANATION:

Considering statement 1: ABCD is a cyclic quadrilateral. In a cyclic quadrilateral, the opposite angles add up to 180°. Without knowing θ_2, we cannot determine θ_4. Hence, statement 1 alone is insufficient.

Considering statement 2: ABCD is a rhombus. There are no definite angles mentioned for a rhombus, except that the opposite angels will be equal. Statement 2 is insufficient.

Combining both the statements:

A cyclic quadrilateral which is also a rhombus must be a square. Each angle of a square is 90°. Hence, by combining both the statements, the answer can be determined.

72. The following questions is followed by two statements, I and II. Answer each question using the data provided in the statements and mark your answer as:
(a) If Statement I alone is sufficient to answer the question, but Statement II alone is not sufficient.
(b) If Statement II alone is sufficient to answer the question, but Statement I alone is not sufficient.
(c) If both Statement I and Statement II together are required to answer the question, but neither statement alone is sufficient.
(d) **If either statement I alone or statement II is sufficient to answer the question.**

Ravi invested a certain amount of money in three parts:
* 1/6 of the total at 4% per annum for 2 years,
* 1/2 of the total at 7% per annum for 2 years,
* The remaining amount at 9% per annum for 2 years.

What is the total amount invested?

Statement I: The total simple interest received from all three investments after 2 years is ₹1,980.
Statement II: The amount invested at 9% per annum is ₹3,600.

EXPLANATION:
Let total sum = x

Interest from $\frac{1}{6}$x at 4% for 2 years:

$SI_1 = \frac{1}{6} x \times \frac{4 \times 2}{100} = \frac{8x}{600} = \frac{2x}{150}$

Interest from $\frac{1}{2}$x at 7% for 2 years:

$SI_2 = \frac{1}{2} x \times \frac{7 \times 2}{100} = \frac{14x}{200} = \frac{7x}{100}$

Remaining amount:

$\frac{1}{6} + \frac{1}{2} = \frac{2+6}{12} = \frac{8}{12} = \frac{2}{3} \Rightarrow$ Remaining = $1 - \frac{2}{3} = \frac{1}{3}$

Interest from that at 9% for 2 years:

$SI_3 = \frac{1}{3} x \times \frac{9 \times 2}{100} = \frac{18x}{300} = \frac{3x}{50}$

Total interest: $\frac{2x}{150} + \frac{7x}{100} + \frac{3x}{50} = 1980$

LCM = 300

$\frac{4x}{300} + \frac{21x}{300} + \frac{18x}{300} = \frac{43x}{300} = 1980$

X = 13813.95

Statement I alone is sufficient.

Statement II: Amount at 9% = ₹3,600

We know that amount at 9% = $\frac{1}{3}$ of total

So: $\frac{1}{3}x$ = 3600 x = 3600 x 3 = 10800

Statement II alone is also sufficient.

Final Answer: D) Each statement alone is sufficient.

S.(73) 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

Children are different in many important aspects, the two main ones being that children are not autonomous beings from the beginning but become autonomous over the course of childhood and that they are developing beings who change rapidly and whose development can be severely hurt by outside influences. Both imply that children are more vulnerable to certain forms of harm and that they are heavily dependent on others as well.

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

   (a) If children are brought up with enough autonomy, empowering them to make independent decisions from a young age, they are less likely to be harmed by outside influences.

   (b) **Children, because they are still developing and lack full autonomy, are more susceptible to harm and depend significantly on others for their care and protection.**

   (c) Given that external influences can significantly affect a child's development, they rely on others to ensure a safe environment and protect their well-being.

   (d) Children's rapid development and changing nature make them prone to harm, but they can mostly navigate challenges if they are emotionally assertive.

   EXPLANATION:

   Option (b) accurately captures the essence of the passage, highlighting that children's lack of autonomy and rapid development make them more vulnerable to harm. Additionally, it emphasizes their dependence on adults and caregivers to protect and nurture them during this critical phase of growth.

Directions (74–76): Read the following information carefully and answer the questions that follow:

Twelve people – Amit, Bina, Chetan, Divya, Esha, Farhan, Geeta, Harsh, Isha, Jatin, Kevin, and Mani – live in a five-story building. The floors are numbered from 1 to 6, the lowest floor start from 1. Each floor has two flats: Flat A (to the west) and Flat B (to the east). No two people live in the same flat.

Amit lives two floors above Chetan, and Kavin lives two floors above Isha. and both live in flats of the same type. Chetan lives on an odd-numbered floor. Esha lives in the northeast direction from Chetan, but not on an even-numbered floor. Esha and Kavin live in different types of flats. Harsh stays in the flat immediately to the north-east of Divya. Farhan lives in the flat located southeast of Divya. The number of floors between Divya and Farhan is the same as the number of floors between Esha and Isha. Isha and Farhan live in different types of flats. The sum of the floor numbers of Divya and Farhan is one less than the floor number

of Bina. The difference between the floor numbers of Esha and Divya is one more than the floor number of Geeta. The floor number of the person living immediately above Geeta is three times the floor number of Jatin.

74. If the floor number of the person living in Flat A of the topmost floor is added to the floor number of the person living immediate south of Esha, and the sum is divided by the floor number of the person who lives immediately above Jatin, who lives in the resultant floor?

    (a) Kavin

    (b) Isha

    (c) Amit

    (d) Chetan

    EXPLANATION:

Floor no	Flat A	Flat B
6	Kavin	Mani
5	Amit	Esha
4	Isha	Bina
3	Chetan	Harsh
2	Divya	Geeta
1	Jatin	Farhan

Flat A of topmost floor (6A): Kavin (floor 6).

South of Esha (5B): One floor below → 4B (Bina, floor 4).

Sum: 6 (Kavin) + 4 (Bina) = 10.

Immediately above Jatin (1A): 2A (Divya, floor 2).

Division: 10 / 2 = 5.

Hence, Amit lives in fifth floor according to the given arrangement.

75. If you start from Kavin's flat, move two floors down, and then move in the direction exactly opposite to how Esha is positioned relative to Harsh, whose flat will you reach?

    (a) Farhan

    (b) Geeta

    (c) Jatin

    (d) Divya

    EXPLANATION:

    Start at Kavin (6A)

    Move down 2 floors to Isha (4A)

    Harsh (3) → Esha (5B) = north (up 2)

    Opposite direction = south (down 2)

    From Isha (4A): down 2 → 2

    Reach Divya at 2

    Answer: (d) Divya.

76. Which of the following pairs is correct?

(a) Amit Bina

(b) Farah Geeta

(c) Jatin, Isha

(d) Chetan, Harish

EXPLANATION:

Chetan & Harish are correct pairs. Since, they are living same floor.

77. Find the unit digit of the following expression: $(1234!^{5678} - 3^{4^{5^6}})$

(a) 0

(b) 1

(c) 5

(d) 9

EXPLANATION:

Any factorial n! where n≥5 contains the factors 2 and 5, meaning it is always divisible by 10.

Thus, for 1234! the last digit is 0.

Since $0^{5678}=0$, we conclude:

Unit digit of $1234!^{5678}$ is 0.

The unit digit of powers of 3 follows a repeating cycle of 4:

$3^1 = 3, 3^2 = 9, 3^3 = 7, 3^4 = 1$

Since the pattern (3,9,7,1) repeats every 4 terms, we need to find:

4^{5^6} is divisible by 4

Thus, using the cycle (3,9,7,1), the unit digit of 3^{4n} is 1.

Unit digit of $3^{4^{5^6}}$ is 1.

Hence, the required unit digit is 0 – 1 = -1

Unit digit cannot be negative. Hence, 10 – 1 = 9.

78. If today is Wednesday, on what day will 15^10 days hence fall?

(a) Wednesday

(b) Thursday

(c) Friday

(d) Saturday

EXPLANATION:

We need to find the remainder when 15^10 is divided by 7 (15^10 mod 7).

As we calculated before, $15^{10} \equiv 1 \pmod 7$.

Determining the Day

Since the remainder is 1, it means 15^10 days from Wednesday will be 1 day after Wednesday.

Therefore, it will be Thursday.

Answer: It will be Thursday.

79. Find the missing term in the series.

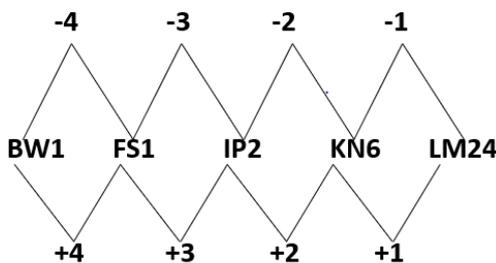   BW1, FS1, IP2, ???, LM24.

    (a) KN3

    (b) KN2

    (c) KN1

    (d) KN6

    EXPLANATION:

    0! = 1, 1! = 1, 2! = 2, 3! = 6, 4! = 24.

80. How many times does the digit 5 show up just once in each number from 500 to 1500?

    (a) 240

    (b) 243

    (c) 244

    (d) 248

    EXPLANATION:

    From 500 to 599:

    From 500 to 599 there are 100 numbers, but the condition is not satisfied in all these 100 numbers.

    505, 515, 525, ..., 595 are 10 numbers where the condition does not satisfy.

    550, 551, 552, ..., 559 are 10 numbers where the condition does not satisfy.

    The number 555 is counted twice. Hence, there are 10+10-1 = 19 numbers that does not satisfy the condition. There are 100-19 = 81 numbers from 500 to 599 that satisfy the condition.

    From 600 to 699:

    605, 615, 625, ..., 695 are 9 numbers that satisfy the condition, except 655.

    650, 651, 652, ..., 659 are 9 numbers that satisfy the condition, except 655.

    There are 18 numbers that satisfy the condition.

    Like this, there are 18 numbers in each hundreds

    Number of 100s from 600 to 1499 = 9.

    9*18 = 162.

    1500 is a number that satisfies the condition.

    Total number of numbers = 81+162+1 = 244.