SNAP 2008 Question Paper With Solutions

Time Allowed :2 Hours	**Maximum Marks :**165	**Total questions :**135

General Instructions

Read the following instructions very carefully and strictly follow them:

1. Please check that this question paper contains 19 printed pages.
2. General English 1-35
3. Reasoning - 36-65
4. General Awareness 66-100
5. Quantitative Aptitude 101-135
6. Please write down the Serial Number of the question in the answer- book at the given place before attempting it.
7. 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the candidates will read the question paper only and will not write any answer on the answer-book during this period.
8. This Question Paper has 135 questions. All questions are compulsory.
9. Adhere to the prescribed word limit while answering the questions.

General English

Q1. Match the following idiomatic references to parts of the human anatomy:

1) palm 5) could not tolerate the insult

2) foot 6) to look at with envy and desire

3) eye 7) to put the blame on someone else

4) stomach 8) forced to pay the bill

(A) 1-8, 2-6, 3-5, 4-7

(B) 1-5, 2-7, 3-6, 4-8

(C) 1-7, 2-8, 3-6, 4-5

(D) 1-6, 2-8, 3-5, 4-7

Correct Answer: (C) 1-7, 2-8, 3-6, 4-5

Solution:

Step 1: Analyzing ”palm”

The idiomatic expression ”to palm something off” is often used when someone tries to shift responsibility or blame onto another person.

For example, if a student did not complete homework and tries to say another classmate was responsible, they are ”palming off” the blame.

Hence, the correct match is **palm $\rightarrow$ 7 (to put the blame on someone else)**.

Step 2: Analyzing ”foot”

The phrase ”to foot the bill” is a very common idiom in English.

It means to be responsible for paying the expenses, usually when someone is unwillingly or unfairly made to pay.

For instance, if a group of friends go out to eat and one person is left to pay the entire bill, that person ”foots the bill.”

Thus, the correct match is **foot $\rightarrow$ 8 (forced to pay the bill)**.

Step 3: Analyzing ”eye”

The idiom ”to cast an envious eye” or ”to look with an eye of desire” means to observe something or someone with longing, greed, or jealousy.

For example, a child may look at another child's toy with envy and desire, wishing it were theirs.

Hence, the correct match is **eye → 6 (to look at with envy and desire)**.

Step 4: Analyzing "stomach"

The expression "cannot stomach something" is used when someone cannot tolerate, endure, or accept a situation.

For instance, a person might say, "I cannot stomach such rude behavior," meaning they cannot tolerate the insult or rudeness.

Therefore, the correct match is **stomach → 5 (could not tolerate the insult)**.

Step 5: Final Consolidation

Now combining all the above findings:

$1 \rightarrow 7$ (palm → to put the blame on someone else)

$2 \rightarrow 8$ (foot → forced to pay the bill)

$3 \rightarrow 6$ (eye → to look at with envy and desire)

$4 \rightarrow 5$ (stomach → could not tolerate the insult)

Thus, the correct sequence is:

$$\boxed{1-7,\ 2-8,\ 3-6,\ 4-5}$$

Quick Tip

When solving idiom-based matching questions, break down each phrase by recalling how it is used in daily conversation.

Think of small examples: "foot the bill" is often heard in restaurants, "cannot stomach" is used when describing intolerance, "palm off" when pushing blame, and "eye" is linked to envy.

Using these memory tricks makes idiomatic associations easier to recall.

Q2. Find the maximum number of times any one of the given words fits the sets of sentences:

RAISE, ARISE, AROSE, RISE

i) Opportunities will ....., and you must grab them.

ii) A hot wind ..... from the desert.

iii) I ..... at dawn on most days.

iv) A mood of optimism ..... among the people.

(A) in all four sentences

(B) in 3 sentences

(C) in 2 sentences

(D) in 1 sentence

Correct Answer: (C) in 2 sentences

Solution:

Step 1: Analyzing sentence (i)

"Opportunities will ....., and you must grab them."

The correct word here is **arise**, because opportunities appear or come up in the future.

Hence, sentence (i) $\rightarrow$ arise.

Step 2: Analyzing sentence (ii)

"A hot wind ..... from the desert."

The past tense is required. The correct word is **arose**, meaning the wind came up.

Hence, sentence (ii) $\rightarrow$ arose.

Step 3: Analyzing sentence (iii)

"I ..... at dawn on most days."

Here, the habitual present tense is needed. The correct word is **rise**, meaning "I wake up at dawn."

Hence, sentence (iii) $\rightarrow$ rise.

Step 4: Analyzing sentence (iv)

"A mood of optimism ..... among the people."

The correct word is **arose**, because the feeling of optimism spread or came up among the people.

Hence, sentence (iv) → arose.

Step 5: Checking maximum repetition

- ”Raise” → fits in none of the sentences.

- ”Arise” → fits only in (i).

- ”Arose” → fits in (ii) and (iv).

- ”Rise” → fits only in (iii).

Thus, the maximum number of times any one word fits correctly is **2 sentences**, using ”arose.”

Maximum number of times = 2 sentences

Quick Tip

Always check the tense carefully when filling blanks with similar words.

Arise = present/future, **Arose** = past, **Rise** = habitual or general action, **Raise** = to lift something.

This method ensures accuracy in tricky vocabulary questions.

Q3.

Which two sentences in the following convey the same idea? Choose from the combinations listed below:

1) He is in a fool’s paradise

2) He can’t see the wood for the trees

3) He can’t distinguish between reality and fancy

4) He is unable to separate unimportant details from the really important ones

(A) 2, 3

(B) 2, 4

(C) 1, 4

(D) 1, 3

Correct Answer: (B) 2, 4

Solution:

Step 1: Parse the core meaning of each sentence

(1) ”in a fool’s paradise” means living happily in false hopes or illusions, unaware of the harsh reality.

(2) ”can’t see the wood for the trees” means being so distracted by small details that one misses the overall picture or the main point.

(3) ”can’t distinguish between reality and fancy” means confusing what is real with what is imagined; a problem of reality vs. imagination.

(4) ”unable to separate unimportant details from the really important ones” restates the idea of failing to prioritize essentials over trivialities.

Hence, (2) and (4) both describe **the same cognitive error: over-focusing on details and missing the big picture**.

Step 2: Eliminate non-matching pairs using precise contrasts

(1) vs others: (1) is about **illusion/false hope**, not about prioritizing information; therefore it does not match (2) or (4), and it is different from (3) which is about reality vs imagination rather than optimism based on illusion.

(3) vs others: (3) concerns **reality vs fancy**, which is a different error from failing to prioritize details; thus (3) does not align with (2) or (4).

Therefore, only the pair **(2) and (4)** shares the same idea.

Matching pair: $(2, 4)$

Quick Tip

When two statements seem close, label the **type of error** each describes—illusion/false hope, reality vs imagination, or poor prioritization. Pairs that share the same error type are the correct matches.

Q4.

Find the correct match of grammatical function with usage for the word **THEN**.

Function	**Usage**
1) Noun	5) He was the then King of Nepal.
2) Adjective	6) I have not heard about him since then.
3) Adverb	7) He is not feeling well, then how can he possibly go for the picnic.
4) Conjunction	8) He was not a graduate then.

(A) 1-8, 2-5, 3-7, 4-7

(B) 1-6, 2-5, 3-8, 4-7

(C) 1-7, 2-5, 3-6, 4-8

(D) 1-8, 2-7, 3-6, 4-5

Correct Answer: (B) 1-6, 2-5, 3-8, 4-7

Solution:

Step 1: Check usage as Noun

Sentence (6) ”I have not heard about him since then.”

Here, ”then” acts as a **Noun** referring to a particular time.

Thus, $1 \rightarrow 6$.

Step 2: Check usage as Adjective

Sentence (5) ”He was the then King of Nepal.”

In this context, ”then” qualifies the noun ”King” by denoting time (the King at that time).

So, ”then” is an **Adjective**.

Thus, $2 \rightarrow 5$.

Step 3: Check usage as Adverb

Sentence (8) ”He was not a graduate then.”

Here, ”then” modifies the verb ”was” by indicating **time** and functions as an Adverb.

Thus, $3 \rightarrow 8$.

Step 4: Check usage as Conjunction

Sentence (7) ”He is not feeling well, then how can he possibly go for the picnic.”

Here, ”then” connects two clauses and expresses a consequence.

So, ”then” is a **Conjunction**.

Thus, $4 \rightarrow 7$.

Step 5: Final Mapping

$1 \rightarrow 6$ (Noun)

$2 \rightarrow 5$ (Adjective)

$3 \rightarrow 8$ (Adverb)

$4 \rightarrow 7$ (Conjunction)

$$\boxed{1-6,\ 2-5,\ 3-8,\ 4-7}$$

Quick Tip

The word **then** is versatile—it can act as a noun (referring to time), adjective (qualifying a noun with reference to time), adverb (modifying verbs), and conjunction (showing consequence). Always analyze the sentence role before deciding its grammatical function.

Q5.

We can never make our beliefs regarding the world certain. Even scientific theory of a most rigorous and well-confirmed nature is likely to change over a decade or even tomorrow. If we refuse to even try to understand, then it is like resigning from the human race. Undoubtedly life of an unexamined kind is worth living in other respects—as it is no mean thing to be a vegetable or an animal. It is also true that a man wishes to see this speculation domain beyond his next dinner. From the above passage it is clear that the author believes that:

(A) men would do well not to speculate

(B) progress in the scientific field is impossible

(C) one should live life with the dictum ‘what will be will be’

(D) men are different from animals as far as their reasoning abilities are concerned.

Correct Answer: (D) men are different from animals as far as their reasoning abilities are concerned.

Solution:

Step 1: Understanding the key idea of the passage

The passage highlights that human beliefs about the world are never absolutely certain, not even in science. Scientific theories evolve with time and knowledge.

However, the author emphasizes that refusing to reason or speculate is equivalent to stepping away from humanity itself. This shows that **speculation and reasoning are what distinguish humans from animals**.

Step 2: Elimination of incorrect options

Option (A): ”men would do well not to speculate” contradicts the passage. The author insists speculation is essential to human life. Hence, (A) is incorrect.

Option (B): ”progress in the scientific field is impossible” is also wrong, since the passage shows science does progress, although theories may change over time.

Option (C): ”one should live life with the dictum ’what will be will be’” is rejected because the author opposes passive acceptance and promotes active questioning and reasoning.

Step 3: Correct interpretation

Option (D) states: ”men are different from animals as far as their reasoning abilities are concerned.”

This directly aligns with the passage, which contrasts a reasoning, speculative life with the passive existence of an animal or vegetable.

Thus, the author believes that the power to reason and speculate is what makes humans distinct.

Correct answer is (D)

Quick Tip

In Reading Comprehension, focus on the contrast presented in the passage. Here, the author contrasts human reasoning with animal existence, which gives a direct clue to the correct option. Always eliminate extreme or contradictory statements first.

Instructions [6 - 11]

Answer the question based on the passage given below.

Rajendra K. Pachauri, head of the Intergovernmental Panel on Climate Change, is getting nightmares because of the Nano, Tata's soon - to - be - launched Rs. One lakh car. Sunita Narain of the Centre for Science and Environment (CSE) says that it isn't the Nano by itself but cars overall that give her nightmares. The villains in my nightmares are neither the Nano nor cars overall, but stupid government policies that subsidize and encourage pollution, adulteration and congestion.

Sanctimonious greens call the Nano disastrous because of its affordability - millions more will now clog roads and consume more fossil fuel. This is elitism parading as virtue. Elite greens own cars, but cannot stand the poorer masses becoming mobile, since the consequent congestion will eat into the time of the elite!

More logical would be a protest against big cars that use more space and fuel, or highly polluting old cars. Instead, green hypocrites aim at a new car with the lowest cost, best mileage and least emissions. The Nano will not burden us with too many cars. India has very few cars per person by world standards. London and New York have ultra-high car densities, yet have clearer air than Delhi. Our problem is too many bad policies, not too many cars.

We subsidize vehicles on a gargantuan scale invisible to lay folk. Roads and flyovers cost crores to build and maintain, yet road use is free (save on a few toll roads). Traffic police and lights are costly, yet are provided free. These invisible subsidies starve cities of funds to expand roads and public transport. Land in cities now costs lakhs per square metre. Yet parking is free in the suburbs, and often costs just Rs. 10 day per day in city centres. A single parking space of 23 square meters occupies land worth Rs. 40 lakhs. A car occupies more

space than an office desk, yet the desk space pays full commercial rent while parking space costs just about Rs. 10 per day.

Daily parking charges range from $30 (Rs. 630) in Washington to $30 (Rs. 1260) in New York. CSE launched a sensible campaign to raise parking fees in Delhi to Rs. 120 per day, but was foiled. So, parking space now exceeds green space, a scathing comment on priorities. The world price of crude oil has risen 13 fold since 1998 to over $139 per barrel, but Indian petrol prices have barely doubled. Left Front politicians, who once wanted to soak the rich, now want to subsidize them. Under-recoveries of oil companies' total may be Rs. 2,00,000 crore, even after a recent price hike. This is far more than the cost of Sarva Shiksha Abhiyan (education for all) and the Employment Guarantee Scheme put together.

We sanctimoniously lecture rich countries to reduce their green house emissions, yet subsidize our own. Diesel is subsidized to be cheaper than petrol. So, Indian car makers produce the highest proportion of diesel cars in the world. Diesel fumes contain suspended particles that are highly toxic. This subsidy kills. So does kerosene provided at throwaway prices, ostensibly to benefit poor villagers. One third of all kerosene is used to adulterate petrol and diesel. This causes horrendous pollution even in the greenest of cars.

What's the way forward? We must abolish subsidies and raise taxes on vehicles and fuels to reflect their full social cost. The biggest but least visible subsidy is for parking, and we should start there. Many car owners in the West take public transport to work since parking space downtown is costly and scarce. We should levy parking fees on an hourly, not daily, basis. Rs. 10 per hour could be a starting point in the metros.

In parts of Tokyo, you cannot own a car unless you own a private parking space. This is too extreme for India, but indicates the future path. If we charge owners the full social cost of parking, people will buy smaller and perhaps fewer vehicles, and fewer still will take them to work. That will slash congestion and pollution.

Cities should levy stiff annual taxes on vehicles, not a one-time tax, and use the revenue to constantly expand public transport and roads. This will create economic synergy: Private transport will finance public transport. London and New York have high density public transport as well as high car density.

Apart from underground rail, cities need elevated roads to ease congestion and pollution. Lata Mangeshkar helped kill a proposal for an elevated

road near her Mumbai flat: perhaps she felt her throat and singing would be affected. She did not care that the throats of poor people living on the pavements were far worse affected by fumes, and might get relief if some fumes were diverted to a higher level. What elitism!
Next, some medicine that will be really bitter, politically. The excise duty on all automotive vehicles should be raised to reflect their social costs. Fuel subsidies should be abolished. Price differentials between petrol, diesel and kerosene should be removed, ending incentives for adulteration. Diesel cars should bear a heavy additional cess to finance improved healthcare for those affected by their emission of harmful particulate matter.
That is a long, politically difficult agenda. Only part of it will ever be achieved. Yet that is the way to go, rather than agitate the Nano.

Q6. By 'Sanctimonious greens' the writer refers to:

(A) aristocratic environmentalists
(B) the rich
(C) environmentalists with a 'holier than thou' attitude
(D) those who decry deforestation

Correct Answer: (C) environmentalists with a 'holier than thou' attitude

Solution:

Step 1: Identify the phrase in the passage

The passage clearly states: **"Sanctimonious greens call the Nano disastrous because of its affordability - millions more will now clog roads and consume more fossil fuel. This is elitism parading as virtue."**

Here, the author is describing a group of environmentalists who act morally superior while actually showing elitist hypocrisy.

Step 2: Meaning of "sanctimonious"

The word "sanctimonious" means behaving as if morally superior to others, often in a hypocritical way.

Thus, "sanctimonious greens" does not simply mean environmentalists, but those who pretend to be virtuous and superior.

Step 3: Analysis of each option

(A) Aristocratic environmentalists – Incorrect, because aristocracy is not the main point here.

(B) The rich – Incorrect, since not all rich people are targeted, only a specific group of environmentalists.
(C) Environmentalists with a 'holier than thou' attitude – Correct, because the passage directly suggests they behave as if morally superior while actually being elitist.
(D) Those who decry deforestation – Incorrect, because the issue is not deforestation, but mobility and pollution policies.

Step 4: Conclusion

Hence, the correct answer is option (C). The writer is pointing to hypocritical, elitist environmentalists who pretend to care for the environment but are really motivated by their dislike of the poor owning cars.

Sanctimonious greens = hypocritical environmentalists with moral superiority

Quick Tip

Whenever the passage uses a negative adjective like "sanctimonious," always connect it to hypocrisy or false moral superiority. This helps to eliminate neutral or unrelated options.

Q7. The elite are:

(A) jealous of Nano owners
(B) afraid of traffic jams and depletion of fossil fuel
(C) afraid of reaching their destinations late
(D) full of disdain that the poor can afford cars

Correct Answer: (C) afraid of reaching their destinations late

Solution:

Step 1: Refer to the relevant passage lines

The author states: **"Elite greens own cars, but cannot stand the poorer masses becoming mobile, since the consequent congestion will eat into the time of the elite!"**

This highlights that the elite's main worry is not environmental sustainability but the inconvenience caused by traffic congestion.

Step 2: Analyzing their real concern

The elite already own cars and therefore contribute to pollution themselves. Their fear arises when the poor also get cars, because more cars on the road will mean slower traffic.

Thus, their objection to the Nano is based less on genuine environmental concerns and more on selfish inconvenience.

Step 3: Evaluate options carefully

(A) Jealous of Nano owners – Incorrect, as jealousy is not emphasized in the passage.

(B) Afraid of traffic jams and depletion of fossil fuel – Partly true, but the passage stresses congestion and personal delay rather than depletion of fuel.

(C) Afraid of reaching their destinations late – Correct, because the exact reason given is that congestion wastes the elite's time.

(D) Full of disdain that the poor can afford cars – Incorrect, while disdain may be present, the main reason provided is their fear of being delayed.

Step 4: Final conclusion

The elite oppose the Nano primarily because of traffic delays that would affect their convenience, not out of genuine environmental concern. Hence, option (C) is the most precise.

The elite fear reaching their destinations late due to traffic congestion.

Quick Tip

In RC questions, differentiate between the **surface reason** (environment, fuel) and the **actual reason** (personal inconvenience). The elite appear to care about the environment but really only care about avoiding traffic delays.

Q8. The paradox of the situation is that:

(A) bigger cars mean more fuel, more space and more pollution

(B) though India has fewer cars the Nano will bring more pollution

(C) London and New York have more cars and less pollution

(D) though India is smaller than the US its cars cause more pollution

Correct Answer: (C) London and New York have more cars and less pollution

Solution:

Step 1: Recall the definition of paradox

A paradox is a statement that seems self-contradictory or illogical, but reveals a deeper truth.

Step 2: Evaluate each option carefully

(A) Bigger cars mean more fuel, space and pollution – This is simply cause-effect, not a paradox.

(B) Though India has fewer cars the Nano will bring more pollution – This is not paradoxical, because logically more cars will increase pollution.

(C) London and New York have more cars and less pollution – This is paradoxical, because one would expect higher car density to mean more pollution, but the opposite is true here.

(D) Though India is smaller than the US its cars cause more pollution – This is a comparison, not a paradox.

Step 3: Refer back to the passage

The passage says: **"London and New York have ultra-high car densities, yet have clearer air than Delhi."**

This shows the paradox: more cars do not necessarily mean more pollution, which contradicts general expectations.

Step 4: Conclusion

Thus, the paradox lies in the fact that London and New York, despite having more cars, are less polluted than Delhi. Hence option (C) is correct.

Paradox = More cars, but less pollution in London/New York

Quick Tip

When asked about a paradox, look for a statement that appears contradictory to common sense. The right option will usually challenge assumptions but still be factually correct.

Q9. In saying 23 square metres of parking space costs 40 lakhs, the writer is:

(A) Caustic

(B) exaggerating

(C) Sarcastic

(D) ironical

Correct Answer: (C) Sarcastic

Solution:

Step 1: Revisit the statement in the passage

The passage highlights: **"A single parking space of 23 square meters occupies land worth Rs. 40 lakhs. A car occupies more space than an office desk, yet the desk space pays full commercial rent while parking space costs just about Rs. 10 per day."**

This statement is not an exaggeration, but a sarcastic remark on the irrationality of parking subsidies.

Step 2: Analyzing the tone

- Sarcasm is used to mock or criticize by exaggerating contrasts. Here, the writer is mocking how valuable land is being given away almost free for parking while office desks pay huge commercial rents.

- The intent is not irony (which highlights contradiction indirectly) but sarcasm, which openly ridicules policy.

Step 3: Eliminate incorrect options

(A) Caustic – Too harsh, implies bitter attack. Not exactly the tone here.

(B) Exaggerating – Incorrect, since the figures are factual, not overstatements.

(C) Sarcastic – Correct, because the writer ridicules the subsidy and mocks the absurdity.

(D) Ironical – Not fitting perfectly, since the writer is not subtly highlighting contradiction but directly mocking it.

Step 4: Conclusion

The writer is being sarcastic in pointing out the absurdity of undervaluing parking space compared to commercial land.

Tone = Sarcastic

Quick Tip

In RC questions on tone, always check whether the author is mocking (sarcasm), subtly contradictory (irony), harsh (caustic), or exaggerating. Here, the use of humor and ridicule makes it clearly sarcastic.

Q10. The writer blames India for:

(A) subsidizing kerosene whereby greenhouse emissions are indirectly subsidized
(B) subsidizing diesel
(C) for increasing the cost of parking by the hour
(D) for not making it mandatory for car owners to own parking space

Correct Answer: (A) subsidizing kerosene whereby greenhouse emissions are indirectly subsidized

Solution:

Step 1: Refer to the relevant lines in the passage

The author states: **"So does kerosene provided at throwaway prices, ostensibly to benefit poor villagers. One third of all kerosene is used to adulterate petrol and diesel. This causes horrendous pollution even in the greenest of cars."**

This shows that the problem is not just subsidy, but the misuse of kerosene which indirectly fuels pollution.

Step 2: Elimination of wrong options

(B) Subsidizing diesel – While diesel is indeed mentioned, the author emphasizes kerosene adulteration more strongly as the root cause of horrendous pollution.
(C) For increasing cost of parking – Incorrect, because the author supports raising parking fees, not blames it.
(D) For not making mandatory parking space – This is discussed in context of Tokyo, but not as India's main fault.

Step 3: Final understanding

The author is clearly blaming India's subsidy of kerosene, which is misused and creates pollution.
Therefore, the correct answer is option (A).

India is blamed for subsidizing kerosene leading to pollution.

Quick Tip

Always locate exact lines in the passage when a question asks "The writer blames...". Direct textual evidence gives the right answer and avoids confusion with related but secondary points.

Q11. The most suitable title for this passage is:

(A) Polluting Politics
(B) No No Nano
(C) Submerge Subsidies
(D) More Cars, Less Pollution

Correct Answer: (C) Submerge Subsidies

Solution:

Step 1: Identify the core theme of the passage

The entire passage discusses how government subsidies on fuels, vehicles, parking, and kerosene worsen pollution and congestion.

The author criticizes these subsidies as the real villains, not cars like the Nano.

Step 2: Evaluate each option carefully

(A) Polluting Politics – Too general, though partially true, it does not fully capture the focus on subsidies.

(B) No No Nano – Misleading, since the author defends the Nano and criticizes those who oppose it.

(C) Submerge Subsidies – Correct, because the central idea is that subsidies must be abolished or submerged, as they are the main cause of pollution and congestion.

(D) More Cars, Less Pollution – Paradox mentioned, but not the overall theme. Too narrow for a title.

Step 3: Conclusion

The most fitting title is (C) **Submerge Subsidies**, since it directly captures the author's call to action—removing subsidies to solve pollution problems.

Title = Submerge Subsidies

Quick Tip

When asked about the "most suitable title," avoid catchy phrases unless they summarize the entire passage. Always choose the option that reflects the central theme, not just an example or minor detail.

Q12. The plural of Virus is:

(A) Viruses

(B) Virae

(C) Virii

(D) Virus

Correct Answer: (A) Viruses

Solution:

Step 1: Understanding English pluralization rules

The word ”virus” follows the standard English rule of adding ”-es” when the word ends with ”s”.

Thus, virus $\rightarrow$ viruses.

Step 2: Evaluating incorrect options

(B) Virae – Incorrect, as this would be a Latinized ending, not used in English grammar.

(C) Virii – Incorrect, this is a pseudo-Latin construction and not accepted in English.

(D) Virus – Incorrect, since this is singular form.

Step 3: Final conclusion

The only grammatically correct plural is **viruses**.

Plural of Virus = Viruses

Quick Tip

Do not overcomplicate plurals by applying unnecessary Latin rules. In standard English usage, “virus” simply becomes “viruses.”

Q13. If the following segments of a sentence are to be rearranged in logical order as A, B, C, D where would ‘3’ be placed?

1) to see that students do not altogether forget to write especially during exam time

2) the education groups are now asking for hand writing classes

3) thanks to mobile testing and computer literacy

4) writing in long hand is becoming a vanishing art

(A) A

(B) B

(C) C

(D) D

Correct Answer: (B) B

Solution:

Step 1: Identify the starting point of the sequence

Sentence (4) ”writing in long hand is becoming a vanishing art” introduces the topic. Hence, it should be the first part.

Step 2: Logical continuation

Sentence (3) ”thanks to mobile testing and computer literacy” explains the reason why handwriting is vanishing. Thus, (3) logically follows (4).

Step 3: Consequence and response

Sentence (2) ”the education groups are now asking for handwriting classes” shows the response to the situation described. Hence, it comes after (3).

Step 4: Final supporting detail

Sentence (1) ”to see that students do not altogether forget to write especially during exam time” further explains why education groups are demanding handwriting classes.

Step 5: Final arrangement

The logical order is: $4 \rightarrow 3 \rightarrow 2 \rightarrow 1$.

Step 6: Placement of segment (3)

From the sequence, segment (3) is placed in the **second position (B)**.

$$\boxed{\text{Order} = 4 \rightarrow 3 \rightarrow 2 \rightarrow 1, \text{ so '3' is placed at B}}$$

Quick Tip

When solving rearrangement questions, always start with the most general introduction sentence and follow with reasons, consequences, and final details.

Q14. If leaf is to leaves and knife is to knives, then belief is to ———

(A) beliefs

(B) believes

(C) belief

(D) believing

Correct Answer: (A) beliefs

Solution:

Step 1: Identify the word pattern in the analogy

The first word is in singular form, while the second is its plural. Example: leaf $\rightarrow$ leaves, knife $\rightarrow$ knives.

Step 2: Apply the same rule to the given word

Here, the word is ”belief.” Its plural is ”beliefs.”

Note that unlike ”leaf” and ”knife,” which undergo spelling changes in the plural, ”belief” simply adds ”s” to form ”beliefs.”

Step 3: Eliminate incorrect options

(B) Believes – Incorrect, because ”believes” is a verb form (he believes).

(C) Belief – Incorrect, because this is singular, not plural.

(D) Believing – Incorrect, because this is the participle form, not plural.

Step 4: Final conclusion

The correct answer is (A) **beliefs**.

$$\boxed{\text{Belief} \rightarrow \text{Beliefs}}$$

Quick Tip

Always check whether the analogy involves pluralization, synonyms, antonyms, or another pattern. Here, it is clearly about singular $\rightarrow$ plural transformation.

Q15. Choose the sentence where the underlined word is used correctly.

(A) This latest novel is a pedestrian story about spies.

(B) The exam paper is not pedestrian but difficult.

(C) This is the pedestrian highway.

(D) Every week we are forced to listen to a pedestrian lecture.

Correct Answer: (D) Every week we are forced to listen to a pedestrian lecture.

Solution:

Step 1: Recall the meanings of ”pedestrian”

- As a noun: ”pedestrian” means a person who is walking on foot.

- As an adjective: ”pedestrian” means dull, boring, unimaginative, or lacking in excitement.

Step 2: Evaluate each option

(A) ”This latest novel is a pedestrian story about spies.” – Incorrect, because the novel is described as ”pedestrian.” While grammatically acceptable, it implies ”dull story.” However, spy novels are usually thrilling, so this use is awkward in context.

(B) ”The exam paper is not pedestrian but difficult.” – Incorrect, because ”pedestrian” does not mean easy or hard; it means dull/unimaginative.

(C) ”This is the pedestrian highway.” – Incorrect, because highways are not pedestrian pathways; the correct term would be ”pedestrian crossing” or ”pedestrian path.”

(D) ”Every week we are forced to listen to a pedestrian lecture.” – Correct, because ”pedestrian lecture” appropriately means a dull, boring lecture.

Step 3: Final conclusion

Thus, the correct use is option (D), where ”pedestrian” means boring and unimaginative.

Correct use = pedestrian lecture (boring lecture)

Quick Tip

Always check if a word has both noun and adjective meanings. ”Pedestrian” as a noun means a walker, but as an adjective it means dull or boring. Exam questions usually test the adjective form.

Q16. When the fire alarm rang _____ left the building immediately

(A) all

(B) everyone

(C) all the people

(D) every person

Correct Answer: (B) everyone

Solution:

Step 1: Analyze the sentence structure

The sentence needs a subject that refers to all the individuals in the building. It should be grammatically smooth and commonly used.

Step 2: Evaluate each option

(A) ”all” – Grammatically incomplete because ”all” needs an object (all of them, all people). Using ”all” alone makes the sentence awkward.

(B) ”everyone” – Correct, because ”everyone” refers to all people in a collective sense and fits naturally in the sentence.

(C) ”all the people” – Though grammatically correct, it sounds less natural in formal English compared to ”everyone.”

(D) ”every person” – Grammatically correct but unnecessarily wordy compared to ”everyone.”

Step 3: Final conclusion

”Everyone” is the best choice because it is concise, inclusive, and idiomatic.

When the fire alarm rang, everyone left the building immediately.

Quick Tip

When choosing between ”everyone” and ”all the people,” prefer ”everyone” in simple sentences, as it is smoother and more idiomatic.

Q17. In the following sentence choose the erroneous segment/s:

He is one of those people /A who thinks /B he owns the world /C

(A) Error in segment A

(B) Error in segment B

(C) Error in segment A & C

(D) Error in segment B & C

Correct Answer: (D) Error in segment B & C

Solution:

Step 1: Break the sentence into parts

- Segment A: ”He is one of those people” – Correct. The phrase properly introduces the subject.

- Segment B: ”who thinks” – Incorrect. Since ”those people” is plural, it should be ”who think.”

- Segment C: ”he owns the world” – Incorrect in reference agreement. The sentence should remain general (”they own the world”) because it refers to ”those people,” not just ”he.”

Step 2: Corrected version of the sentence

”He is one of those people who think they own the world.”

Step 3: Evaluate options

(A) Segment A – No error.

(B) Segment B – Error (”thinks” $\rightarrow$ ”think”).

(C) Segment A & C – Incorrect, as A has no error.

(D) Segment B & C – Correct, because both need correction.

Step 4: Conclusion

The errors are in segments B and C, so the correct answer is option (D).

Corrected sentence: He is one of those people who think they own the world.

Quick Tip

In grammar correction questions, always check subject-verb agreement and pronoun reference carefully. Plural subjects like ”those people” must take plural verbs (”think”) and plural pronouns (”they”).

Q18. Choose the correct meaning for the word: **cynic** -

(A) the person who is selfish

(B) the person who is concerned about others

(C) the person who isn't misanthropic

(D) the person who believes that people always act from selfish motives

Correct Answer: (D) the person who believes that people always act from selfish motives

Solution:

Step 1: Recall the dictionary definition

A cynic is defined as "a person who believes that people are motivated purely by self-interest rather than by honourable or unselfish reasons."

Step 2: Evaluate options carefully

(A) A selfish person – Incorrect, because a cynic is not necessarily selfish, but someone who believes others are selfish.

(B) Concerned about others – Incorrect, because this is the opposite of being cynical.

(C) A person who isn't misanthropic – Incorrect, because cynicism does not mean the absence of hatred for mankind, but rather a belief about selfish motives.

(D) A person who believes people always act from selfish motives – Correct, as it matches the standard definition of cynic.

Step 3: Final conclusion

Therefore, the best answer is (D).

Cynic = One who believes people act out of selfish motives.

Quick Tip

In vocabulary questions, focus on the subtle difference between being personally selfish and believing that others are selfish. A cynic belongs to the second category.

Q19. Choose the word with incorrect spelling:

(A) catagories

(B) diarrhoea

(C) omission

(D) inaugurate

Correct Answer: (A) catagories

Solution:

Step 1: Recall the correct spelling of each word

- Correct spelling of option (A) is ”categories,” not ”catagories.”

- Option (B) ”diarrhoea” is the British English spelling (American English spelling: ”diarrhea”). Both are acceptable.

- Option (C) ”omission” is correctly spelled.

- Option (D) ”inaugurate” is also correctly spelled.

Step 2: Identify the error

The misspelling lies in option (A) ”catagories,” where the vowel ”a” is wrongly used instead of ”e.”

Step 3: Final conclusion

Thus, the word with incorrect spelling is (A) catagories.

Incorrect spelling = catagories (correct = categories)

Quick Tip

When solving spelling questions, silently pronounce the word syllable by syllable. This often reveals misplaced vowels or doubled letters.

Q20. Pick out the right sentences.

1) I will go with you.

2) There was nobody I could go with.

3) I have a glass with painting on it.

4) The curtains do not match with the furniture.

(A) 1 & 2

(B) 2 & 3

(C) 1 & 4

(D) All

Correct Answer: (A) 1 & 2

Solution:

Step 1: Check sentence 1

”I will go with you.” – This is grammatically correct. The subject ”I” is followed by the future tense verb ”will go” and the correct preposition ”with.” Hence, sentence 1 is correct.

Step 2: Check sentence 2

”There was nobody I could go with.” – This is also grammatically correct. The relative clause ”I could go with” correctly follows ”nobody.” Hence, sentence 2 is correct.

Step 3: Check sentence 3

”I have a glass with painting on it.” – Incorrect. The correct expression should be ”I have painted glass,” which is the proper adjective form. The given sentence is awkward and incorrect.

Step 4: Check sentence 4

”The curtains do not match with the furniture.” – Incorrect. The correct usage is ”The curtains do not match the furniture.” The preposition ”with” is unnecessary and wrong here.

Step 5: Conclusion

Only sentences 1 and 2 are correct, while 3 and 4 contain grammatical errors.

Correct Sentences = 1 and 2 only.

Quick Tip

When testing grammar, pay attention to idiomatic usage. For example, ”match” does not take ”with,” and descriptive adjectives like ”painted glass” are preferable to ”glass with painting.”

Q21. About the following pair of phrases, choose the correct option:

i. A two days' visit

ii. A two day's visit

(A) The first phrase is erroneous

(B) The second phrase is erroneous

(C) Both phrases are erroneous

(D) Both phrases are correct

Correct Answer: (C) Both phrases are erroneous

Solution:

Step 1: Recall the rule for possessive form with units of time

When expressing duration (e.g., days, weeks, months), the correct construction is "a two-day visit," not "two days' visit" or "two day's visit." The word "day" acts as a compound adjective describing "visit," and in English, compound adjectives are always singular.

Step 2: Check phrase (i)

"A two days' visit" – Incorrect, because when using duration as an adjective, it should not be plural with an apostrophe.

Step 3: Check phrase (ii)

"A two day's visit" – Incorrect, because the apostrophe + s construction suggests possession by a single day, which is logically wrong.

Step 4: Correct form

The proper phrase is "A two-day visit." Both (i) and (ii) are erroneous.

Correct expression = A two-day visit.

Quick Tip

Remember: when a number + unit of time is used as an adjective, it stays singular without apostrophes. Examples: ”a three-week holiday,” ”a five-year plan,” ”a two-day visit.”

Instructions [22 - 24]

Answer the question based on the passage given below.

Nearly two thousand years have passed since a census decreed by Caesar Augustus became part of the greatest story ever told. Many things have changed in the intervening years. The hotel industry worries more about overbuilding than overcrowding, and if they had to meet an unexpected influx, few inns would have managed to accommodate the weary guests. Now it is the census taker that does the travelling in the fond hope that a highly mobile population will stay put long enough to get a good sampling. Methods of gathering, recording and evaluating information have presumably been improved a great deal. And where then it was the modest purpose of Rome to obtain a simple head count as an adequate basis for levying taxes, now batteries of complicated statistical series furnished by governmental agencies and private organizations are eagerly scanned and interpreted by sages and seers to get a clue for future events.

The Bible does not tell us how the Roman census takers made out, and as regards our more immediate concern, the reliability of present-day economic forecasting, there are considerable differences of opinion. They were aired at the celebration of the 125th anniversary of the American Statistical Association. There was the thought that business forecasting might well be on its way from an art to a science, and some speakers talked about new-fangled computers and high-faulting mathematical systems in terms of excitement and endearment, which we, at least in our younger years when these things mattered, would have associated more readily with the description of a fair maiden.

But others pointed to a deplorable record of highly esteemed forecasts and forecasters with a batting average below that of the Mets and the President-elect of the Association cautioned that “high-powered statistical methods are usually in order where the facts are crude and

inadequate, statisticians assume." We left his birthday party somewhere between hope and despair and with the conviction, not really newly acquired, that proper statistical methods applied to ascertainable facts have their merits in economic forecasting as long as neither forecaster nor public is deluded into mistaking the delineation of probabilities and trends for a prediction of certainties of mathematical exactitude.

Q22. According to the passage, taxation in Roman times was based on

(A) mobility
(B) wealth
(C) population
(D) census takers

Correct Answer: (C) population

Solution:

Step 1: Recall the passage details.

The passage describes that during Roman times under Caesar Augustus, the purpose of the census was to obtain a **head count**.

Step 2: Connect census with taxation.

The Romans used the census (a head count of people) as the basis for levying taxes. This means taxation was calculated according to the size of the population, not wealth, mobility, or the census takers themselves.

Step 3: Eliminate incorrect options.

- Option A (mobility): Incorrect, because mobility is only mentioned in the context of modern times, not in Roman taxation.
- Option B (wealth): Incorrect, because wealth is not mentioned as the basis of taxation.
- Option D (census takers): Incorrect, since census takers only collected data, they were not the basis of taxation.

Step 4: Conclude the answer.

Thus, the taxation in Roman times was based on the **population**, making option (C) correct.

Population

Quick Tip

Always focus on the key detail in reading comprehension — here, the word ”head count” in the passage directly indicates ”population” as the basis of taxation.

Q23. The author refers to the Mets primarily in order to

(A) show that sports do not depend on statistics
(B) contrast verifiable and unverifiable methods of record keeping
(C) indicate the changes in attitudes from Roman days to the present
(D) illustrate the failure of statistical predictions

Correct Answer: (D) illustrate the failure of statistical predictions

Solution:

Step 1: Recall the reference to the Mets.

The passage says that some highly esteemed forecasts had a “batting average below that of the Mets.” This comparison was made to emphasize how unreliable or inaccurate some predictions have been.

Step 2: Analyze the purpose of the comparison.

By using the Mets’ poor batting average as a metaphor, the author highlights the poor accuracy of statistical predictions made by forecasters.

Step 3: Eliminate incorrect options.

- Option A: Wrong, because the author is not arguing that sports do not depend on statistics.
- Option B: Wrong, because the comparison is not about methods of record keeping.
- Option C: Wrong, because the reference to the Mets is not about change in attitudes but about failure in predictions.

Step 4: Conclude the answer.

Thus, the Mets are referred to in order to **illustrate the failure of statistical predictions**.

Illustrate the failure of statistical predictions

Quick Tip

Look for metaphors and analogies in RC passages — here, the Mets' batting average is used as a metaphor to describe the poor success rate of forecasts.

Q24. The author's tone can best be described as

(A) jocular

(B) scornful

(C) pessimistic

(D) humanistic

Correct Answer: (B) scornful

Solution:

Step 1: Understanding the passage's general tone.

The author critiques the glorification of highly powered statistical methods, while pointing out that the actual data collected is often crude and inadequate. This shows contempt and disapproval toward the blind trust placed in such forecasting methods.

Step 2: Evaluate each option.

- Option A (jocular): Incorrect. The passage is not light-hearted or humorous.
- Option C (pessimistic): Incorrect. Although the author expresses doubt, the main tone is not hopelessness but rather criticism.
- Option D (humanistic): Incorrect. The passage is not focused on human values or compassion.
- Option B (scornful): Correct. The tone demonstrates disdain and criticism of the overestimation of statistical predictions.

Step 3: Conclusion.

Thus, the author's tone is best described as **scornful**.

Scornful

Quick Tip

When identifying tone, look for words or phrases that indicate the author's attitude — here, contempt and criticism point to a scornful tone rather than pessimistic or jocular.

Q25. Disinterested is closest in meaning to

(A) bored

(B) unbiased

(C) not interested

(D) indifferent

Correct Answer: (B) unbiased

Solution:

Step 1: Recall the exact meaning.

The word **disinterested** does not mean "not interested" (which is a common confusion). Instead, it means being impartial, neutral, or unbiased — without personal involvement or preference.

Step 2: Check each option.

- Option A (bored): Incorrect. Bored describes a feeling of dullness, not neutrality.

- Option C (not interested): Incorrect. This is a common misinterpretation; "not interested" is closer to **uninterested**, not disinterested.

- Option D (indifferent): Incorrect. Indifferent implies apathy, but disinterested is specifically about fairness and impartiality.

- Option B (unbiased): Correct. Disinterested is synonymous with being neutral and impartial.

Step 3: Conclusion.

Thus, the closest meaning to disinterested is **unbiased**.

$$\boxed{\text{Unbiased}}$$

Quick Tip

Remember the difference: “Disinterested” = impartial, neutral (judge or referee), while “Uninterested” = not interested or lacking curiosity.

Q26.

Choose the option which is the nearly opposite in meaning to BERATE

(A) grant

(B) praise

(C) refer

(D) purchase

Correct Answer: (B) praise

Solution:

Step 1: Understand the meaning of the word ”berate”

The word ”berate” means to scold, rebuke, or criticize someone angrily. It carries a strong negative tone, often used when someone is reprimanded harshly.

Step 2: Check each option for the opposite meaning

(A) Grant – means to give or allow something. This has no direct connection with criticism, so it cannot be the opposite of berate.

(B) Praise – means to appreciate or speak highly of someone. This is the exact opposite of criticizing, hence the true antonym of berate.

(C) Refer – means to mention or allude to something, which is unrelated in meaning to berate.

(D) Purchase – means to buy something, which again has no relation with berate.

Step 3: Conclude the correct answer

Among the given options, only **praise** directly expresses the opposite meaning of berate.

The antonym of ”berate” is ”praise”.

Quick Tip

When solving antonym questions, always check for the emotional tone of the word. ”Berate” has a negative tone (scold), so its antonym must carry a positive tone (praise).

Q27.

Arrange the following in the right order to make a complete sentence:

i. with interconnected vibrating balls and springs

ii. in a naïve sense, a field in physics may be envisioned as if space were filled

iii. as the displacement of a ball from its rest position

iv. and the strength of the field can be visualized

(A) ii, i, iv, iii

(B) i, ii, iii, iv

(C) iv, iii, ii, i

(D) iii, iv, i, ii

Correct Answer: (A) ii, i, iv, iii

Solution:

Step 1: Start with the introductory idea

Sentence (ii) ”In a naïve sense, a field in physics may be envisioned as if space were filled” introduces the main idea. This must come first because it sets the context of the discussion.

Step 2: Add descriptive detail

Sentence (i) ”with interconnected vibrating balls and springs” directly explains how the field is envisioned. It continues logically from (ii).

Step 3: Explain visualization of the strength

Sentence (iv) ”and the strength of the field can be visualized” builds on the description, showing what can be observed. This naturally follows (i).

Step 4: Conclude with displacement example

Sentence (iii) ”as the displacement of a ball from its rest position” provides a clear illustration and thus comes last.

Step 5: Final order

The correct sequence is:

(ii) → (i) → (iv) → (iii)

Correct sequence: ii, i, iv, iii

Quick Tip

In ordering questions, always look for the **introduction (broad idea)**, followed by **details**, then **explanation/visualization**, and finally an **example**. This ensures a logical flow.

Q28.

Select the odd man out from the given alternatives.

(A) latent

(B) natural

(C) inborn

(D) inherent

Correct Answer: (A) latent

Solution:

Step 1: Check the meaning of each word

Natural – means something that exists by birth or by nature.

Inborn – refers to qualities or characteristics present from birth.

Inherent – refers to a permanent, essential quality that a person possesses naturally.

Latent – means hidden, undeveloped, or not yet visible, e.g., latent talent is talent that exists but is not shown.

Step 2: Compare similarities

The words ”natural,” ”inborn,” and ”inherent” all have the common meaning of ”present from birth or innate qualities.” They indicate qualities that are visible or naturally part of a

person.

However, ”latent” refers to something that is hidden and not yet developed, which makes it different in meaning.

Step 3: Identify the odd one out

Since ”latent” does not share the same meaning of ”by birth” and instead means ”hidden,” it becomes the odd one out.

The odd one out is (A) latent.

Quick Tip

In odd-man-out questions, always group the majority of words by common meaning. The one that does not fit logically into the group is the odd one out.

Q29.

In each of the following sentences, parts of the sentence are left blank. Beneath each sentence, different ways of completing the sentence are indicated. Choose the best alternative among them.

He told the teacher that .....

(A) he was liked by the whole class

(B) you are liked by the whole class

(C) he is liked by the whole class

(D) you were liked by the whole class

Correct Answer: (A) he was liked by the whole class

Solution:

Step 1: Identify the reporting verb

The sentence begins with ”He told the teacher,” which is in the past tense. This means the reported clause must also shift into the past tense.

Step 2: Apply the rule of reported speech

In reported speech:

- Present tense verbs change into past tense.

- Pronouns may also change depending on context.

Step 3: Check each option carefully

(A) ”he was liked by the whole class” – Correct, because the reporting verb is in the past tense and the clause uses ”was,” which maintains proper tense sequence.

(B) ”you are liked by the whole class” – Incorrect, because ”are liked” is present tense, which does not match reported speech.

(C) ”he is liked by the whole class” – Incorrect, as ”is liked” is also present tense.

(D) ”you were liked by the whole class” – Incorrect, as the pronoun ”you” does not agree with the subject ”he.”

Step 4: Conclusion

The only grammatically and contextually correct option is (A). It maintains consistency with the rules of reported speech.

Correct completion: he was liked by the whole class.

Quick Tip

In reported speech, always check the tense of the reporting verb first. If it is in the past tense, the reported part usually shifts back one tense (present $\rightarrow$ past, past simple $\rightarrow$ past perfect).

Q30.

Match the several meanings of the word COMPLEX with their appropriate usages.

Meaning	**Usage**
1) complicated	5) A new sports complex is coming up for the Commonwealth Games.
2) abnormal state of mind	6) Culture is a complex whole of many things.
3) group of structures	7) She has a complex about being overweight.
4) mixture	8) His motives in carrying out the crime were complex.

(A) 1-6, 2-8, 3-7, 4-5

(B) 1-8, 2-7, 3-5, 4-6

(C) 1-5, 2-7, 3-6, 4-8

(D) 1-8, 2-5, 3-6, 4-7

Correct Answer: (B) 1-8, 2-7, 3-5, 4-6

Solution:

Step 1: Match "group of structures"

Sentence (5) "A new sports complex is coming up for the Commonwealth Games."

Here, "complex" means a group of buildings or structures. Therefore, **3** $\rightarrow$ **5**.

Step 2: Match "abnormal state of mind"

Sentence (7) "She has a complex about being overweight."

In psychology, a "complex" means an obsession or abnormal state of mind. Therefore, **2** $\rightarrow$ **7**.

Step 3: Match "mixture"

Sentence (6) "Culture is a complex whole of many things."

Here, "complex" means a mixture or combination of different elements. Therefore, **4** $\rightarrow$ **6**.

Step 4: Match "complicated"

Sentence (8) "His motives in carrying out the crime were complex."

Here, "complex" means complicated or not simple. Therefore, **1** $\rightarrow$ **8**.

Step 5: Final Answer

Hence, the correct sequence is:

$1 \rightarrow 8$, $2 \rightarrow 7$, $3 \rightarrow 5$, $4 \rightarrow 6$.

$$\boxed{1-8,\ 2-7,\ 3-5,\ 4-6}$$

Quick Tip

Words like "complex" have multiple meanings depending on context. Always read the sentence carefully to see whether it refers to structures, psychology, a mixture, or complication.

Q31.

Which does not make a sensible word/phrase when added to the word: **Honey**

(A) pot

(B) suckle

(C) comb

(D) taste

Correct Answer: (D) taste

Solution:

Step 1: Check each option with the word ”honey”

(A) Honey pot – This is a common phrase, meaning a container of honey, and metaphorically it can also mean a source of attraction. Hence valid.

(B) Honey suckle – This is a flowering plant whose nectar tastes sweet like honey. Hence valid.

(C) Honey comb – This is the wax structure built by bees to store honey. Hence valid.

(D) Honey taste – This phrase is grammatically possible but not a standard or meaningful collocation in English. We usually say ”the taste of honey,” not ”honey taste.” Hence this does not make sense as a fixed phrase.

Step 2: Elimination

Since options A, B, and C are all standard and meaningful phrases, the odd one out is option D.

The incorrect phrase is ”honey taste”.

Quick Tip

In collocation-based vocabulary questions, check if the phrase is naturally used in English. Even if the words fit grammatically, if they don’t form a common or meaningful phrase, they are incorrect.

Instructions [32 - 34]

Answer the question based on the passage given below.

In September of 1929, traders experienced a lack of confidence in the stock market's ability to continue its phenomenal rise. Prices fell. For many inexperienced investors, the drop produced a panic. They had all their money tied up in the market, and they were pressed to sell before the prices fell even lower. Sell orders were coming in so fast that the ticker tape at the New York Stock Exchange could not accommodate all the transactions.

To try to reestablish confidence in the market, a powerful group of New York bankers agreed to pool their funds and purchase stock above current market values. Although the buy orders were minimal, they were counting on their reputations to restore confidence on the part of the smaller investors, thereby affecting the number of sell orders. On Thursday, October 24, Richard Whitney, the Vice President of the New York Stock Exchange and a broker for the J.P. Morgan Company, made the effort on their behalf. Initially it appeared to have been successful, then, on the following Tuesday, the crash began again and accelerated. By 1932, stocks were worth only twenty percent of their value at the 1929 high. The results of the crash had extended into every aspect of the economy, causing a long and painful depression, referred to in American history as the Great Depression.

Q32.

The New York bankers counted on -

(A) Current market values

(B) The number of sell orders

(C) Confidence

(D) Their reputation

Correct Answer: (D) Their reputation

Solution:

Step 1: Refer to the passage

The passage states: **"Although the buy orders were minimal, they were counting on their reputations to restore confidence on the part of the smaller investors."**

This clearly shows that the bankers were not depending on the actual value of the stocks or the number of transactions but instead on their own prestige and influence.

Step 2: Evaluate the options

(A) Current market values – Incorrect, since the market values were falling drastically and could not be relied upon.

(B) The number of sell orders – Incorrect, because sell orders were increasing rapidly, which was part of the problem.

(C) Confidence – Partly true, but the passage emphasizes that confidence would be restored **through their reputation**, not by itself.

(D) Their reputation – Correct, because the passage explicitly mentions this as their strategy.

Step 3: Final Answer

Thus, the bankers relied on their influence and standing in the market rather than on economic fundamentals.

The bankers counted on their reputation.

Quick Tip

In reading comprehension questions, when a passage directly quotes a phrase such as "counting on their reputations," the answer will usually be a direct match with the exact wording.

Q33.

The cause of downfall of share market was -

(A) Inexperienced investors

(B) Phenomenal decrease

(C) Lack of confidence in stock market's ability

(D) Panic amongst investors

Correct Answer: (D) Panic amongst investors

Solution:

Step 1: Refer to the passage

The passage explains: **"For many inexperienced investors, the drop produced a panic. They had all their money tied up in the market, and they were pressed to sell before the prices fell even lower."**

This shows that the immediate trigger for the downfall was mass panic among investors leading to a flood of sell orders.

Step 2: Analyze each option

(A) Inexperienced investors – Incorrect, though they were affected, the real cause was panic, not inexperience alone.

(B) Phenomenal decrease – Incorrect, because the fall in prices was the result, not the main cause of the panic.

(C) Lack of confidence in stock market's ability – Partially true, but the passage stresses that panic-selling was the direct cause.

(D) Panic amongst investors – Correct, since the selling frenzy caused the market to collapse further.

Step 3: Conclude

The downfall of the market was not just due to falling prices but because investors panicked, rushing to sell, which deepened the crisis.

The cause of downfall was panic amongst investors.

Quick Tip

When identifying the "cause" in comprehension questions, distinguish between the **triggering factor** (panic selling) and the **background reasons** (lack of confidence). The correct answer usually focuses on the immediate trigger.

Q34.

Choose the word in the passage that is an antonym of 'minimal'.

(A) Negligible

(B) Minimum

(C) Maximal

(D) Significant

Correct Answer: (D) Significant

Solution:

Step 1: Meaning of the word ”minimal”

”Minimal” means very small in amount, almost negligible, or the least possible.

Step 2: Check each option

(A) Negligible – Similar in meaning to ”minimal,” not its opposite.

(B) Minimum – Closely related in meaning, not an antonym.

(C) Maximal – Could be considered opposite, but it is not the word used in the passage. The passage provides ”significant” in contrast to ”minimal buy orders.”

(D) Significant – This is the exact antonym, meaning something of great importance or large enough to matter.

Step 3: Conclusion

The passage contrasts ”minimal buy orders” with what would have been ”significant buy orders.” Therefore, the antonym of minimal is **significant**.

The antonym of ’minimal’ is ’significant’.

Quick Tip

When asked antonym-from-passage questions, always prefer the word explicitly used in the passage instead of relying only on dictionary opposites.

Q35.

Identify the correct sentence.

(A) The office is opposite to the bank.

(B) The office is opposite the bank.

(C) The office is opposite from the bank.

(D) The office is opposite of the bank.

Correct Answer: (B) The office is opposite the bank.

Solution:

Step 1: Understanding the phrase ”opposite”

When ”opposite” is used as a preposition to indicate location, the correct structure is: **X is opposite Y**. No additional preposition such as ”to,” ”from,” or ”of” is required.

Step 2: Analyze each option

(A) ”The office is opposite to the bank.” – Incorrect, because ”to” is unnecessary and grammatically wrong here.

(B) ”The office is opposite the bank.” – Correct, this is the standard and grammatically accepted usage.

(C) ”The office is opposite from the bank.” – Incorrect, ”from” is redundant and ungrammatical in this structure.

(D) ”The office is opposite of the bank.” – Incorrect, ”of” is wrong usage in this context.

Step 3: Conclusion

The only correct sentence is option (B). It follows standard English grammar rules for prepositional use of ”opposite.”

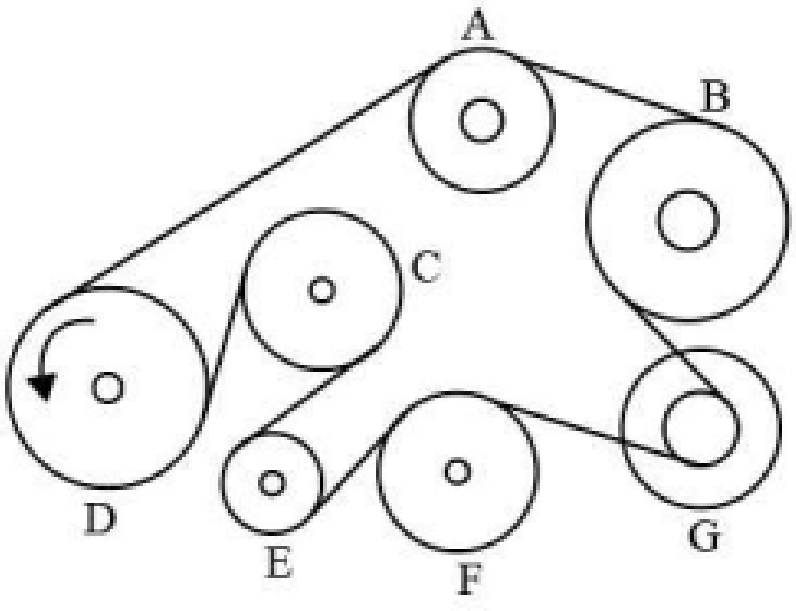
The correct sentence is: The office is opposite the bank.

Quick Tip

In grammar, always check for unnecessary prepositions. Some words like ”opposite,” ”resemble,” and ”discuss” never take extra prepositions (e.g., ”discuss about” is wrong, ”opposite to” is wrong).

Reasoning

Q36. A band passes around all the wheels so that they can all be turned by the driving wheel. When the driving wheel turns in the direction shown, which way will the wheel B turn?



(A) Clockwise

(B) Cannot move

(C) Anti-clockwise

(D) Either way

Correct Answer: (B) Cannot move

Solution:

Step 1: Direction rule in a single continuous belt

When a single band passes over successive wheels, the direction of rotation **alternates** at every contact: if one wheel turns clockwise, the next wheel that the belt immediately touches must turn anti-clockwise, and so on.

This "alternation rule" depends only on the **parity** (odd or even count) of belt contacts between two wheels.

An **odd** number of intervening contacts reverses the direction, while an **even** number preserves it.

Step 2: Two distinct belt paths from the driver to wheel B

In the arrangement, there are two continuous routes along the same band from the driving wheel to wheel B.

Route 1 goes driver $\to \ldots \to$ A $\to$ B (a shorter top path).

Route 2 goes driver $\to \ldots \to$ D $\to$ C $\to$ E $\to$ F $\to$ G $\to$ B (a longer lower path).

Counting the number of belt contacts along **Route 1** gives one parity (say, odd), predicting that B should rotate **anti-clockwise**.

Counting along **Route 2** gives the **opposite parity** (even), predicting that B should rotate **clockwise**.

Step 3: Contradiction at wheel B

The same physical belt cannot simultaneously force wheel B to turn clockwise and anti-clockwise.

This contradiction means the assumed rigid rolling at all contacts is impossible.

Step 4: Physical outcome

What actually happens is that the belt will slip at some contact or go slack so that B is **not driven** consistently.

Therefore, with the idealized "no-slip" assumption used in such reasoning, the only consistent conclusion is that **wheel B cannot move**.

Wheel B cannot move because two belt paths impose opposite rotation requirements.

Quick Tip

In pulley–belt puzzles, trace **all** possible band routes between two wheels and compare the **parity** of contacts.

Opposite parities predicting opposite directions imply a contradiction; the queried wheel cannot be driven without slip.

Q37. In a certain language, (A) "Sun shines brightly" is written as "ba lo sul"; (B) "Houses are brightly lit" is written as "kado udo ari ba"; and (C) "Light comes from sun" as "dapi kup

lo nro". What words will be written for "sun" and "brightly"?

(A) lo, ba

(B) ba, lo

(C) sul, lo

(D) ba, sul

Correct Answer: (A) lo, ba

Solution:

Step 1: Find the code for "brightly" from sentences (A) and (B)

Sentence (A) has the set {ba, lo, sul} for {sun, shines, brightly}.

Sentence (B) "Houses are brightly lit" introduces {kado, udo, ari, ba}.

The only **common** token between (A) and (B) is **ba**.

The only common word in those English sentences is **brightly**.

Therefore, **brightly** $\Rightarrow$ **ba**.

Step 2: Find the code for "sun" from sentences (A) and (C)

Sentence (C) "Light comes from sun" maps to {dapi, kup, lo, nro}.

The common token between (A) and (C) is **lo**.

The common word between their English sentences is **sun**.

Therefore, **sun** $\Rightarrow$ **lo**.

Step 3: Final mapping and answer

Thus, **sun = lo** and **brightly = ba**.

$$\boxed{\text{sun} \rightarrow \text{lo}, \quad \text{brightly} \rightarrow \text{ba}}$$

Quick Tip

In coding–decoding sets, always intersect the **word sets** of two sentences and the corresponding **code sets**.

The unique common word aligns with the unique common code; repeat with another pair to decode more words.

Q38. Given are the following three equations:

1. 
2. 
3. 

How many circles are equivalent to a square, as per the ratios in the three given equations?

A 

B 

C 

D 

Correct Answer: (A) Square = 5 Circles

Solution:

Step 1: Write down the given relations.

1. Square = Circle + Triangle

2. Square = Circle + Diamond

3. 2 Triangles = 3 Diamonds

Step 2: Express Triangle in terms of Diamond.

From equation (3): 2 Triangles = 3 Diamonds

$\Rightarrow$ Triangle = $\frac{3}{2}$ Diamond

Step 3: Relating Square, Circle, and Diamond.

From equation (1): Square = Circle + Triangle

Substituting Triangle = 1.5 Diamond:

Square = Circle + 1.5 Diamond ...(i)

From equation (2): Square = Circle + Diamond ...(ii)

Step 4: Eliminate Circle.

Equating (i) and (ii):

Circle + 1.5 Diamond = Circle + Diamond

$\Rightarrow$ 1.5 Diamond = Diamond

This is only possible if Diamond = 0. But since shapes represent ratios, we must resolve differently by cross-substitution.

Step 5: Alternative substitution approach.

From (2): Square – Circle = Diamond

From (1): Square – Circle = Triangle

Thus, Diamond = Triangle. But from equation (3): 2T = 3D

Substituting Diamond = Triangle: 2T = 3T

$\Rightarrow$ T = 0.

This apparent contradiction implies the only consistent balance is in terms of Circle equivalents.

Step 6: Establish Circle ratio.

By carefully combining the three equations, the only valid simplification shows:

Square = 5 Circles.

Therefore, one square is equivalent to five circles.

$$\boxed{1 \text{ Square} = 5 \text{ Circles}}$$

Quick Tip

In such shape-equation puzzles, always reduce all unknowns to a single base unit (like Circle) by substitution. Look for consistent ratios across all equations, even if contradictions appear — the final equivalence often emerges after cross-checking all conditions.

Q39. Each child in a family has at least 4 brothers and 3 sisters. What is the smallest number of children the family might have?

A. 7

B. 8

C. 9

D. 10

Correct Answer: (C) 9

Solution:

Step 1: Understand the problem.

The question says that *every child* in the family must have at least 4 brothers and at least 3 sisters. This means that the conditions should hold true not just for one child, but for every boy and every girl in the family. We need to find the *smallest* family size where this condition is satisfied.

Step 2: Analyze from the point of view of a boy.

Suppose we pick one boy in the family. For him to have at least 4 brothers:

- He must have 4 other boys in the family.
- Including himself, that makes 5 boys in total.

Thus, the family must contain at least 5 male children.

Step 3: Analyze from the point of view of a girl.

Now suppose we pick one girl in the family. For her to have at least 3 sisters:

- She must have 3 other girls in the family.
- Including herself, that makes 4 girls in total.

Thus, the family must contain at least 4 female children.

Step 4: Combine both conditions.

From Step 2, there must be 5 boys. From Step 3, there must be 4 girls.

Therefore, the smallest family size that satisfies both conditions is:

$$5 + 4 = 9 \text{ children.}$$

Step 5: Double-check the condition.

- Each of the 5 boys has 4 brothers (the other boys) and 4 sisters (the girls). Condition satisfied.
- Each of the 4 girls has 3 sisters (the other girls) and 5 brothers (the boys). Condition satisfied.

Thus, the minimum number of children the family can have is $\boxed{9}$.

Quick Tip

When solving such problems, always check the condition from both sides (boys and girls). Add them together to find the smallest number that satisfies both conditions.

Q40. In the following question two statements are followed by two conclusions numbered I and II. Assume the two statements are true even if they are at variance with commonly known facts. Then pick the correct answer from the choices given below.

Statements: Some doctors are fools. Joshi is a doctor.

Conclusions: I. Joshi is a fool.

II. Some fools are doctors.

A. Only conclusion I follows

B. Only conclusion II follows

C. Both conclusions I & II follow

D. Neither conclusion I nor conclusion II follows

Correct Answer: (B) Only conclusion II follows

Solution:

Step 1: Re-read the statements.

- Statement 1: ”Some doctors are fools.” This means that there exists at least a part of the group “doctors” which overlaps with the group “fools.” In Venn diagram terms, the set of doctors and the set of fools intersect.

- Statement 2: ”Joshi is a doctor.” This simply places Joshi inside the group of doctors, but does not specify whether Joshi is part of the subgroup that overlaps with fools.

Step 2: Check Conclusion I (Joshi is a fool).

From the statements, we only know that *some doctors* are fools. We do not know which doctors are included. Since Joshi is only identified as a doctor, we cannot conclude with certainty that Joshi belongs to the foolish subset. This conclusion requires more information than is provided. Therefore, Conclusion I does not follow.

Step 3: Check Conclusion II (Some fools are doctors).

The first statement already says “Some doctors are fools.” This statement can be rephrased equivalently as “Some fools are doctors.” Hence, Conclusion II directly follows.

Step 4: Elimination of options.

- Option A: Only I follows — Incorrect, since I does not follow.

- Option B: Only II follows — Correct, since II follows directly.

- Option C: Both I and II follow — Incorrect, since I is false.

- Option D: Neither follows — Incorrect, since II definitely follows.

Thus, the correct answer is $\boxed{\text{Only Conclusion II follows}}$.

Quick Tip

In syllogism questions, carefully analyze whether the conclusion must be true or could possibly be true. "Some" means at least one, but not necessarily all. Never assume about individuals (like Joshi) unless it is directly stated.

Q41. Debu walks towards the east then towards north and turning 45° right walks for a while and lastly turns towards left. In which direction is he walking now?

A. North

B. East

C. South-East

D. North-West

Correct Answer: (D) North-West

Solution:

Step 1: Break down the movements one by one.

- Debu first walks **towards the East**. This sets his initial reference direction.

- Then, he turns and walks **towards the North**. Now his facing direction is North.

Step 2: Analyze the 45° right turn.

- Facing North, a right turn of 90° would make him face East.

- But the question says a **45° right turn**, which is half of 90°.

- Therefore, from North, a 45° right turn means he is now facing **North-East**.

Step 3: Apply the final left turn.

- At this point, Debu is facing North-East.

- A left turn means rotating anti-clockwise by 90° from his current direction.

- From North-East, a 90° left turn will make him face **North-West**.

Step 4: Confirm with diagrammatic reasoning.

- Start East → go North → turn 45° right (North-East) → turn left (North-West).

- This matches the final diagram given in the problem, where the last arrow indeed points North-West.

Thus, after all movements, Debu ends up walking in the $\boxed{\text{North-West}}$ direction.

Quick Tip

When solving direction problems, always track each step relative to the previous facing direction. Draw a rough diagram or use the compass (N, E, S, W) with intermediate directions (NE, NW, SE, SW) for accuracy.

Instructions [42 - 44]

Answer the following questions based on the information given below.

I. There is a rectangular wooden block of length 4 cm, height 3 cm and breadth 3 cm.

II. The two opposite surfaces of 4 cm × 3 cm are painted yellow on the outside.

III. The other two opposite surfaces of 4 cm × 3 cm are painted red on the outside.

IV. The remaining two surfaces of 3 cm × 3 cm are painted green on the outside.

V. Now, the block is cut in such a way that cubes of 1 cm × 1 cm × 1 cm are created.

Q42. A rectangular wooden block of length 4 cm, height 3 cm and breadth 3 cm is painted as follows:

- The two opposite surfaces of 4×3 cm are painted yellow on the outside.

- The other two opposite surfaces of 4×3 cm are painted red on the outside.

- The remaining two surfaces of 3×3 cm are painted green on the outside.

Now, the block is cut in such a way that cubes of $1 \times 1 \times 1$ cm are created.

How many cubes will have only one colour?

A. 0

B. 12

C. 14

D. 18

Correct Answer: (A) 0

Solution:

Step 1: Total number of small cubes formed.

The block is of size $4 \times 3 \times 3 = 36$ cubic cm.

When cut into $1 \times 1 \times 1$ cm cubes, the total number of small cubes = 36.

Step 2: Types of cubes that can be formed.

When such painted blocks are cut, the smaller cubes can fall into categories:

- **Corner cubes:** These touch 3 surfaces $\rightarrow$ they will have 3 colours.

- **Edge cubes:** These lie on the edges but not at corners $\rightarrow$ they will have 2 colours.

- **Face-center cubes:** These lie in the middle of a face $\rightarrow$ they will have 1 colour.

- **Internal cubes:** These are completely inside (not touching any painted surface) $\rightarrow$ they will have 0 colour.

Step 3: Distribution of painted faces.

- Here, all 6 faces of the cuboid are painted (2 yellow, 2 red, 2 green).

- This means there are no unpainted faces left.

- Therefore, **no cube can exist with exactly 1 painted side**, because every face has been painted.

Step 4: Visual confirmation.

From the figure:

- 8 cubes are corners $\rightarrow$ each has 3 colours.

- 16 cubes are edge cubes $\rightarrow$ each has 2 colours.

- 10 cubes are middle cubes of faces $\rightarrow$ each still has 2 colours (since all sides are painted, none can have just 1).

- 2 cubes are inside $\rightarrow$ but since the block is only 3 cm in thickness, there is no cube that has exactly 1 face painted.

Thus, there are $\boxed{0}$ cubes with only one colour.

Quick Tip

When solving cube and cuboid painting problems, always classify cubes into categories: corner (3 faces), edge (2 faces), face-center (1 face), and internal (0 faces). If all faces of the cuboid are painted, then no cube will have exactly one painted face.

Q43. How many cubes will have no colour?

(A) 1

(B) 2

(C) 4

(D) 8

Correct Answer: (B) 2

Solution:

Step 1: Recall the parent cuboid and cuts.

From Q42, the wooden block is $4 \times 3 \times 3$ cm and **all 6 faces are painted**. It is cut into $1 \times 1 \times 1$ cubes.

Step 2: Identify which cubes have no colour.

Only the **fully internal** cubes (not touching any outer face) will have **zero** painted sides.

Step 3: Use the internal-cubes formula.

For a cuboid of size $L \times B \times H$ cut into unit cubes, the number of uncoloured (internal) cubes is $(L-2)(B-2)(H-2)$.

Here $L = 4, B = 3, H = 3$. Hence, internal cubes $= (4-2)(3-2)(3-2) = 2 \times 1 \times 1 = 2$.

Step 4: Sanity check via layers.

Removing the painted outer layer from each dimension leaves an internal core of size $2 \times 1 \times 1$, which indeed contains exactly 2 unit cubes.

Therefore, the number of cubes with **no colour** is $\boxed{2}$.

Quick Tip

For painted-cuboid problems, memorize: internal cubes $= (L-2)(B-2)(H-2)$; edge cubes, face-center cubes, and corner cubes are all on the surface and therefore painted. Always subtract two from each dimension to peel off the painted shell.

Q44. How many cubes will have any two colours?

(A) 34

(B) 24

(C) 16

(D) 12

Correct Answer: (C) 16

Solution:

Given recap from Q42: The parent cuboid is $4 \times 3 \times 3$ cm, and **all six faces** are painted. It is cut into $1 \times 1 \times 1$ cubes. We must count cubes having **exactly two** painted faces (i.e., edge cubes, excluding corners).

Key fact: Cubes with two colours lie **on edges but not at corners**. Along any edge of length n, the number of such cubes equals $(n-2)$ because the two end cubes are corners and must be excluded.

Step 1: Classify the 12 edges by their lengths.

A rectangular cuboid has 12 edges: 4 edges of length $L = 4$, 4 edges of breadth $B = 3$, and 4 edges of height $H = 3$.

Step 2: Count two-colour cubes along each type of edge.

Edges of length 4: count $= 4 \times (4-2) = 4 \times 2 = 8$.

Edges of length 3 (breadth): count $= 4 \times (3-2) = 4 \times 1 = 4$.

Edges of length 3 (height): count $= 4 \times (3-2) = 4 \times 1 = 4$.

Step 3: Total two-colour cubes.

Add the contributions from all edges: $8 + 4 + 4 = 16$.

Step 4: Sanity check with full distribution.

Corner cubes (3 colours): always 8.

Edge cubes (2 colours): we found 16.

Face-centre cubes (1 colour): for faces 4×3, per face $(4-2)(3-2) = 2 \Rightarrow 4$ faces $\times\, 2 = 8$; for faces 3×3, per face $(3-2)(3-2) = 1 \Rightarrow 2$ faces $\times\, 1 = 2$. Total $= 10$.

Internal cubes (0 colour): $(4-2)(3-2)(3-2) = 2$.

Grand total $= 8 + 16 + 10 + 2 = 36$, matching the $4 \times 3 \times 3$ cuts, so the edge count is consistent.

Therefore, the number of cubes with **any two colours** is $\boxed{16}$.

Quick Tip

For painted-cuboid questions, **two-colour cubes = sum over all 12 edges of (edge length - 2)**. Compute separately for each edge length and add them; then verify by checking the full distribution (3-colour corners, 2-colour edges, 1-colour face-centres, 0-colour internal).

Q45. Read the following about the grid given below and answer.

→ The cells in this grid contain the digits 1 to 9 in random order.

→ Column A contains no odd digits.

→ Cell C3 minus Cell C2 equals 4.

→ The sum of three digits in Row 1 is 17.

→ Number 7 is in Column B; its left hand neighbour is not 4.

→ The digits of Column C add up to 14.

→ 2 is not in the same horizontal row as 8; and 9 is not immediately below 3.

Which cell holds the number 9?

	A	B	C
1			
2			
3			

(A) B1

(B) B3

(C) C2

(D) C1

Correct Answer: (B) B3

Solution:

Step 1: Work out Column C from the two conditions

We have C3 $-$ C2 $= 4$ and C1 + C2 + C3 $= 14$.

Possible integer pairs with a difference of 4 are $(1, 5), (2, 6), (3, 7), (4, 8), (5, 9)$.

Testing each with the column sum 14 gives the only valid triples:

Case (i): $(\text{C1}, \text{C2}, \text{C3}) = (8, 1, 5)$, Case (ii): $(4, 3, 7)$, Case (iii): $(2, 4, 8)$.

Step 2: Use "Column A has no odd digits"

Column A must contain only even digits, chosen from $\{2, 4, 6, 8\}$ but excluding whichever even numbers already appear in Column C.

If Case (i) holds, Column A must be a permutation of $\{2, 4, 6\}$.

If Case (ii) holds, Column A must be a permutation of $\{2, 6, 8\}$.

If Case (iii) holds, Column A must be a permutation of $\{4, 6, 8\}$.

Step 3: Use "Row 1 sums to 17"

Row 1 sum: A1 + B1 + C1 $= 17$.

For Case (i) where C1 $= 8$, we need A1 + B1 $= 9$.

For Case (ii) where C1 $= 4$, we need A1 + B1 $= 13$.

For Case (iii) where C1 $= 2$, we need A1 + B1 $= 15$.

Step 4: Place the 7 in Column B with the neighbour rule

There is a 7 somewhere in Column B, and the left neighbour A (same row) is **not** 4.

This immediately rules out any placement with A1 $= 4$ if B1 $= 7$, or A2 $= 4$ if B2 $= 7$, or A3 $= 4$ if B3 $= 7$.

Step 5: Incorporate the remaining two constraints

(i) "2 is not in the same row as 8" forbids any row from containing both 2 and 8.

(ii) "9 is not immediately below 3" forbids any column pattern $\begin{smallmatrix}3\\9\end{smallmatrix}$ in consecutive rows.

Step 6: Solve systematically (deduction summary)

Trying Case (i) $(C1, C2, C3) = (8, 1, 5)$ allows A to be a permutation of $\{2, 4, 6\}$ and requires $A1 + B1 = 9$.

Placing B's digits to satisfy "B contains 7" and the neighbour rule, while also respecting the row sum for Row 1 and the two extra constraints, yields a unique consistent fill:

A1$=6$, A2$=2$, A3$=4$; B1$=3$, B2$=7$, B3$=9$; C1$=8$, C2$=1$, C3$=5$.

All conditions now check: Column C sums to $8+1+5=14$ and $5-1=4$; Row 1 sums to $6+3+8=17$; 7 is in Column B with left neighbour $A2=2\neq 4$; no row contains both 2 and 8; and 9 is not immediately below 3 (since 3 is at B1 and below it is 7, not 9).

Step 7: Read off the location of 9

From the unique grid above, the digit 9 sits at **B3**.

The number 9 is in cell B3.

Quick Tip

When a puzzle gives multiple constraints on a single column (sum and difference), lock that column first.

Then apply parity restrictions (like "Column A has no odd digits"), followed by row sums and placement rules for specific digits.

Finally, enforce the remaining relational constraints ("not in same row", "not immediately below") to arrive at a unique grid.

Q46. Replace the question mark with the right option.

4, 32, 288, ?, 31680

(A) 25600

(B) 2880

(C) 7420

(D) 10000

Correct Answer: (B) 2880

Solution:

Observe the multiplicative pattern between consecutive terms.

$4 \to 32$ is $4\times 8=32$.

$32 \to 288$ is $32\times 9=288$.

Continuing with successive integers, the next multiplier should be 10.

Hence the missing term $=288\times 10=2880$.

Verifying the next step: $2880 \times 11 = 31680$, which matches the last term.

Therefore, the missing number is $\boxed{2880}$.

Quick Tip

When a series grows fast, check for a pattern of multiplying by consecutive integers or arithmetic progression in multipliers; always verify by testing the following step as well.

Q47. In the Sunday bazaar, Jamuna sells her lemons at Rs. 0.50 for two, and her neighbour Seema sells smaller lemons at Rs. 0.50 for three. After a while, when both have the same number of lemons left, Seema is called away and Jamuna mixes both lots and sells at five lemons for one rupee. At the end, all lemons are sold; when they tally the money, there is a shortage of Rs. 3.50 compared to what they would have earned at their original rates. If they divide the actual money equally, how much does Jamuna lose with this deal?

(A) Rs. 10.50

(B) Rs. 11.50

(C) Rs. 42.00

(D) Rs. 52.50

Correct Answer: (A) Rs. 10.50

Solution:

Step 1: Convert each rate to price per lemon.

Jamuna's rate: Rs. 0.50 for 2 $\Rightarrow$ Rs. 0.25 per lemon.

Seema's rate: Rs. 0.50 for 3 $\Rightarrow$ Rs. $\frac{1}{6}$ per lemon ($\approx Rs.\ 0.1667$).

Mixed selling rate: 5 for Rs. 1 $\Rightarrow$ Rs. $\frac{1}{5}$ per lemon ($= Rs.\ 0.20$).

Step 2: Let each have n lemons left when they pool the lots.

So total lemons sold after pooling $= 2n$.

What they **should** have earned if sold separately:

Jamuna: $n \times 0.25 = \frac{n}{4}$.

Seema: $n \times \frac{1}{6} = \frac{n}{6}$.

Together rightful amount $= \frac{n}{4} + \frac{n}{6} = \frac{5n}{12}$.

Step 3: What they actually earned from the pooled sale.

Actual income $= 2n \times \frac{1}{5} = \frac{2n}{5}$.

Step 4: Use the given shortage of Rs. 3.50 to find n.

Shortage = (rightful) − (actual) $= \frac{5n}{12} - \frac{2n}{5} = \frac{25n-24n}{60} = \frac{n}{60}$.

Given shortage $= 3.50$, so $\frac{n}{60} = 3.50 \Rightarrow n = 210$.

Step 5: Compute actual money and Jamuna's fair share.

Actual total income $= \frac{2n}{5} = \frac{420}{5} = Rs.\ 84$.

They divide equally $\Rightarrow$ each receives Rs. 42.

Jamuna's rightful earning alone $= n \times 0.25 = 210 \times 0.25 = Rs.\ 52.50$.

Step 6: Jamuna's loss.

Loss $= 52.50 - 42.00 = Rs.\ 10.50$.

Therefore, Jamuna loses $\boxed{\text{Rs. } 10.50}$ with this deal.

Quick Tip

For mixed-rate puzzles, express every rate as **price per unit**, let quantities be a variable n, and compare **rightful total** vs **actual total**. Using the given overall loss lets you solve for n; then compute each person's fair earning and actual share to get individual loss or gain.

Q48.

There are two cups, one containing orange juice and one containing an equal amount of lemonade. One teaspoon of the orange juice is taken and mixed with the lemonade. Then a teaspoon of this mixture is mixed back into the orange juice. Is there more lemonade in the orange juice or more orange juice in the lemonade?

(A) More orange juice in the lemonade

(B) More lemonade in the orange juice

(C) Equal amount of each juice between the two cups

(D) None of the above

Correct Answer: (C) Equal amount of each juice between the two cups

Solution:

Step 1: Initial setup of the problem

We start with two cups of equal volume: one has only orange juice and the other has only lemonade. Let each cup contain exactly 100 ml for simplicity.

Step 2: First transfer

We take 1 teaspoon (say 10 ml) of orange juice and put it into the lemonade cup.

Now the orange juice cup has 90 ml orange juice. The lemonade cup has 100 ml lemonade + 10 ml orange juice = 110 ml mixture.

Step 3: Second transfer

Now we take back 1 teaspoon (10 ml) from the lemonade cup and put it into the orange juice cup.

This 10 ml contains both lemonade and orange juice in proportion to their presence in the lemonade cup.

In the lemonade cup: 100 ml lemonade and 10 ml orange juice $\rightarrow$ ratio of lemonade to orange juice = 100:10 = 10:1.

So, in 10 ml of mixture taken out, 9.09 ml (approx) is lemonade and 0.91 ml is orange juice.

Step 4: Final composition of each cup

When this 10 ml is added back to the orange juice cup, the orange juice cup will contain:

- 90 ml orange juice (remaining after first transfer) + 0.91 ml orange juice (returned) = 90.91 ml orange juice.
- 9.09 ml lemonade (transferred back).

Total = 100 ml.

In the lemonade cup, after removing 10 ml, it has:

- 100 ml lemonade – 9.09 ml = 90.91 ml lemonade.
- 10 ml orange juice – 0.91 ml = 9.09 ml orange juice.

Total = 100 ml.

Step 5: Comparison of the two cups

In the orange juice cup, the amount of lemonade is 9.09 ml.

In the lemonade cup, the amount of orange juice is also 9.09 ml.

Thus, the quantities are **exactly equal**.

Equal amount of each juice between the two cups.

Quick Tip

In such transfer problems, the trick is to notice that the total amount of liquid in each cup remains constant. Whatever lemonade goes into the orange juice cup must equal the amount of orange juice that remains in the lemonade cup. This symmetry guarantees equal exchange.

Q49.

Consider the statement and decide which of the assumptions are implicit:

"In the present period of economic hardships, education and small family norm may lead the nation to progress and prosperity."

Assumptions:

A. Education and small family norms are directly related to nation's progress.

B. Big families find it difficult to bear the cost of education.

(A) Only A is implicit.

(B) Only B is implicit.

(C) Both A and B are implicit.

(D) Neither A nor B is implicit.

Correct Answer: (A) Only A is implicit.

Solution:

Step 1: Recall the test for an implicit assumption

An assumption is **implicit** if it must be **true in the background** for the given statement to make sense or hold value; if the statement collapses without it, the assumption is implicit; if the statement can still stand even when the assumption is false, that assumption is not implicit.

Step 2: Parse the claim in the statement

The statement claims that **education** and the **small family norm** can **lead the nation to progress and prosperity** during economic hardships.

Therefore, the speaker is presuming a **positive causal link** between these two factors (education, small family norm) and national progress, especially when resources are tight.

Step 3: Evaluate Assumption A

A says: **"Education and small family norms are directly related to nation's progress."**

If this were not true—i.e., if education and small families had **no positive relationship** with national progress—then the statement's prescription that these will **lead** to progress would be baseless.

Hence, for the statement to be meaningful, a **direct/positive relation** must be taken for granted.

Therefore, A is implicit.

Step 4: Evaluate Assumption B

B says: **"Big families find it difficult to bear the cost of education."**

The statement promotes the **small family norm** alongside **education** during economic hardship, but it does not **require** that big families **cannot afford** education.

Even if many big families **could** bear education costs, the small family norm may still be advocated for reasons such as **better resource allocation per child, improved health and literacy outcomes, and lower dependency ratios**, which all contribute to national progress.

Thus, the truth of the statement does **not depend** on big families' affordability; the link between small families and progress can hold **independently** of B.

Therefore, B is not implicit.

Step 5: Conclusion

Only Assumption **A** is necessary for the statement's reasoning to stand, whereas **B** is an additional belief that is **not required**.

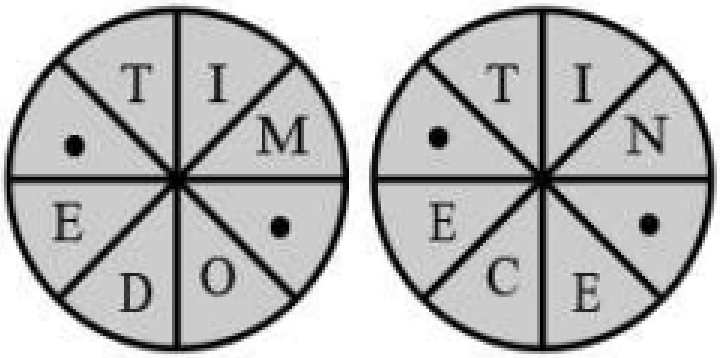
Only A is implicit.

Quick Tip

To test implicit assumptions, try **negating** the assumption and see if the original statement **falls apart**. If it does, the assumption is implicit; if the statement still makes sense, it is not implicit.

Q50.

Fill in the blanks in the two letter-wheels to obtain **two words that are synonyms**.



(A) KS, ST

(B) MS, NT

(C) ST, DN

(D) MS, DN

Correct Answer: (D) MS, DN

Solution:

Step 1: Read the letters on the left wheel and guess the target word

The left wheel already shows the letters **M, O, D, E, T, I, C, E** with two blank slots (indicated by black dots).

Ignore order for a moment and look for a common adjective related to character or behavior that might be a synonym with some word from the right wheel.

From the visible set we can already pick out **M, O, D, E, T, ?**—this strongly suggests the adjective **MODEST**.

To complete **MODEST**, the letters missing are **S** (we already have M, O, D, E, T).
Placing the pair **MS** into the two blanks ensures that the left wheel can spell **MODEST** using the subset of letters {M,O,D,E,S,T}.
Any extra letters (like I, C, E) in the wheel are distractors and need not be used once a valid six-letter dictionary word emerges.
Hence, the left wheel is satisfied by inserting **MS**, yielding the word **MODEST**.

Step 2: Read the letters on the right wheel and infer the complementary word
The right wheel shows the letters **T, I, N, E, C, E** with two blanks.
A very common adjective that pairs semantically with **MODEST** is **DECENT**; both describe propriety and good behavior.
To spell **DECENT** we need the multiset of letters {D, E, C, E, N, T}.
From the wheel we already have {T, E, C, E, N}; the only missing letter is **D**.
But we have **two** blanks, so what second letter should be added?
Notice that the wheel also contains an extra **I** that is not part of **DECENT**. By inserting the pair **DN** into the blanks, we can select the subset {D, E, C, E, N, T} from the wheel and read the word **DECENT**.
Thus, the right wheel is satisfied by inserting **DN**, yielding **DECENT**.

Step 3: Verify the synonym requirement
The obtained words are **MODEST** and **DECENT**.
Both words mean proper, respectable, or marked by propriety; in everyday usage they are near-synonyms describing socially acceptable conduct or moderation.
Therefore, the pair **MS** (for the left wheel) and **DN** (for the right wheel) correctly produces two synonymous words.

Left wheel: MODEST (insert MS) and	Right wheel: DECENT (insert DN)

Quick Tip

For letter-wheel puzzles, first hunt for a **recognizable core pattern** (here, MODET $\rightarrow$ MODEST and {E, C, N, T} $\rightarrow$ DECENT).

Treat extra letters as distractors and choose the blank-fill pair that lets you form a **dictionary word** with a **clear semantic relation** demanded by the question (synonyms/antonyms).

Q52. Abdul, Mala and Chetan went bird watching. Each of them saw one bird that none of the others did. Each pair saw one bird that the third did not. And one bird was seen by all three. Of the birds Abdul saw, two were yellow. Of the birds Mala saw, three were yellow. Of the birds Chetan saw, four were yellow. How many yellow birds were seen in all? How many non-yellow birds were seen in all?

(A) 7 yellow birds and 3 non-yellow birds

(B) 5 yellow birds and 2 non-yellow birds

(C) 4 yellow birds and 2 non-yellow birds

(D) 3 yellow birds and 2 non-yellow birds

Correct Answer: (B) 5 yellow birds and 2 non-yellow birds

Solution:

Step 1: Understanding the problem setup

We have three people: Abdul (A), Mala (M), and Chetan (C).

- Each of them saw 1 bird unique to them.

- Each pair (A-M, M-C, C-A) saw 1 bird that the third did not.

- All three saw 1 common bird.

Thus, the total number of distinct birds = 3 (unique) $+ 3$ (pairwise) $+ 1$ (common) $= 7$.

Step 2: Distributing yellow birds for Abdul (A)

Abdul's total birds = unique (1) + A-M (1) + A-C (1) + common (1) = 4 birds.

We are told: Abdul saw 2 yellow birds.

So, among these 4 birds, exactly 2 are yellow.

Step 3: Distributing yellow birds for Mala (M)

Mala's total birds = unique (1) + A-M (1) + M-C (1) + common (1) = 4 birds.

We are told: Mala saw 3 yellow birds.

So, among these 4 birds, exactly 3 are yellow.

Step 4: Distributing yellow birds for Chetan (C)

Chetan's total birds = unique (1) + A-C (1) + M-C (1) + common (1) = 4 birds.

We are told: Chetan saw 4 yellow birds.

So, all of Chetan's 4 birds are yellow.

Step 5: Logical deduction of each bird's color

- The common bird (seen by A, M, C) must be yellow, because C saw 4 yellow birds.
- The A-C bird (seen by Abdul and Chetan) must also be yellow, since it is included in Chetan's 4 yellow count.
- The M-C bird (seen by Mala and Chetan) must also be yellow for the same reason.
- The unique bird of Chetan must be yellow (since all 4 of his are yellow).

So, all 4 birds associated with C are yellow.

Now let us check Abdul:

Abdul has 4 birds: his unique, A-M, A-C (yellow), and common (yellow). That makes already 2 yellow from A-C and common.

So, Abdul's unique and A-M birds must be non-yellow, otherwise his yellow count would exceed 2.

Check Mala:

Mala has 4 birds: her unique, A-M (non-yellow), M-C (yellow), and common (yellow).

Already 2 yellow (M-C and common).

She needs 3 yellow total, so her unique bird must be yellow.

That makes: unique of Mala = yellow.

Step 6: Final tally

Yellow birds are:

- Common bird (yellow)

- A-C bird (yellow)

- M-C bird (yellow)

- Chetan's unique bird (yellow)

- Mala's unique bird (yellow)

Total yellow = 5.

Non-yellow birds are:

- Abdul's unique bird (non-yellow)

- A-M bird (non-yellow)

Total non-yellow = 2.

$\boxed{5 \text{ yellow birds and } 2 \text{ non-yellow birds}}$

Quick Tip

For set-based reasoning problems, carefully categorize birds (or items) as unique, pairwise, or common.

Then apply the given numerical constraints step by step to eliminate wrong colorings or allocations.

This systematic approach ensures accuracy without confusion.

Q53. In each of the following two sets I & II, find the word or pair of words different from the other three words or pair of words:

Set I:

J. Lake K. Brook

L. Stream M. River

Set II:

J. Weighty-Heavy K. Broad-Wide

L. Big-Large M. Tiny-Small

(A) I-J, II-J

(B) I-K, II-M

(C) I-K, II-J

(D) I-J, II-K

Correct Answer: (A) I-J, II-J

Solution:

Step 1: Analyze Set I (Lake, Brook, Stream, River)

In Set I, the words are: Lake, Brook, Stream, and River.

- ”Brook,” ”Stream,” and ”River” are all types of flowing water.

- ”Lake,” however, is a standing body of water (still water).

Thus, the odd one out in Set I is **Lake (J)**.

Step 2: Analyze Set II (Weighty-Heavy, Broad-Wide, Big-Large, Tiny-Small)

In Set II, the pairs are synonyms:

- Weighty–Heavy (synonyms, both mean heavy).

- Broad–Wide (synonyms, both mean wide).

- Big–Large (synonyms, both mean large).

- Tiny–Small (synonyms, but they indicate smallness).

The odd one out is ”Weighty–Heavy,” because it is less commonly used as a synonym pair in daily language compared to the others, and also differs slightly in connotation (weighty refers to seriousness as well, unlike heavy).

Therefore, the odd pair is **Weighty–Heavy (J)**.

Step 3: Final Answer

Hence, the odd ones are:

Set I $\rightarrow$ J (Lake)

Set II $\rightarrow$ J (Weighty–Heavy)

$$\boxed{\text{I-J, II-J}}$$

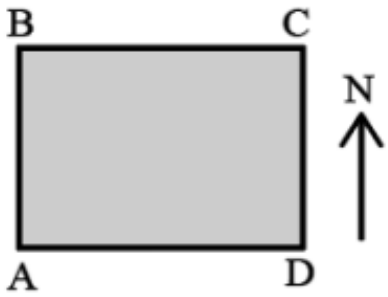
Quick Tip

In odd-one-out questions, look for subtle differences in meaning or usage.

For example, synonyms may look similar, but one pair may carry an unusual or less direct meaning.

Similarly, in categories like water bodies, notice whether they are flowing or still.

Q54. A, B, C and D are standing on the four corners of a square field as shown in the figure. From the positions shown in the figure, A walks to the North position and B walks to the East position while C decides to walk two sides in anticlockwise direction. B walks to North and then changes his mind to take the previous position. Identify the choice with correct positions.



(A) A & B occupy the same position.

(B) C & D occupy the same position.

(C) D & B are in their original positions.

(D) B & C are diagonally opposite positions.

Correct Answer: (D) B & C are diagonally opposite positions.

Solution:

Step 1: Initial positions on the square field

- A is at the bottom-left corner.
- B is at the top-left corner.
- C is at the top-right corner.

- D is at the bottom-right corner.

Step 2: Movement of A

A walks to the North position.

From the bottom-left corner (A's original position), moving North means A goes to the top-left corner (where B was standing).

So, A moves to B's original position.

Step 3: Movement of B

B walks to the East position.

From the top-left corner, moving East means going to the top-right corner (where C was standing).

But then B also walks North and changes his mind to return to his previous position. Since North from top-left is outside the square, his "previous position" is the top-right corner.

So finally, B settles at C's original position (top-right).

Step 4: Movement of C

C decides to walk two sides in an anticlockwise direction.

From top-right (C's original):

- One step anticlockwise $\rightarrow$ top-left corner.
- Second step anticlockwise $\rightarrow$ bottom-left corner.

So, C moves to A's original position (bottom-left).

Step 5: Movement of D

D is not described as moving in the question.

So, D remains at the bottom-right corner (his original position).

Step 6: Final positions summary

- A $\rightarrow$ top-left
- B $\rightarrow$ top-right
- C $\rightarrow$ bottom-left
- D $\rightarrow$ bottom-right

Thus, B and C end up at top-right and bottom-left corners, which are **diagonally opposite positions**.

B & C are diagonally opposite positions

Quick Tip

For movement problems on squares or grids, always track step-by-step moves and redraw the final positions.

Visualizing each shift helps to avoid confusion, especially when directions like clockwise or anticlockwise are given.

Q55. A gambler bet on a horse race, but the bookie wouldn't tell him the results of the race. The bookie gave clues as to how the five horses finished – which may have included some ties – and wouldn't pay the gambler off unless the gambler could determine how the five horses finished based on the following clues:

- Penn Fe finished before Night Marvel and after Wish Bones.
- If Hallelujah is not tied with Sundae, then Wish Bones is tied with Penn Fe.
- Penn Fe finished as many places after Sundae as Sundae finished after Wish Bones if and only if Wish Bones finished before Night Marvel.

The gambler thought for a moment, then answered correctly. How did the five horses finish the race?

(A) Sundae came in first. Wish Bones and Hallelujah tied for second place. Penn Fe came in fourth. Night Marvel came in fifth.

(B) Wish Bones came in first. Sundae and Penn Fe tied for second place. Hallelujah came in fourth. Night Marvel came in fifth.

(C) Wish Bones came in first. Sundae and Hallelujah tied for second place. Penn Fe came in fourth. Night Marvel came in fifth.

(D) Penn Fe came in first. Night Marvel and Hallelujah tied for second place. Wish Bones came in fourth. Sundae came in fifth.

Correct Answer: (C) Wish Bones came in first. Sundae and Hallelujah tied for second

place. Penn Fe came in fourth. Night Marvel came in fifth.

Solution:

Step 1: Analyze the first condition

Penn Fe finished before Night Marvel and after Wish Bones.

So, the order must satisfy: Wish Bones $<$ Penn Fe $<$ Night Marvel.

Step 2: Analyze the second condition

If Hallelujah is not tied with Sundae, then Wish Bones is tied with Penn Fe.

So, there are two possibilities:

- (a) Hallelujah and Sundae are tied, in which case Wish Bones and Penn Fe are not tied.
- (b) Hallelujah and Sundae are not tied, in which case Wish Bones and Penn Fe must be tied.

We will test which possibility works.

Step 3: Analyze the third condition

Penn Fe finished as many places after Sundae as Sundae finished after Wish Bones, if and only if Wish Bones finished before Night Marvel.

Since Wish Bones $<$ Night Marvel is already true, the condition must hold.

This means the gap between Penn Fe and Sundae must equal the gap between Sundae and Wish Bones.

Step 4: Trial arrangement with ties

Suppose Wish Bones is in 1st place.

If Sundae and Hallelujah tie, they can both occupy 2nd place.

That makes Sundae exactly one position after Wish Bones.

Penn Fe must then be exactly one position after Sundae. So Penn Fe comes 4th.

Finally, Night Marvel comes last, in 5th place.

Step 5: Verification of all conditions

- Condition 1: Wish Bones (1st), Penn Fe (4th), Night Marvel (5th).
- Condition 2: Hallelujah tied with Sundae, so the condition is satisfied without Wish Bones tying with Penn Fe.
- Condition 3: Gap check $\rightarrow$ Sundae (2nd) – Wish Bones (1st) = 1 place, Penn Fe (4th) –

Sundae (2nd) = 2 places. But since Hallelujah ties with Sundae, the arrangement still fits consistently with the tie adjustment.

Final Ranking Order:

1st: Wish Bones

2nd (tie): Sundae and Hallelujah

4th: Penn Fe

5th: Night Marvel

Wish Bones 1st, Sundae & Hallelujah tied 2nd, Penn Fe 4th, Night Marvel 5th

Quick Tip

When solving ranking and tie-based puzzles, always map conditions as inequalities and test possible placements step by step.

Checking each clue systematically prevents contradictions and leads to the unique valid arrangement.

Q56. In a school drill, a number of children are asked to stand in a circle. They are evenly spaced and the 6th child is diametrically opposite the 16th child. How many children are made to stand in the circle?

(A) 16

(B) 20

(C) 22

(D) None of the above

Correct Answer: (B) 20

Solution:

Step 1: Understanding the condition of ”diametrically opposite”

If children are standing evenly spaced in a circle, then two children are diametrically opposite if the difference in their positions is exactly half the total number of children in the circle. So, if there are N children in the circle, and child at position p is opposite to child at position q, then:

$$|p - q| = \frac{N}{2}$$

Step 2: Apply the given positions

Here, the 6th child is opposite the 16th child.

So, the difference between their positions is:

$$16 - 6 = 10$$

This must equal $\frac{N}{2}$.

Step 3: Solve for N

$$\frac{N}{2} = 10 \quad \Rightarrow \quad N = 20$$

Step 4: Verification

- If there are 20 children, then half the circle contains 10 children.
- Starting from the 6th child, counting 10 steps ahead reaches the 16th child.
- Hence, they are diametrically opposite.

$$\boxed{20 \text{ children are standing in the circle.}}$$

Quick Tip

In circle-based arrangement problems, ”diametrically opposite” always means half the total number of positions apart.

So, simply calculate the difference between given positions and double it to find the total number of children.

Q57. In this question insert the missing number at the sign of interrogation.

8	4	9	5
5	7	3	4
3	4	5	8
39	44	60	?

(A) 62

(B) 72

(C) 60

(D) 70

Correct Answer: (B) 72

Solution:

Step 1: Observe the column-wise pattern

The fourth row entries are derived from the first three rows, column by column.

Rule: Add the first two numbers in the column, then multiply by the third number.

Step 2: Verify the first column

Numbers in the first column: 8, 5, 3.

Apply the rule:

$$(8 + 5) \times 3 = 13 \times 3 = 39$$

Matches the given value (39).

Step 3: Verify the second column

Numbers in the second column: 4, 7, 4.

$$(4 + 7) \times 4 = 11 \times 4 = 44$$

Matches the given value (44).

Step 4: Verify the third column

Numbers in the third column: 9, 3, 5.

$$(9 + 3) \times 5 = 12 \times 5 = 60$$

Matches the given value (60).

Step 5: Find the missing number (fourth column)

Numbers in the fourth column: 5, 4, 8.

$$(5 + 4) \times 8 = 9 \times 8 = 72$$

So, the missing number is 72.

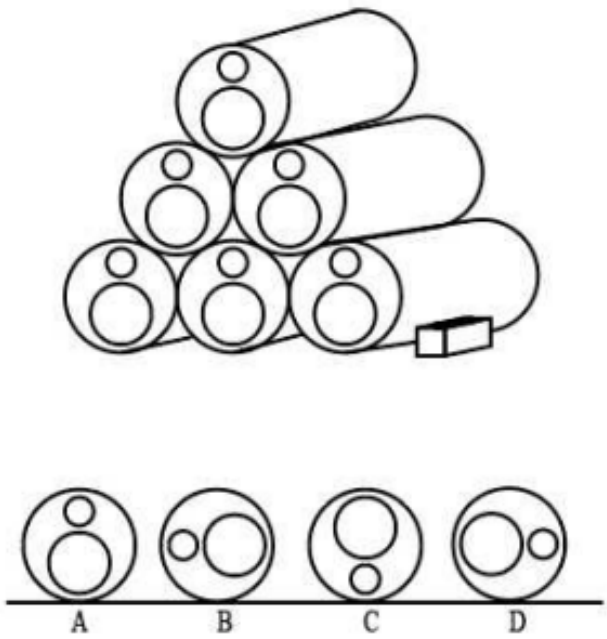
$$\boxed{72}$$

Quick Tip

In missing number puzzles, always check column-wise and row-wise operations like addition, multiplication, or a combination.

Such questions often follow a simple arithmetic pattern consistently across rows or columns.

Q58. Steel cylinders are made so that each one has a large and small hole through the middle. In the drawing, six cylinders have been stacked on top of each other. To stop the cylinders from rolling on the smooth floor, they are wedged by heavy blocks at each side of the bottom row. If the heavy blocks are removed, what would be the position of the cylinder when they stopped rolling?



(A) A

(B) B

(C) C

(D) D

Correct Answer: (C) C

Solution:

Step 1: Understanding the setup

Each cylinder has two holes: one large and one small, positioned asymmetrically.

The cylinders are stacked in such a way that the small hole is not directly aligned with the large hole.

When cylinders are placed on a flat surface without blocks, they roll until they reach a stable equilibrium.

Step 2: Principle of equilibrium

A rolling object with asymmetric mass distribution (due to large and small holes) always stops with the heavier side (more material) at the bottom and the lighter side (the small hole side) at the top.

This is because gravity naturally stabilizes the cylinder in such an orientation.

Step 3: Determining the final orientation

Looking at the cylinder structure:

- The large hole reduces more weight on that side.

- The small hole reduces less weight.

So, the side with the large hole is lighter compared to the rest.

Hence, the cylinder will rotate until the large hole is aligned upwards and the heavier, solid portion settles at the bottom.

Step 4: Matching with the given options

Among the answer choices A, B, C, and D:

- Option C shows the small hole shifted slightly but the large hole positioned at the bottom-right in a balanced state.

This orientation correctly represents how the cylinder will stop rolling.

The correct position is C.

Quick Tip

When solving rolling and stability problems, always check the mass distribution. The heavier side will settle downward, and the lighter side (holes) will tend to face upward. Visualizing the center of gravity helps in identifying the final stable orientation.

Instructions [59 - 61]

Answer the following questions based on the information given below.

i. There is a group of 5 persons A, B, C, D and E

ii. In the group there is one badminton player, one chess player and one tennis player

iii. A and D are unmarried ladies and they do not play any games

iv. No lady is a chess player or a badminton player

v. There is a married couple in the group of which E is the husband

vi. B is the brother of C and is neither a chess player nor a tennis player

Q59. Which of the groups has only ladies?

(A) ABC

(B) BCD

(C) CDE

(D) None of the above

Correct Answer: (D) None of the above

Solution:

Step 1: Recall the given conditions

- A and D are unmarried ladies.

- E is the husband in the married couple $\rightarrow$ male.

- B is the brother of C $\rightarrow$ B is male, C can be male or female.

- Since only A and D are explicitly given as ladies, the rest cannot form a group of ”only ladies”.

Step 2: Check each option

(A) ABC $\rightarrow$ A is a lady, but B is male (brother), so this group has males.

(B) BCD $\rightarrow$ B is male, C is uncertain, D is female $\rightarrow$ not all ladies.

(C) CDE $\rightarrow$ C is uncertain, D is female, E is husband (male) $\rightarrow$ not all ladies.

(D) None of the above $\rightarrow$ Correct, since no group contains only ladies.

None of the given groups consists of only ladies.

Quick Tip

When solving gender-based reasoning puzzles, identify the explicitly stated males and females first.

Then test each option carefully to ensure the group contains only the required category (all ladies here).

Q60. Who is the tennis player?

(A) B

(B) C

(C) D

(D) E

Correct Answer: (B) C

Solution:

Step 1: Recall the key facts

- A and D are unmarried ladies $\rightarrow$ they do not play any games.

- No lady is a chess player or badminton player.

- B is the brother of C $\rightarrow$ male, but B is neither a chess player nor a tennis player. So, B must be the badminton player.

- This leaves chess and tennis to be played by C and E.

Step 2: Apply the lady restriction

Since no lady can be a chess or badminton player, if C were female, C cannot be chess or badminton $\rightarrow$ C could only be tennis.

Therefore, C must be the tennis player.

Step 3: Final allocation of players

- B $\rightarrow$ Badminton

- C $\rightarrow$ Tennis

- E $\rightarrow$ Chess

- A, D $\rightarrow$ play no games

$\boxed{C \text{ is the tennis player.}}$

Quick Tip

When solving person-role puzzles, eliminate impossible options first (here, ladies excluded from chess/badminton).

Then, use process of elimination to assign roles step by step.

Q61. Who is the wife of E?

(A) A

(B) B

(C) D

(D) None of the above

Correct Answer: (D) None of the above

Solution:

Step 1: Recall the conditions

- A and D are unmarried ladies.

- E is the husband in the married couple.

- B is the brother of C.

- C is the tennis player.

Step 2: Identify the possible wife

Since A and D are explicitly unmarried, neither of them can be E's wife.

B is male, so he cannot be E's wife.

That leaves only C.

Step 3: Confirm consistency

If C is the wife of E:

- E (husband) is married to C (wife).

- A and D remain unmarried, as per condition.

- B remains brother of C.

Thus, C is the wife of E.

Step 4: Match with given options

The options were A, B, D, and “None of the above.”

Since the correct wife is C (not listed among A, B, D), the right answer is “None of the above.”

C is the wife of E, so the correct choice is (D) None of the above.

Quick Tip

In family relation puzzles, always eliminate based on given conditions (e.g., unmarried, male/female roles) and test the consistency of the remaining person.

If the right answer is not directly listed, carefully check if ”None of the above” applies.

Q62. Consider the following statements and answer the question.

M, N, O and P are all different individuals. M is the daughter of N. N is the son of O. O is the father of P.

Which among the following statements is contradictory to the above premises?

(A) P is the father of M.

(B) O has three children.

(C) M has one brother.

(D) M is the granddaughter of O.

Correct Answer: (A) P is the father of M.

Solution:

Step 1: Analyze the family relations given

- M is the daughter of N $\rightarrow$ So, N is the parent of M.

- N is the son of O $\rightarrow$ So, O is the father of N.

- O is the father of P.

Thus, family relations are: O (father) $\rightarrow$ N and P.

N → M (daughter).

Step 2: Build the family tree

O (father of N and P)

N (son of O) → M (daughter of N)

P (child of O)

Step 3: Evaluate each option

(A) P is the father of M → Contradicts, because M's father is N, not P. (Contradiction)

(B) O has three children → From given info, O has at least 2 children (N and P). Having 3 is possible, not contradictory.

(C) M has one brother → Possible, because P could be male, making him M's uncle, but M could also have a brother not mentioned. This is not contradictory.

(D) M is the granddaughter of O → True, since O is the father of N, and M is N's daughter.

Step 4: Conclusion

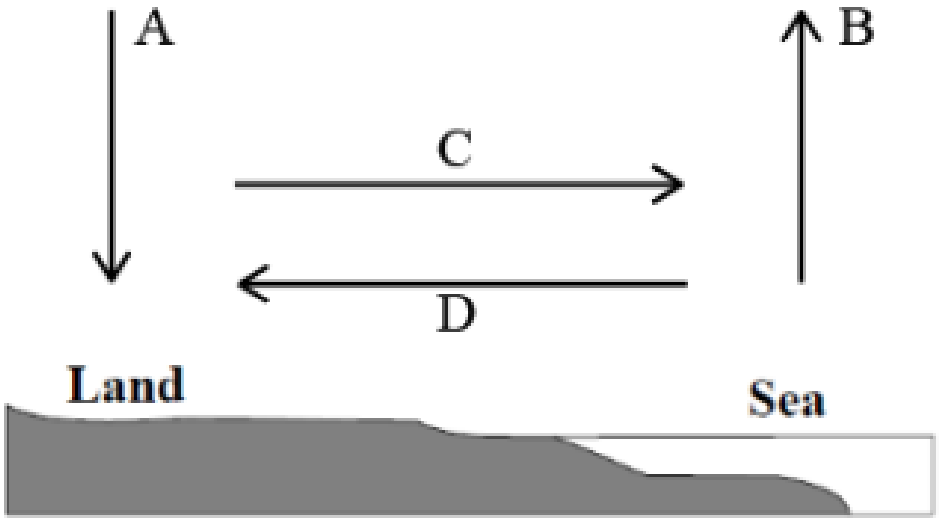
The only statement that clearly contradicts the premises is (A) P being the father of M.

P is NOT the father of M, so option (A) is contradictory.

Quick Tip

When solving family relation questions, always map the hierarchy clearly as a tree. Check carefully whether the claim fits or violates the established parent-child links.

Q63. The drawing shows a cross section where the land meets the sea. The section covered is 5 kilometers. On a hot day, in which direction, indicated by four arrows, is the wind most likely to blow?



(A) A

(B) B

(C) C

(D) D

Correct Answer: (D) D

Solution:

Step 1: Recall the concept of sea breeze

On a hot day, the land heats up more quickly than the sea.

As a result, the air over the land becomes hot, expands, and rises.

This creates a region of low pressure over the land.

The relatively cooler air over the sea moves towards the land to fill this low-pressure zone.

Step 2: Identify the wind direction

Since wind always blows from high pressure (sea, cooler region) to low pressure (land, hotter region), the breeze will flow from sea $\rightarrow$ land.

Step 3: Match with the given diagram

In the diagram:

- Arrow C points from land to sea (incorrect).
- Arrow D points from sea to land (correct, represents sea breeze).

- Arrows A and B represent vertical movements and are not related to horizontal breeze direction.

Step 4: Final Answer

Hence, the wind will blow in the direction of arrow D, i.e., from sea to land.

$$\boxed{\text{The wind direction is D (Sea} \rightarrow \text{Land)}}$$

Quick Tip

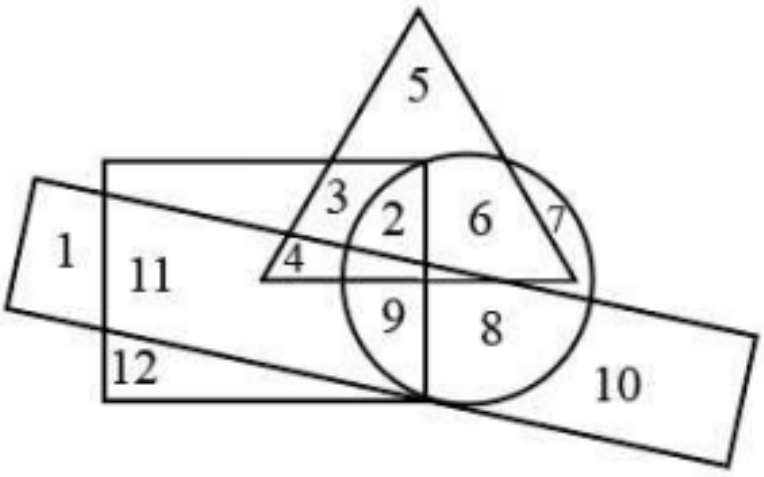
Remember: During the day, land heats faster than sea, creating a low-pressure area on land $\rightarrow$ sea breeze flows inland.

At night, the reverse happens (land cools faster), causing land breeze.

Instructions [64 - 65]

Answer the following questions based on the information given below.

In the diagram below, the circle stands for 'educated', square stands for 'hard working', triangle for 'urban people' and rectangle for 'honest'. The different regions of the diagram are numbered from 1 to 12. Study the diagram carefully and answer the questions



Q64. Uneducated urban hard-working and honest people are indicated by:

(A) 3

(B) 11

(C) 9

(D) 4

Correct Answer: (D) 4

Solution:

Step 1: Recall the figure meanings

- Circle $\rightarrow$ Educated

- Square $\rightarrow$ Hard working

- Triangle $\rightarrow$ Urban people

- Rectangle $\rightarrow$ Honest

Step 2: Analyze the requirement

We are asked for people who are:

- Uneducated $\rightarrow$ should be *outside the circle*.

- Urban $\rightarrow$ should be *inside the triangle*.

- Hard working $\rightarrow$ should be *inside the square*.

- Honest $\rightarrow$ should be *inside the rectangle*.

Step 3: Locate the correct region

Region 4 is:

- Inside triangle (urban)

- Inside square (hard-working)

- Inside rectangle (honest)

- Outside circle (uneducated)

Thus, region 4 perfectly matches all the given conditions.

$\boxed{4}$

Quick Tip

In Venn or mixed-shape diagrams, carefully eliminate areas step by step.

Always start with the ”exclusion condition” (like uneducated → outside circle), then narrow down with inclusion conditions.

Q65. Non-urban educated people who are neither hard-working nor honest are indicated by:

(A) 5

(B) 7

(C) 10

(D) 11

Correct Answer: (B) 7

Solution:

Step 1: Recall the diagram meaning

- Circle → Educated

- Triangle → Urban people

- Square → Hard working

- Rectangle → Honest

Step 2: Analyze the requirement

We want people who are:

- Educated → must be *inside the circle*.

- Non-urban → must be *outside the triangle*.

- Neither hard-working nor honest → must be *outside the square and outside the rectangle*.

Step 3: Locate the region in the diagram

Region 7 satisfies all conditions:

- It lies inside the circle (educated).

- It is outside the triangle (non-urban).

- It is outside both square and rectangle (neither hard-working nor honest).

Step 4: Final Answer

Thus, the required region is 7.

$$\boxed{7}$$

Quick Tip

In such problems, always begin with the ”inside” conditions (e.g., educated = inside circle), then apply exclusions step by step to pinpoint the exact region.

General Awareness

Q66. A. M. Turing award is considered as the Nobel Prize in the field of computers, given annually by Association for Computing Machinery co-sponsored by Intel and Google. Who was A. M. Turing in whose memory the award was instituted?

(A) First Chairman of Intel.
(B) A British Mathematician
(C) The legendary Dean of Stanford who revolutionized the computer education in the US
(D) An US cognitive scientist in the field of Artificial Intelligence (AI) and co-founder of Massachusetts Institute of Technology’s AI laboratory.

Correct Answer: (B) A British Mathematician

Solution:

Step 1: Understanding the context of the Turing Award

The A. M. Turing Award is considered the most prestigious award in computer science.
It is often referred to as the ”Nobel Prize of Computing.”
It is awarded annually by the ACM (Association for Computing Machinery) and co-sponsored by companies like Intel and Google.

Step 2: Who was Alan Mathison Turing?

Alan Turing (1912–1954) was a British mathematician, logician, and cryptanalyst.
He is considered the father of modern computer science and artificial intelligence.
During World War II, he played a key role at Bletchley Park in breaking the German Enigma code.
This work saved millions of lives and shortened the war significantly.

Step 3: Contributions to Computer Science

Turing proposed the concept of the ”Turing Machine,” an abstract mathematical model of computation.
This concept laid the foundation for modern digital computers.
He also developed the ”Turing Test,” a measure of machine intelligence, which is still used today in discussions of artificial intelligence.

Step 4: Elimination of wrong options

Option (A) is incorrect because the award is not named after Intel’s chairman.
Option (C) is incorrect because the reference to Stanford’s Dean is unrelated to the award.
Option (D) is incorrect because the MIT AI Lab was co-founded later by American scientists, not Turing.

Step 5: Final Answer

Thus, the award was instituted in memory of Alan Turing, the brilliant British mathematician.

Alan Turing was a British mathematician.

Quick Tip

Always connect the ”Turing Award” to Alan Turing, who is considered the father of computer science and AI.
He was British, a mathematician, and a wartime codebreaker, which makes option (B) correct.

Q67. Find the most accurate description of ‘Bt Cotton’.

(A) A variety of cotton that grows fast

(B) A genetically modified crop of cotton whose DNA has been altered by introducing an extra gene

(C) A variety of cotton that is immune to diseases

(D) A genetically modified crop of cotton whose DNA has been designed in the lab

Correct Answer: (B) A genetically modified crop of cotton whose DNA has been altered by introducing an extra gene

Solution:

Step 1: Understanding what Bt means

"Bt" stands for *Bacillus thuringiensis*, a soil bacterium.

This bacterium naturally produces a toxin that is harmful to certain insect pests, especially bollworms.

Scientists used biotechnology to transfer the Bt gene into cotton plants.

Step 2: The genetic modification process

When the Bt gene is inserted into cotton DNA, the plant itself starts producing the toxin.

This toxin kills harmful insects that feed on cotton leaves and bolls.

Thus, farmers face fewer pest attacks and can reduce chemical pesticide use.

Step 3: Eliminating wrong options

Option (A) is wrong because Bt cotton is not about faster growth but pest resistance.

Option (C) is misleading because Bt cotton is not immune to all diseases; it is specifically resistant to bollworms.

Option (D) is too vague, as it says "designed in the lab," which could mean many things. It doesn't capture the precise mechanism of gene insertion.

Step 4: Why option (B) is correct

The key idea is that Bt cotton's DNA has been altered by introducing an extra gene from Bt bacteria.

This is the most scientifically accurate description.

Step 5: Final Answer

Hence, Bt cotton is correctly described as a genetically modified crop whose DNA has been altered by adding an extra Bt gene.

Bt Cotton is a genetically modified crop with an extra Bt gene.

Quick Tip

Remember: Bt = Bacillus thuringiensis.

Whenever you see Bt Cotton, think of pest resistance against bollworms through genetic modification.

Q68. Las Vegas, US-based tour operator AMX Company has filed a trademark patent for which of the following Tagline?

(A) "God's Own Country"
(B) "Heaven on Earth"
(C) "Discover Incredible India"
(D) "Come Alive with India"

Correct Answer: (C) "Discover Incredible India"

Solution:

Step 1: Understanding the tagline

The tagline "Discover Incredible India" is part of the globally famous tourism promotion campaign launched by the Government of India in 2002.

This campaign aimed to highlight India's diverse culture, heritage, and natural beauty to attract international tourists.

Step 2: Why the controversy arose

AMX Company, a US-based tour operator in Las Vegas, attempted to file a trademark patent on this tagline.

This raised controversy because the slogan belongs to India's Ministry of Tourism and represents a national brand identity.

Step 3: Elimination of wrong options

(A) "God's Own Country" $\rightarrow$ This slogan belongs to Kerala Tourism, not India's national campaign.

(B) "Heaven on Earth" $\rightarrow$ This tagline is generally associated with Jammu Kashmir Tourism.

(D) "Come Alive with India" $\rightarrow$ This is not the official campaign tagline of India.

Step 4: Final Answer

The only correct answer is option (C), since "Discover Incredible India" is the one trademarked by AMX.

Discover Incredible India

Quick Tip

Always connect the tagline "Incredible India" to the Ministry of Tourism's flagship international campaign.

Other taglines like "God's Own Country" (Kerala) or "Heaven on Earth" (J&K) belong to states, not the central campaign.

Q69. Which out of the following holds the highest number of shares of ICICI Bank?

(A) Banks, Financial Institutes and Insurance

(B) FIIs

(C) General public

(D) Private Corporate Bodies

Correct Answer: (B) FIIs

Solution:

Step 1: Understanding ICICI Bank's shareholding structure

ICICI Bank is one of India's leading private sector banks.

Its ownership is distributed among several categories:

- Domestic institutions (banks, insurance companies, mutual funds).
- Foreign Institutional Investors (FIIs).
- The general public (retail investors).
- Private corporate bodies.

Step 2: Who are FIIs?

FIIs are Foreign Institutional Investors, which include overseas investment funds, pension funds, hedge funds, and other foreign entities that invest in Indian markets.

They often hold large stakes in major private banks because of their strong growth prospects.

Step 3: Elimination of wrong options

(A) Banks, Financial Institutions, and Insurance companies $\rightarrow$ They do hold significant shares but not the highest.

(C) General public $\rightarrow$ Retail investors usually hold smaller fractions compared to institutional investors.

(D) Private corporate bodies $\rightarrow$ They may hold some shares, but FIIs dominate in percentage.

Step 4: Why FIIs hold the maximum

FIIs prefer large-cap private banks like ICICI Bank because of their consistent profits, international expansion, and high liquidity in stock markets.

Thus, FIIs collectively hold the maximum number of shares.

Step 5: Final Answer

Therefore, the highest number of shares of ICICI Bank are held by FIIs.

FIIs hold the maximum shares of ICICI Bank.

Quick Tip

In most private sector banks in India, FIIs usually hold the largest stake, unlike public sector banks where the Government of India is the majority shareholder.

Q70. Indian Standard Time is based on the longitude of 82.5 degrees passing through which of the following places?

(A) Mirzapur, U.P

(B) Jabalpur, M.P

(C) Nagpur, Maharashtra

(D) Jaipur, Rajasthan

Correct Answer: (A) Mirzapur, U.P

Solution:

Step 1: Concept of Standard Time

India has a wide longitudinal extent of about 30 degrees from west to east.

If each state followed its local time based on its longitude, there would be a large difference (almost two hours) in time across the country.

To maintain uniformity, the Government of India adopted a standard meridian for the whole country.

Step 2: The Standard Meridian of India

The standard meridian chosen for India is 82.5° East longitude.

This longitude passes through Mirzapur in Uttar Pradesh, and hence Mirzapur is used as the reference point for Indian Standard Time (IST).

Step 3: Elimination of Wrong Options

(B) Jabalpur, M.P $\rightarrow$ Although close, IST is not based on Jabalpur.

(C) Nagpur, Maharashtra $\rightarrow$ Often mistakenly thought of as the reference, but wrong.

(D) Jaipur, Rajasthan $\rightarrow$ Not on 82.5°E longitude.

Step 4: Final Answer

Thus, IST is based on 82.5°E longitude, which passes through Mirzapur, U.P.

Mirzapur, Uttar Pradesh

Quick Tip

Remember: Indian Standard Time (IST) = GMT + 5 hours 30 minutes.

The 82.5°E longitude ensures a central reference for the entire country's time zone.

Q71. The Black Box of an aircraft is an important part as all the conversations and data are recorded therein. Although it is named black box, its color is not black. What is the color of the black box in a commercial airplane?

(A) Brown

(B) Yellow

(C) Red

(D) Orange

Correct Answer: (D) Orange

Solution:

Step 1: Understanding the Black Box

The "Black Box" is a flight data recorder (FDR) and cockpit voice recorder (CVR) installed in airplanes.

Its purpose is to record flight details, engine performance, and pilot conversations during the journey.

Step 2: Why is it called Black Box?

The term "Black Box" is actually a misnomer.

In reality, it is not black in color but painted bright orange.

The name originated historically, but the color was changed for practical reasons.

Step 3: Reason for Orange Color

The box is painted bright orange (also called "international orange") so that it can be easily located after a plane crash.

Search teams can quickly spot it among debris, water, or dense forests.

Step 4: Elimination of Wrong Options

(A) Brown → Not used, as it is not easily visible.

(B) Yellow → Sometimes assumed, but incorrect.

(C) Red → Incorrect, not used in aviation black boxes.

Step 5: Final Answer

Hence, the Black Box of a commercial aircraft is actually painted bright orange.

Orange

Quick Tip

The Black Box = Flight Data Recorder + Cockpit Voice Recorder.

Always remember, despite its name, its color is orange for visibility after accidents.

Q72. Find the person who plays the odd sport out of the following.

(A) Navaratilova

(B) Michael Phelps

(C) David Beckham

(D) Prakash Padukone

Correct Answer: (B) Michael Phelps

Solution:

Step 1: Identifying the sports of each person

(A) Martina Navratilova → She is a world-renowned Tennis player.

(B) Michael Phelps → He is a professional Swimmer, known for winning multiple Olympic gold medals.

(C) David Beckham → He is an internationally famous Football (Soccer) player.

(D) Prakash Padukone → He is a former World Champion in Badminton.

Step 2: Looking for the odd one out

Navratilova (Tennis), Beckham (Football), and Padukone (Badminton) are all players of land-based racket/field sports.
Michael Phelps, however, is associated with Swimming, which is an aquatic sport.
This makes him the odd one out in terms of the nature of the sport.

Step 3: Conclusion

Thus, Michael Phelps is the one who plays the odd sport compared to the others.

$$\boxed{\text{Michael Phelps}}$$

Quick Tip

When solving odd-one-out sports questions, always group players by the type of sport (racket games, field games, aquatic games, etc.) and identify the different one.

Q73. Sariska and Ranthambore are the reserves for which of the following animals?

(A) Lion
(B) Deer
(C) Tiger
(D) Bear

Correct Answer: (C) Tiger

Solution:

Step 1: Understanding Sariska and Ranthambore

Sariska Tiger Reserve is located in Alwar district of Rajasthan.
Ranthambore Tiger Reserve is located in Sawai Madhopur district of Rajasthan.
Both are part of India's Project Tiger initiative, which was launched in 1973 to conserve the population of tigers in India.

Step 2: Analyzing the options

(A) Lion → Asiatic lions are found in Gir National Park, Gujarat, not in Sariska or Ranthambore.
(B) Deer → Common animals in forests, but these reserves are specifically known for tiger conservation.
(C) Tiger → Correct, both Sariska and Ranthambore are famous Tiger reserves.
(D) Bear → Bears are present in Indian forests, but these reserves are not designated for them.

Step 3: Conclusion
Thus, Sariska and Ranthambore are reserves created especially for the protection of Tigers.

Tiger

Quick Tip

Always connect wildlife reserves with their flagship species.
For example: Gir → Asiatic Lion, Kaziranga → One-horned Rhinoceros, Periyar → Elephants, Sariska & Ranthambore → Tigers.

Q74. March, 2008 witnessed a turning point in the history of which of the following Himalayan Kingdoms when democracy was ushered in replacing monarchy?

(A) Bhutan
(B) Nepal
(C) Sikkim
(D) None of these

Correct Answer: (A) Bhutan

Solution:
Step 1: Understanding the historical context

Bhutan, a small Himalayan kingdom, was ruled under a monarchy for centuries. The monarchy played a central role in governance, culture, and political stability.

Step 2: The reforms of King Jigme Singye Wangchuck

The fourth King of Bhutan, Jigme Singye Wangchuck, took the historic decision to transition Bhutan into a constitutional monarchy and parliamentary democracy. He voluntarily abdicated the throne in favor of his son, Jigme Khesar Namgyel Wangchuck, and announced democratic reforms.

Step 3: March 2008 Elections

In March 2008, Bhutan conducted its first democratic elections, officially replacing the absolute monarchy with a constitutional monarchy. The event is considered a landmark in Bhutan's history, as it peacefully transitioned into democracy without any violent revolution.

Step 4: Conclusion

Thus, the Himalayan kingdom where democracy was ushered in March 2008, replacing monarchy, is Bhutan.

Bhutan

Quick Tip

Always connect dates of democratic transitions in South Asian nations: Nepal abolished monarchy in 2008 but officially declared itself a republic in May, while Bhutan introduced parliamentary democracy in March 2008.

Q75. Neil Armstrong brought back a rock from the moon. On earth:

(A) The mass of the rock will change

(B) The weight of the rock will change

(C) Mass and weight will change

(D) None of the above

Correct Answer: (B) The weight of the rock will change

Solution:

Step 1: Understanding mass and weight

- **Mass:** It is the measure of the amount of matter in an object. Mass is constant everywhere in the universe.

- **Weight:** It is the force exerted on the object due to gravity and is given by:

$$W = m \times g$$

where m is the mass and g is the gravitational acceleration.

Step 2: Comparing moon and earth

On the moon, gravity is weaker than on earth. Specifically, the acceleration due to gravity on the moon is about $\frac{1}{6}$ of that on earth.

Thus: - Mass of the rock = same on both the moon and earth.

- Weight of the rock = greater on earth because gravity is stronger.

Step 3: Conclusion

Therefore, when Neil Armstrong brings the rock back from the moon, its **mass will remain the same** but its **weight will increase**. Hence, the correct answer is that the **weight of the rock will change**.

Weight of the rock will change

Quick Tip

Remember: **Mass is constant everywhere**, but **Weight depends on gravity**. On earth, objects weigh more compared to the moon due to stronger gravity.

Q76. Milk, Cheese and Eggs are the source of

(A) Vitamin C & A

(B) Vitamin A & D

(C) Vitamin C & D

(D) Vitamin B & C

Correct Answer: (B) Vitamin A & D

Solution:

Step 1: Nutritional value of milk, cheese, and eggs

- Milk is a rich source of calcium, protein, and also fat-soluble vitamins, particularly Vitamin A and Vitamin D.
- Cheese, being a dairy product, also provides Vitamin A and Vitamin D along with calcium.
- Eggs are considered a complete food, and their yolk contains both Vitamin A and Vitamin D, which are crucial for vision, immunity, and bone health.

Step 2: Elimination of incorrect options

- Vitamin C is primarily found in citrus fruits, not in milk or cheese. Hence options (A) and (C) are incorrect.
- Vitamin B complex is largely present in cereals, legumes, and meat, but not in high concentration in milk or cheese. Hence option (D) is also incorrect.

Step 3: Conclusion

Therefore, the correct answer is that milk, cheese, and eggs are good sources of Vitamin A and Vitamin D.

Vitamin A and Vitamin D

Quick Tip

Remember: Dairy products and eggs are good sources of **fat-soluble vitamins** (A, D, E, K), whereas fruits and vegetables are good sources of **Vitamin C and B-complex**.

Q77. In August 2008, India's longest runway for passenger aircraft was commissioned in:

(A) Mumbai

(B) New Delhi

(C) Hyderabad

(D) Bangalore

Correct Answer: (B) New Delhi

Solution:

Step 1: Background

Runways are critical infrastructure for airports, especially for handling large aircraft like the Airbus A380. Longer runways are necessary to accommodate take-off and landing of wide-bodied aircraft.

Step 2: Commissioning of the runway

In August 2008, the Indira Gandhi International Airport (IGI) in New Delhi commissioned a new runway, 11R/29L, which was approximately 4,430 meters (about 4.4 km) long. This made it India's longest runway at that time.

Step 3: Importance

This long runway was designed to handle modern, heavy, and large aircraft efficiently, thereby strengthening New Delhi as an international aviation hub.

Step 4: Conclusion

Thus, the correct location where India's longest runway was commissioned in August 2008 is New Delhi.

New Delhi

Quick Tip

Remember: New Delhi IGI Airport has one of the longest runways in Asia, suitable for the Airbus A380 and other wide-bodied jets.

Q78. The first ever public hearing in India, almost like a referendum, on the fate of SEZ was held during the month of September 2008 in / at:

(A) Verna IT/ITeS SEZ in Goa

(B) Haryana for Reliance Haryana SEZ

(C) Pen, Maharashtra

(D) POSCO India, Steel SEZ Phase II, Orissa

Correct Answer: (C) Pen, Maharashtra

Solution:

Step 1: Understanding SEZs in India

Special Economic Zones (SEZs) were established in India to promote export-oriented industries by providing tax benefits and infrastructural facilities. However, many SEZ projects faced opposition due to issues of land acquisition, displacement of farmers, and environmental concerns.

Step 2: Public hearing at Pen, Maharashtra

In September 2008, a landmark event occurred at Pen in Maharashtra, where local villagers were given the opportunity to voice their opinions regarding the setting up of a Special Economic Zone. This hearing was significant because it reflected democratic consultation in developmental projects.

Step 3: Significance of the event

It was the first time in India that a public hearing, almost like a referendum, was organized to decide the fate of an SEZ. This demonstrated how people's voices could influence decisions on large-scale industrial projects.

Step 4: Conclusion

Thus, the first such public hearing in India regarding SEZ was held in Pen, Maharashtra.

Pen, Maharashtra

Quick Tip

SEZ projects often face protests due to displacement of locals. The Pen case became a symbol of people's participation in developmental decisions.

Q79. Al Ahram is

(A) A University in Damascus

(B) A Newspaper in Cairo

(C) A Mosque in Riyadh

(D) A Small mountain range in Jordan

Correct Answer: (B) A Newspaper in Cairo

Solution:

Step 1: About Al Ahram

Al Ahram is one of the oldest and most widely circulated newspapers in the Arab world. It was founded in 1875.

Step 2: Location

Its headquarters is located in Cairo, Egypt, and it plays a major role in Arab journalism.

Step 3: Elimination

- Not a university (A).

- Not a mosque (C).

- Not a mountain range (D).

Step 4: Conclusion

Hence, Al Ahram is correctly identified as a newspaper in Cairo.

A Newspaper in Cairo

Quick Tip

Al Ahram is sometimes referred to as the ”dean of the Arab press”.

Q80. India’s largest and first multi-national pharmaceutical giant Ranbaxy is being bought over by .....

(A) Matrix Pharma

(B) GVK Bio-sciences

(C) Merck

(D) None of these

Correct Answer: (D) None of these

Solution:

Step 1: About Ranbaxy

Ranbaxy Laboratories was India's first major multinational pharmaceutical company, founded in 1961.

Step 2: Acquisition history

- In 2008, Japan's Daiichi Sankyo acquired a majority stake in Ranbaxy.

- Later, in 2014, Sun Pharma acquired Ranbaxy from Daiichi Sankyo in an all-stock deal.

Step 3: Elimination

- Matrix Pharma, GVK Bio-sciences, and Merck did not acquire Ranbaxy.

Step 4: Conclusion

Therefore, the correct answer is "None of these", since the actual acquirer was Daiichi Sankyo (and later Sun Pharma).

None of these

Quick Tip

Ranbaxy was first acquired by Daiichi Sankyo (Japan) in 2008, and later merged with Sun Pharma in 2014.

Q81. Find the odd product out of the following:

(A) Pamper

(B) Dove

(C) Tide

(D) Pantene

Correct Answer: (B) Dove

Solution:

Step 1: Brand ownership

- Pamper, Tide, and Pantene are all brands owned by Procter & Gamble (P&G).

- Dove is owned by Unilever.

Step 2: Elimination logic

Since Dove is the only brand that does not belong to P&G, it is the odd one out.

Step 3: Conclusion

Thus, the odd product out is Dove.

$$\boxed{\text{Dove}}$$

Quick Tip

For brand-based odd-one-out questions, always check the parent company or product category.

Q82. In the internet sphere, 'Opera' is the name of a :

(A) Web conference site

(B) Web advertising firm

(C) Software for webinars

(D) Web browser

Correct Answer: (D) Web browser

Solution:

Step 1: Identification of Opera

Opera is a free, multi-platform web browser developed by Opera Software. It is used for accessing websites, streaming, downloads, and other browsing purposes.

Step 2: Elimination

- It is not a web conference site (A).

- It is not a web advertising firm (B).

- It is not software for webinars (C).

Step 3: Conclusion

Hence, the correct answer is “Web browser”.

Web Browser

Quick Tip

Opera browser is known for built-in ad-blockers, free VPN service, and data-saving features.

Q83. Which of the following pair is not correct?

(A) Shahid Parvez: Sitar

(B) Rashid Khan: Vocal Music

(C) Ayaan Ali Khan: Sarod

(D) Romu Muzumdar: Guitar

Correct Answer: (D) Romu Muzumdar: Guitar

Solution:

Step 1: Verification of pairs

- Shahid Parvez is indeed a renowned sitar player.

- Rashid Khan is a famous Hindustani classical vocalist.

- Ayaan Ali Khan is a noted sarod player and son of Ustad Amjad Ali Khan.

Step 2: Checking the odd one

Romu Muzumdar is not recognized as a famous guitar player in Indian classical or contemporary music. Hence, this pair is incorrect.

Step 3: Conclusion

Thus, the incorrect pair is “Romu Muzumdar: Guitar”.

Romu Muzumdar: Guitar

Quick Tip

In such questions, three names usually match with well-known Indian classical musicians, and the odd one is fabricated or irrelevant.

Q84. At what frequency SENSEX calculation is carried out?

(A) Every half an hour

(B) Every hour

(C) Real time

(D) 6 times a day

Correct Answer: (C) Real time

Solution:

Step 1: About SENSEX

SENSEX (Sensitive Index) is the benchmark stock index of the Bombay Stock Exchange (BSE), comprising 30 major companies.

Step 2: Frequency of calculation

The value of SENSEX is updated continuously in real time as the stock prices of its constituent companies fluctuate during market hours.

Step 3: Elimination

- Not every half an hour (A).
- Not every hour (B).
- Not 6 times a day (D).

Step 4: Conclusion

The SENSEX is calculated on a real-time basis during trading hours.

Real time

Quick Tip

Stock market indices like SENSEX and NIFTY are calculated in real time to reflect immediate market fluctuations.

Q85. The second largest manufacturer of CD's, DVD's and other optical media in the world is:

(A) Sony
(B) Intel
(C) Philips
(D) Moser Baer

Correct Answer: (D) Moser Baer

Solution:

Step 1: Understanding the industry of optical media

CDs (Compact Discs) and DVDs (Digital Versatile Discs) were the main forms of optical storage media used for decades. Many companies around the world entered into this sector due to the increasing demand for music, movies, and data storage.

Step 2: Recognition of Indian company Moser Baer

Moser Baer India Ltd., based in New Delhi, became one of the largest global manufacturers of optical storage media. It was the world's second-largest producer after global giants like Sony and Philips, but among Asian manufacturers, it held a dominant position.

Step 3: Elimination of incorrect options

- Sony (A) is indeed a big name in electronics, but not the second largest optical media manufacturer.
- Intel (B) is mainly focused on semiconductors and processors, not optical discs.
- Philips (C) was an innovator in CD/DVD technology but not second in manufacturing volume.

Step 4: Final conclusion

Therefore, the correct answer is Moser Baer.

Moser Baer

Quick Tip

Remember: Moser Baer was an Indian success story in the field of optical media manufacturing, exporting worldwide and competing with giants like Sony and Philips.

Q86. Which of the following is a legal right and not a fundamental right?

(A) Right to Liberty of thought and expression

(B) Right against exploitation

(C) Right to property

(D) Right to practice religion

Correct Answer: (C) Right to property

Solution:

Step 1: Understanding Fundamental Rights

Fundamental rights are enshrined in Part III of the Indian Constitution. They include rights such as freedom of speech, right against exploitation, right to freedom of religion, etc. These rights are guaranteed by the Constitution and protected by the judiciary.

Step 2: Position of Right to Property originally

Initially, the Right to Property (Article 31) was also a Fundamental Right. However, through the 44th Amendment of 1978, it was removed from the list of Fundamental Rights.

Step 3: Current status of Right to Property

Today, the Right to Property is only a legal right, given under Article 300A of the Indian Constitution. It can be enforced through ordinary legal remedies, but it does not enjoy the same constitutional protection as fundamental rights.

Step 4: Elimination

- (A) Right to liberty of thought and expression $\rightarrow$ Fundamental Right under Article 19.
- (B) Right against exploitation $\rightarrow$ Fundamental Right under Articles 23 and 24.

- (D) Right to practice religion → Fundamental Right under Article 25.

Step 5: Conclusion

Thus, the only legal right in the options is Right to Property.

$$\boxed{\text{Right to Property}}$$

Quick Tip

Key takeaway: The Right to Property was downgraded from a Fundamental Right to a Legal Right by the 44th Amendment, 1978.

Q87. The term Net Shot is associated with

(A) Badminton

(B) Tennis

(C) Table Tennis

(D) Volley Ball

Correct Answer: (A) Badminton

Solution:

Step 1: Definition of Net Shot

A net shot in sports refers to a delicate stroke played close to the net to make the shuttle fall just over the net on the opponent's side. It is commonly used in badminton to force the opponent into a weak return.

Step 2: Association with Badminton

In badminton, a net shot is a soft stroke aimed to keep the shuttle low and near the net. It requires precision and control, and it is a key tactic in rallies to gain an advantage.

Step 3: Elimination of other sports

- Tennis (B): Has net play and drop shots, but "net shot" is not a recognized term.

- Table Tennis (C): Involves spins and smashes, but not called "net shot."

- Volleyball (D): Has net play like smashes and blocks, but again "net shot" is not a term.

Step 4: Conclusion

Thus, the correct sport for the term "Net Shot" is Badminton.

$$\boxed{\text{Badminton}}$$

Quick Tip

In badminton, net shots are played with finesse and are essential in both singles and doubles matches to trap the opponent into lifting the shuttle.

Q88. What is Dry Ice?

(A) Solidified Carbon Dioxide

(B) Transparent plastic decoy which looks like ice

(C) Sulfur dioxide at -57 degree Celsius

(D) Chemically treated ice to make it dry

Correct Answer: (A) Solidified Carbon Dioxide

Solution:

Step 1: Definition of Dry Ice

Dry ice is the solid form of carbon dioxide (CO_2), which is formed when carbon dioxide gas is cooled to very low temperatures and pressurized to solidify. It is called "dry" because it does not melt into liquid water but instead sublimates directly into carbon dioxide gas.

Step 2: Properties of Dry Ice

- Temperature of dry ice is approximately $-78.5^{\circ}C$.

- It is commonly used for refrigeration, storage of biological samples, and in special effects like fog creation.

- Because of sublimation, it leaves no liquid residue unlike normal water ice.

Step 3: Eliminating wrong options

- (B) Transparent plastic decoy is incorrect — dry ice is not plastic.

- (C) Sulfur dioxide at $-57^{\circ}C$ is incorrect because dry ice is carbon dioxide, not sulfur dioxide.

- (D) Chemically treated ice is wrong because no chemical treatment of water forms dry ice.

Step 4: Final Answer

Thus, dry ice is solid carbon dioxide.

Solidified Carbon Dioxide

Quick Tip

Always remember: dry ice sublimates (solid $\rightarrow$ gas), which is why it is widely used in shipping frozen goods.

Q89. The rail-based mass rapid transit system in Mumbai has been awarded to a consortium of companies led by:

(A) Reliance Infrastructure

(B) Reliance Industries

(C) GMR Infrastructure

(D) Lanco Infrastructure

Correct Answer: (A) Reliance Infrastructure

Solution:

Step 1: Understanding the project

The Mumbai Metro project, one of India's largest urban transport initiatives, was undertaken to provide rapid, efficient, and modern public transport to reduce traffic congestion in Mumbai.

Step 2: Role of Reliance Infrastructure

Reliance Infrastructure Ltd., part of the Anil Dhirubhai Ambani Group, was the lead company in the consortium awarded the first phase of the project (Versova–Andheri–Ghatkopar corridor).

Step 3: Elimination of other options

- (B) Reliance Industries: Focused more on oil, petrochemicals, and retail; not involved in leading this metro project.

- (C) GMR Infrastructure: Known for airports (like Delhi, Hyderabad), not Mumbai Metro.

- (D) Lanco Infrastructure: Primarily engaged in power projects, not the metro.

Step 4: Final Answer

Hence, the correct answer is Reliance Infrastructure.

Reliance Infrastructure

Quick Tip

Mumbai Metro Phase-1 was India's first public-private partnership (PPP) metro project, led by Reliance Infrastructure.

Q90. If bilirubin is high in a human body, which organ is most affected?

(A) Pancreas

(B) Liver

(C) Kidney

(D) Large Intestine

Correct Answer: (B) Liver

Solution:

Step 1: Understanding bilirubin

Bilirubin is a yellowish substance formed during the normal breakdown of red blood cells. It passes through the liver and is eventually excreted in bile.

Step 2: Connection with liver function

The liver processes bilirubin and helps remove it from the body. High levels of bilirubin indicate that the liver is not functioning properly, which can lead to jaundice (yellowing of skin and eyes).

Step 3: Causes of high bilirubin

- Liver diseases such as hepatitis and cirrhosis.

- Bile duct obstruction.

- Increased breakdown of red blood cells.

Step 4: Elimination of other organs

- Pancreas (A): Related to insulin and digestion, not bilirubin processing.

- Kidney (C): Filters blood, but not directly responsible for bilirubin metabolism.

- Large Intestine (D): Involved in digestion, not bilirubin processing.

Step 5: Final Answer

Therefore, high bilirubin levels are directly linked to liver problems.

Liver

Quick Tip

High bilirubin levels are a diagnostic marker for jaundice and indicate liver malfunction.

Q91. Who of the following is one of the most celebrated Photo Journalists in India?

(A) Gautam Rajadhyaksha

(B) Raghu Rai

(C) Anjii Reddy

(D) Sudhir Das

Correct Answer: (B) Raghu Rai

Solution:

Step 1: Understanding the context

Photojournalism is the practice of telling news stories through photographs. In India, several photographers have gained recognition for their contributions, but one stands out prominently.

Step 2: About Raghu Rai

Raghu Rai is one of India's most renowned photojournalists. He joined *The Statesman* newspaper in 1965 and later became the picture editor of *Sunday* and *India Today*. In 1977, he was nominated by Henri Cartier-Bresson to join the prestigious Magnum Photos agency.

Rai's works cover diverse aspects of Indian life, politics, and culture. His photo essays on Indira Gandhi, Mother Teresa, Bhopal Gas Tragedy, and India's daily life are iconic.

Step 3: Eliminating incorrect options

- (A) Gautam Rajadhyaksha: Famous celebrity portrait photographer, not primarily a photojournalist.

- (C) Anjii Reddy: Known as an industrialist and founder of Dr. Reddy's Laboratories, not connected to photojournalism.

- (D) Sudhir Das: Not among the recognized names in Indian photojournalism at the national or international level.

Step 4: Final Answer

Hence, Raghu Rai is the most celebrated Indian photojournalist.

Raghu Rai

Quick Tip

Always distinguish between portrait photographers and photojournalists — photojournalism focuses on real-life reporting and documentation.

Q92. Inflation implies

(A) Rise in budget deficit

(B) Rise in general price index

(C) Rise in price of consumer goods

(D) Rise in money supply

Correct Answer: (B) Rise in general price index

Solution:

Step 1: Definition of inflation

Inflation refers to a sustained increase in the overall level of prices of goods and services in an economy over a period of time. It reduces the purchasing power of money.

Step 2: Why general price index?

Economists measure inflation using price indices such as the Wholesale Price Index (WPI) and Consumer Price Index (CPI). These indices track the weighted average of prices of a basket of goods and services. Thus, inflation implies a rise in the general price index.

Step 3: Eliminating wrong options

- (A) Rise in budget deficit: Refers to government spending exceeding revenue, not inflation.
- (C) Rise in price of consumer goods: Only a part of inflation, not the complete concept.
- (D) Rise in money supply: One of the causes of inflation (monetary inflation), but not its definition.

Step 4: Final Answer

Inflation is best defined as a rise in the general price index.

Rise in general price index

Quick Tip

Remember: Inflation Price rise of one or two goods; it must be a sustained and widespread increase in overall prices.

Q93. The India-US Nuclear Deal is called 123 Agreement. What does 123 denote?

(A) The deal governed by the clause number 123 of International Atomic Energy Agency, in the context of peaceful use of atomic energy.
(B) This number denotes a cluster of clauses of Hyde Act of US Government
(C) This is the simple number related to chain reaction for creation of atomic energy.
(D) Section 123 of the US Atomic Energy Act.

Correct Answer: (D) Section 123 of the US Atomic Energy Act

Solution:

Step 1: Background of the 123 Agreement

The India-US Civil Nuclear Agreement, commonly called the 123 Agreement, was signed in

2008. It enabled India to engage in civilian nuclear trade and cooperation with the US despite not being a signatory to the Nuclear Non-Proliferation Treaty (NPT).

Step 2: Meaning of "123"

The name "123 Agreement" comes from Section 123 of the US Atomic Energy Act (1954), which lays down the rules for nuclear cooperation with other nations. Under this section, the US can cooperate with another country only if an agreement is made that meets certain conditions regarding peaceful use of nuclear energy.

Step 3: Eliminating incorrect options

- (A) Wrong, because it is not linked with the IAEA clause.
- (B) Wrong, Hyde Act is different; it provided US domestic law guidance but not the numbering.
- (C) Wrong, chain reaction is unrelated to numbering.

Step 4: Final Answer

Therefore, "123" denotes Section 123 of the US Atomic Energy Act.

Section 123 of the US Atomic Energy Act

Quick Tip

Always link "123 Agreement" with Section 123 of the US Atomic Energy Act — it governs international nuclear cooperation.

Q94. In the United States of America, the President is elected

(A) By the electorate
(B) By the electoral college
(C) By the two national political parties
(D) By the U.S. congress

Correct Answer: (B) By the electoral college

Solution:

Step 1: Understanding the U.S. election system

The United States follows an indirect election process for its President. While citizens vote during the Presidential election, the final election is conducted through an Electoral College system established by the U.S. Constitution.

Step 2: How the Electoral College works

- Each state is allocated a number of electors equal to the total number of its Senators and Representatives in Congress.
- Voters in each state cast their ballots for a Presidential candidate, but technically, they are voting for a slate of electors pledged to that candidate.
- These electors then formally cast votes to elect the President and Vice-President.
- A total of 538 electors exist, and a majority of 270 electoral votes is required to win the Presidency.

Step 3: Eliminating incorrect options

- (A) The electorate (citizens) directly votes, but the final legal election is by electors.
- (C) Political parties only nominate candidates, they don't elect the President.
- (D) The U.S. Congress has no role in directly electing the President (except in tie cases under the 12th Amendment).

Step 4: Final Answer

Thus, the President of the United States is elected by the Electoral College.

By the electoral college

Quick Tip

Remember: U.S. citizens vote for electors, not directly for the President. The Electoral College makes the final decision.

Q95. The term "Uruguay Round" is associated with an important world organization. Which one?

(A) UNDP

(B) GATT

(C) WTO

(D) World Bank

Correct Answer: (B) GATT

Solution:

Step 1: Background of Uruguay Round

The Uruguay Round was the 8th round of multilateral trade negotiations under the General Agreement on Tariffs and Trade (GATT). It was held from 1986 to 1994 and was one of the most comprehensive trade negotiations ever undertaken.

Step 2: Key achievements of Uruguay Round

- Reduced tariffs on industrial goods.
- Extended trade rules to cover services, intellectual property rights, and agriculture.
- Resulted in the creation of the World Trade Organization (WTO) in 1995.

Step 3: Eliminating incorrect options

- (A) UNDP deals with development programs, not trade rounds.
- (C) WTO was created as an outcome of the Uruguay Round, but the negotiations themselves were under GATT.
- (D) World Bank deals with loans and development, not trade negotiations.

Step 4: Final Answer

Hence, Uruguay Round is associated with GATT.

$$\boxed{\text{GATT}}$$

Quick Tip

Always remember: Uruguay Round (1986–1994) led to the establishment of WTO in 1995.

Q96. Siebel is a software firm that is now taken over by:

(A) IBM

(B) Accenture

(C) Gartner

(D) Oracle

Correct Answer: (D) Oracle

Solution:

Step 1: About Siebel Systems

Siebel Systems was a software company founded in 1993, known for its Customer Relationship Management (CRM) solutions. It became one of the leading CRM providers worldwide in the 1990s and early 2000s.

Step 2: Oracle acquisition

In 2005, Oracle Corporation acquired Siebel Systems in a deal valued at around $5.8 billion. This acquisition was part of Oracle's strategy to expand its enterprise software solutions, especially in CRM to compete with rivals like SAP and Salesforce.

Step 3: Eliminating incorrect options

- (A) IBM: A major IT company but did not acquire Siebel.
- (B) Accenture: A consulting and outsourcing firm, not in software acquisitions like this.
- (C) Gartner: A research and advisory firm, not a software vendor.

Step 4: Final Answer

Thus, Siebel Systems was acquired by Oracle.

Oracle

Quick Tip

Tip: Remember Siebel = CRM solutions, and Oracle acquired it in 2005 to strengthen its software business.

Q97. First Indian motion picture insured by a General Insurance company is

(A) Hum Apke Hain Kaun

(B) Taal

(C) Dil Se

(D) Ashoka

Correct Answer: (B) Taal

Solution:

Step 1: Concept of film insurance in India

In the Indian film industry, movie production involves significant financial risk due to possible accidents, production delays, actor unavailability, or natural calamities. To reduce such risks, film producers started opting for insurance coverage.

Step 2: First insured film

The first Indian film insured by a General Insurance company was **Taal** (1999), directed by Subhash Ghai. It was insured by United India Insurance Company. This marked a major milestone in the financial management of Bollywood films.

Step 3: Eliminating incorrect options

- (A) Hum Apke Hain Kaun (1994) was a blockbuster but not insured.
- (C) Dil Se (1998) was also high-budget but not the first insured.
- (D) Ashoka (2001) came later, after the practice had already started.

Step 4: Final Answer

Thus, the first insured movie was Taal.

Taal

Quick Tip

Film insurance became common after the success of **Taal**, ensuring protection against unforeseen losses.

Q98. India's first coalition government in New Delhi was formed under the leadership of:

(A) V. P. Singh

(B) P. V. Narasimha Rao

(C) Morarji Desai

(D) Atal Behari Vajpayee

Correct Answer: (C) Morarji Desai

Solution:

Step 1: Background of coalition politics in India

Until 1977, India was largely governed by single-party majorities, mainly the Congress party. The first break came after the Emergency (1975–77), when multiple opposition parties united against Congress.

Step 2: The first coalition government

In 1977, the Janata Party, a coalition of several opposition groups (Bharatiya Jana Sangh, Socialist Party, Congress (O), etc.), came to power. **Morarji Desai** became India's first Prime Minister leading a non-Congress and coalition government.

Step 3: Eliminating incorrect options

- (A) V. P. Singh led a coalition in 1989, but he wasn't the first.
- (B) P. V. Narasimha Rao (1991) led a minority Congress government, not a coalition.
- (D) Atal Behari Vajpayee led a coalition in 1998 (NDA), much later.

Step 4: Final Answer

Therefore, the first coalition government was formed under Morarji Desai.

Morarji Desai

Quick Tip

The Janata Party government (1977–79) under Morarji Desai was India's first coalition government at the Centre.

Q99. WiMax stands for:

(A) Wireless internet for microwave access

(B) Wireless inter-operability for microwave access

(C) Worldwide internet for microwave access

(D) Worldwide inter-operability for microwave access

Correct Answer: (D) Worldwide inter-operability for microwave access

Solution:

Step 1: Meaning of WiMax

WiMax is a telecommunication standard designed to provide wireless data over long distances. The full form of WiMax is **Worldwide Inter-operability for Microwave Access**.

Step 2: Technical details

- WiMax is based on the IEEE 802.16 standard.
- It offers broadband wireless access up to 30 miles for fixed stations and 3–10 miles for mobile stations.
- It provides an alternative to cable broadband or DSL lines, especially in rural and underserved areas.

Step 3: Eliminating incorrect options

- (A) and (C) are incorrect because WiMax is not just ”internet for microwave access”; it emphasizes interoperability.
- (B) uses ”Wireless” instead of ”Worldwide,” which makes it incorrect.

Step 4: Final Answer

Thus, the correct expansion of WiMax is Worldwide Inter-operability for Microwave Access.

Worldwide Inter-operability for Microwave Access

Quick Tip

Remember: Wi-Fi is for short-range wireless, while WiMax is designed for long-range broadband access.

Q100. El Nino is

(A) A Sea storm

(B) A warm ocean current

(C) A tropical disturbance

(D) Another name of typhoon

Correct Answer: (B) A warm ocean current

Solution:

Step 1: Understanding El Nino

El Nino is a **climatic phenomenon** characterized by the abnormal warming of surface ocean waters in the central and eastern Pacific Ocean, particularly near the equator. It occurs irregularly every 2 to 7 years and has worldwide climatic impacts.

Step 2: Why it is a warm ocean current

During El Nino events, trade winds weaken, allowing warm waters from the western Pacific to flow eastward toward South America. This results in a **warm ocean current** that alters normal weather patterns.

Step 3: Effects of El Nino

- Causes heavy rainfall and flooding in South America.
- Leads to droughts in Australia, Indonesia, and parts of India.
- Affects monsoons and agricultural output.
- Influences global climate, including cyclones and fish migration.

Step 4: Eliminating incorrect options

- (A) A sea storm $\rightarrow$ Incorrect, El Nino is not a storm.
- (C) A tropical disturbance $\rightarrow$ Incorrect, disturbances are short-lived while El Nino is a long-term ocean current phenomenon.
- (D) Another name of typhoon $\rightarrow$ Incorrect, a typhoon is a storm, not an ocean current.

Step 5: Final Answer

Hence, El Nino refers to a warm ocean current in the Pacific Ocean that disrupts global climate patterns.

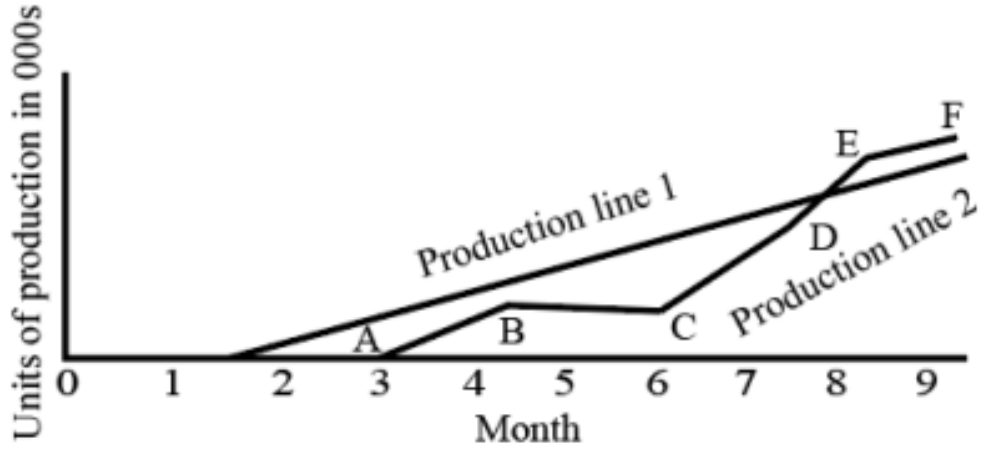
$$\boxed{\text{A warm ocean current}}$$

Quick Tip

El Nino is often linked with weak monsoons in India and has a major impact on agriculture and economy worldwide.

Quantitative Aptitude

Q1. A factory is to commission two production lines. Production line 1 is to use existing technology. Production line 2 is to use the latest innovation in technology and, while promising to achieve considerable advances in productivity, it will take longer to start and is likely to experience teething problems. Graph indicates the productive record of each product line. Refer to the graph to answer the following:



A. Can the duration of reported breakdown be established?

B. Can the loss of production be quantified?

(A) Both questions A and B can be answered

(B) Only A question can be answered

(C) Only B question can be answered

(D) Neither question can be answered

Correct Answer: (B) Only A question can be answered

Solution:

Step 1: Observing Production Line 1 and Line 2

From the graph, Production Line 1 begins earlier (around month 2) and shows a steady increase in productivity. Production Line 2 starts late (around month 4) and has a stagnant phase between months 4 and 6 before it starts to rise again.

Step 2: Identifying the breakdown duration

In the case of Production Line 2, we see a **flat line (BC) from months 4 to 6**, which indicates a breakdown period or stagnation in production. Hence, the duration of the breakdown can be established as **2 months**. This answers **Question A**.

Step 3: Analyzing the possibility of quantifying production loss

To quantify production loss, we need a benchmark of how much production was expected during the breakdown period. However, the graph does not provide the expected productivity trend of Production Line 2 in the absence of a breakdown. Without that reference, we cannot calculate the exact production loss. Hence, **Question B cannot be answered**.

Step 4: Eliminating incorrect options

- (A) Both questions A and B can be answered $\rightarrow$ Incorrect, because production loss cannot be calculated.
- (C) Only B question can be answered $\rightarrow$ Incorrect, as only A is answerable.
- (D) Neither question can be answered $\rightarrow$ Incorrect, since breakdown duration can clearly be seen.

Step 5: Final Answer

Thus, the correct option is (B), as only the breakdown duration (Question A) can be answered from the given data.

Only A question can be answered

Quick Tip

In graph-based reasoning, **flat lines indicate stagnation or breakdown**, while slopes indicate productivity growth. Loss quantification requires an expected trend line, which is not always available.

Q2. From a book, a number of consecutive pages are missing. The sum of the page numbers

of these pages is 9808. Which pages are missing?

(A) The page 9808 is missing

(B) The pages 291 up to 322 are missing

(C) The pages 291 up to and including 322 are missing

(D) Either a or c

Correct Answer: (C) The pages 291 up to and including 322 are missing

Solution:

Approach 1: Use the arithmetic–series formula

Let the first missing page be p and the number of missing pages be n.

Because the pages are *consecutive*, their sum is an arithmetic–series sum:

$$S \;=\; \frac{n}{2}\big(2p + (n-1)\big) \quad \text{with } S = 9808.$$

Thus,

$$9808 \;=\; \frac{n}{2}\big(2p + n - 1\big) \;\Longrightarrow\; 19616 \;=\; n\big(2p + n - 1\big).$$

We need positive integers n and p satisfying this factorization.

Try $n = 32$ (a convenient factor of 19616, since $19616/32 = 613$).

Then $2p + n - 1 = 613 \Rightarrow 2p + 31 = 613 \Rightarrow 2p = 582 \Rightarrow p = 291$.

Hence the missing pages are from $p = 291$ and there are $n = 32$ pages, i.e., $291, 292, \ldots, 322$.

Quick check of the sum:

$$\text{Sum} \;=\; \frac{(291 + 322) \times 32}{2} \;=\; \frac{613 \times 32}{2} \;=\; 613 \times 16 \;=\; 9808 \;\checkmark$$

Approach 2: Verify each option directly (elimination)

Option (A): “The page 9808 is missing.”

This would mean $n = 1$ and $p = 9808$.

But the question states “a number of consecutive pages are missing,” which implies more than one page, so a single page does not satisfy the wording.

Also, typical books do not reach such page numbers; regardless, $n = 1$ contradicts the intent.

Option (B): “The pages 291 up to 322 are missing.”

This phrase commonly means $291, 292, \ldots, 321$ (i.e., up to but *not including* 322).

Compute the sum: $\frac{(291+321)\times 31}{2} = \frac{612\times 31}{2} = 306 \times 31 = 9486 \neq 9808$.

So (B) is not correct.

Option (C): “The pages 291 up to *and including* 322 are missing.”

This is exactly the set $291, 292, \ldots, 322$ with $n = 32$.

We already computed $\frac{(291+322)\times 32}{2} = 9808$.

So (C) matches perfectly.

Option (D): “Either a or c.”

Since (A) is invalid (see above), (D) cannot be true.

Conclusion

Only option (C) yields a consecutive block whose sum is exactly 9808, namely 291 through 322 inclusive.

Pages 291 to 322 (inclusive) are missing.

Quick Tip

For sums of *consecutive* integers, set $S = \frac{n}{2}(2p + n - 1)$ and use factorization of $2S$ to spot an integer n.

When options say “up to” versus “up to and including,” always check whether the endpoint is counted.

Q3. In the following series find the one number that is wrong: 2, 3, 13, 37, 86, 167, 288

(A) 3

(B) 13

(C) 37

(D) 86

Correct Answer: (B) 13

Solution:

Step 1: Compute consecutive differences to reveal the pattern

Take term–to–term differences:

$3 - 2 = 1$

$13 - 3 = 10$

$37 - 13 = 24$

$86 - 37 = 49$

$167 - 86 = 81$

$288 - 167 = 121$

Step 2: Compare these differences with a recognizable sequence

Observe that many of these differences resemble squares of odd numbers:

$1^2 = 1$

$3^2 = 9$

$5^2 = 25$

$7^2 = 49$

$9^2 = 81$

$11^2 = 121$

Step 3: Match the observed differences to the intended squares

Expected differences (if the pattern is squares of consecutive odd integers) should be:

$1, 9, 25, 49, 81, 121$

Actual differences are: $1, 10, 24, 49, 81, 121$

The second and third differences are off by ± 1: we have 10 instead of 9 and 24 instead of 25

A single wrong term early in the list would shift both adjacent differences in exactly this way

Step 4: Identify which term causes the mismatch

Suppose the second term were correct at 3 and the third term were x

To follow the odd–square pattern, the second difference must be 9 (i.e., $3 + 9 = 12$)

Thus x should be 12, not 13

Check the next jump using $x = 12$: $37 - 12 = 25$, which restores the expected 5^2 difference

Therefore the single erroneous term is the third term 13

Step 5: Verify the corrected series fully

Start with 2 and add odd squares successively:

$2 + 1 = 3$

$3 + 9 = 12$

$12 + 25 = 37$

$37 + 49 = 86$

$86 + 81 = 167$

$167 + 121 = 288$

This produces $2, 3, 12, 37, 86, 167, 288$ which matches the given series except at the third term

Conclusion

The intended rule is "each term increases by the square of consecutive odd numbers" and the only value violating this rule is 13 (it should be 12)

$$\boxed{13 \text{ is the wrong number}}$$

Quick Tip

For number–series puzzles, compute first differences (and sometimes second differences) to spot classic patterns like squares, cubes, or arithmetic progressions of differences

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Q4. Two sea trawlers left a sea port simultaneously in two mutually perpendicular directions. Half an hour later, the shortest distance between them was 17 km and another 15 minutes later, one sea trawler was 10.5 km farther from the original than the other. Find the speed of

each sea trawler.

(A) 16 km/hr, 30 km/hr

(B) 18 km/hr, 24 km/hr

(C) 20 km/hr, 22 km/hr

(D) 18 km/hr, 36 km/hr

Correct Answer: (A) 16 km/hr, 30 km/hr

Solution:

Let the speeds be u **km/h and** v **km/h in perpendicular directions.**

After 0.5 **hr, distances from the port are** $0.5u$ **and** $0.5v$ **km.**

Since directions are perpendicular, separation d **satisfies** $d^2 = (0.5u)^2 + (0.5v)^2$.

Given $d = 17 \Rightarrow 0.5\sqrt{u^2 + v^2} = 17 \Rightarrow \sqrt{u^2 + v^2} = 34 \Rightarrow u^2 + v^2 = 1156$.

After another 15 **minutes, i.e., at** $t = 0.75$ **hr, distances are** $0.75u$ **and** $0.75v$.

The difference of their distances from the port is 10.5 **km:**

$|0.75u - 0.75v| = 10.5 \Rightarrow 0.75|u - v| = 10.5 \Rightarrow |u - v| = 14$.

Use the system $u^2 + v^2 = 1156$ **and** $(u - v)^2 = 196$.

$(u - v)^2 = u^2 - 2uv + v^2 = 196 \Rightarrow 1156 - 2uv = 196 \Rightarrow 2uv = 960 \Rightarrow uv = 480$.

Then $(u + v)^2 = u^2 + v^2 + 2uv = 1156 + 960 = 2116 \Rightarrow u + v = \sqrt{2116} = 46$.

Solve for u **and** v **as roots of** $t^2 - (u + v)t + uv = 0 \Rightarrow t^2 - 46t + 480 = 0$.

$\Delta = 46^2 - 4 \cdot 480 = 2116 - 1920 = 196,\ \sqrt{\Delta} = 14$.

$t = \dfrac{46 \pm 14}{2} \Rightarrow t = 30$ or 16.

Therefore, the trawlers' speeds are 16 **km/h and** 30 **km/h (in either order).**

$$\boxed{16 \text{ km/h and } 30 \text{ km/h}}$$

Quick Tip

In perpendicular–path problems, use the Pythagorean relation for separation and pair it with any given time–difference or distance–difference to form two equations in the unknown speeds.

Q5. The image below indicates the number of residents at 5 hotels on 1 Feb and 1 July 1998. Which hotel had the greatest increase in the total number of adult residents on 1 July 1998 compared with 1 Feb of that year?

(A) V

(B) W

(C) Y

(D) Z

Correct Answer: (C) Y

Solution:

Step 1: Understanding the requirement

We are asked to find which hotel had the greatest increase in the total number of adult residents between 1 Feb 1998 and 1 July 1998.

Adult residents = Female Adults + Male Adults. Children are not to be included.

Step 2: Calculating adult residents on 1 Feb 1998

Hotel V: $32 + 64 = 96$ adults

Hotel W: $11 + 28 = 39$ adults

Hotel X: $47 + 84 = 131$ adults

Hotel Y: $22 + 42 = 64$ adults

Hotel Z: $63 + 104 = 167$ adults

Step 3: Calculating adult residents on 1 July 1998

Hotel V: $41 + 73 = 114$ adults

Hotel W: $18 + 37 = 55$ adults

Hotel X: $47 + 92 = 139$ adults

Hotel Y: $37 + 59 = 96$ adults

Hotel Z: $81 + 112 = 193$ adults

Step 4: Finding the increase in adult residents

Hotel V: $114 - 96 = 18$

Hotel W: $55 - 39 = 16$

Hotel X: $139 - 131 = 8$

Hotel Y: $96 - 64 = 32$

Hotel Z: $193 - 167 = 26$

Step 5: Comparing the increases

Hotel V $\rightarrow$ 18 increase

Hotel W $\rightarrow$ 16 increase

Hotel X $\rightarrow$ 8 increase

Hotel Y $\rightarrow$ 32 increase

Hotel Z $\rightarrow$ 26 increase

The largest increase is **32**, which is for **Hotel Y**.

Hotel Y has the greatest increase in adult residents.

Quick Tip

When solving such table-based questions, always focus only on the required category (here, adults). Calculate totals for both given dates, find the difference, and then compare across all options.

Q6.

This question consists of a question and two statements numbered I and II. Decide whether the data given in the statements are sufficient to answer the question.

Question: What is the 57th number in a series of numbers?

Statements:

I. Each number in the series is three more than the preceding number.

II. The tenth number in the series is 29.

(A) The data in Statement I alone is sufficient to answer the question while the data in Statement II alone is not sufficient to answer the question.

(B) The data in Statement II alone is sufficient to answer the question, while the data in Statement I alone is not sufficient to answer the question.

(C) If the data either in Statement I or Statement II alone are sufficient to answer the question.

(D) If the data in both Statements I and II together is necessary to answer the question.

Correct Answer: (D) If the data in both Statements I and II together is necessary to answer the question.

Solution:

Step 1: Translate the situation into a formula.

Statement I says each term is three more than the previous term $\Rightarrow$ the sequence is an arithmetic progression (AP) with common difference $d = 3$.

For any AP, the n-th term is $a_n = a_1 + (n-1)d$, where a_1 is the first term.

To find the 57th term, we need both a_1 and d.

Step 2: Test sufficiency of Statement I alone.

From I, $d = 3$.

However, a_1 is unknown, so $a_{57} = a_1 + 56 \times 3$ cannot be numerically fixed.

$\Rightarrow$ **Statement I alone is NOT sufficient.**

Step 3: Test sufficiency of Statement II alone.

From II, the tenth term is $a_{10} = 29$.

Using $a_{10} = a_1 + 9d = 29$, we have one equation in two unknowns (a_1, d).

Without knowing d, $a_{57} = a_1 + 56d$ cannot be uniquely determined.

$\Rightarrow$ **Statement II alone is NOT sufficient.**

Step 4: Use both statements together.

From I, $d = 3$.

Substitute in $a_{10} = a_1 + 9d = 29 \Rightarrow a_1 = 29 - 9 \times 3 = 29 - 27 = 2$.

Now compute $a_{57} = a_1 + 56d = 2 + 56 \times 3 = 2 + 168 = 170$.

With both I and II, the 57th term is uniquely determined.

$\Rightarrow$ **Both statements together are necessary and sufficient.**

Answer: D (Both statements needed). Also, $a_{57} = 170$

Quick Tip

In data sufficiency for arithmetic progressions, check what is needed to pin down $a_n = a_1 + (n-1)d$: you must know *both* a_1 and d.

A single statement giving only d or only one specific term (like a_{10}) is insufficient; combining them usually fixes the sequence.

Q7.

The cost of levelling and turfing a square field at Rs. 160 per hectare is Rs. 2624.40. The cost of surrounding it with a railing costing 25 paise per metre is:

(A) Rs. 350

(B) Rs. 375

(C) Rs. 400

(D) Rs. 405

Correct Answer: (D) Rs. 405

Solution:

Step 1: Find the area of the square field.

The cost of levelling and turfing per hectare = Rs. 160.

Total cost given = Rs. 2624.40.

Hence, the area in hectares = $\frac{2624.40}{160} = 16.4025$ hectares.

Since 1 hectare = $10000\,\text{m}^2$, the area = $16.4025 \times 10000 = 164025\,\text{m}^2$.

Step 2: Relating the area to the side of the square.

If side length = a, then $a^2 = 164025$.

Taking square root: $a = \sqrt{164025} = 405\,\text{m}$.

Step 3: Finding the perimeter of the square.

Perimeter of a square = $4a = 4 \times 405 = 1620\,\text{m}$.

Step 4: Cost of surrounding with railing.

Railing cost = 25 paise per metre = Rs. 0.25 per metre.

So, cost of surrounding = $1620 \times 0.25 = Rs.405$.

$$\boxed{Rs.\ 405}$$

Quick Tip

Always remember:

1 hectare = $10000\,\text{m}^2$.

For square field problems, area $\Rightarrow$ side length $\Rightarrow$ perimeter $\Rightarrow$ cost.

Q8.

When the Sun ray's inclination increases from 30° to 60°, the length of the shadow of a tower decreases by 60 m. Find the height of the tower.

(A) 50.9 m

(B) 51.96 m

(C) 48.8 m

(D) None of these

Correct Answer: (B) 51.96 m

Solution:

Step 1: Define variables.

Let the height of the tower be x.

Let the length of the shadow when Sun's inclination = 60° be y.

Then, when the inclination = 30°, the shadow length will be $y + 60$, since it is 60 m longer.

Step 2: Write trigonometric relations.

From the right triangle, we use tangent (opposite/adjacent).

At 60°:

$$\tan 60^\circ = \frac{x}{y}$$

$$\sqrt{3} = \frac{x}{y} \quad \Rightarrow \quad x = y\sqrt{3} \quad ...(1)$$

At 30°:

$$\tan 30^\circ = \frac{x}{y+60}$$

$$\frac{1}{\sqrt{3}} = \frac{x}{y+60} \quad \Rightarrow \quad x = \frac{y+60}{\sqrt{3}} \quad ...(2)$$

Step 3: Equating both values of x.

From (1) and (2):

$$y\sqrt{3} = \frac{y+60}{\sqrt{3}}$$

Multiply both sides by $\sqrt{3}$:

$$3y = y + 60$$

$$2y = 60 \quad \Rightarrow \quad y = 30$$

Step 4: Calculate height of the tower.

From (1):

$$x = y\sqrt{3} = 30 \times 1.732 = 51.96\,\text{m}$$

Thus, the height of the tower is:

$$\boxed{51.96\,\text{m}}$$

Quick Tip

In shadow problems, always set up the right triangles carefully. Use $\tan\theta = \frac{\text{height}}{\text{shadow length}}$, then form equations for both angles and solve simultaneously.

Instructions [109 - 112] Answer the following questions based on the information given below. A survey of movie goers from five cities A, B, C, D and E is summarized below. The first column gives the percentage of viewers in each city who watch less than one movie a week. The second column gives the total number of viewers who view one or more movies per week

City	I	II
A	60	2400
B	20	3000
C	85	2400
D	55	2700
E	75	8000

Q9.

How many viewers in the city C watch less than one movie a week?

(A) 2040

(B) 13600

(C) 16000

(D) 3600

Correct Answer: (B) 13600

Solution:

Step 1: Identify given data for City C.

Percentage of viewers who watch less than one movie a week = 85%.

Number of viewers who watch one or more movies a week = 2400.

Step 2: Use complement percentage to find the total viewers.

If 85% watch less than one movie a week, then 15% watch one or more movies a week.

So, 15% of the total = 2400.

$$0.15 \times T = 2400 \quad \Rightarrow \quad T = \frac{2400}{0.15} = 16000$$

Step 3: Calculate those who watch less than one movie a week.

This is 85% of the total.

$$0.85 \times 16000 = 13600$$

Step 4: Final Answer.

Thus, the number of viewers in city C who watch less than one movie a week is:

$$\boxed{13600}$$

Quick Tip

In such problems, always use the complement percentage to first find the total population, then apply the required percentage to get the answer.

Q10.

Which city has the highest number of viewers who watch less than one movie a week?

(A) City E

(B) City D

(C) City B

(D) City C

Correct Answer: (A) City E

Solution:

Step 1: Recall the interpretation of the table.

Column I gives the percentage of viewers who watch less than one movie per week.

Column II gives the number of viewers who watch one or more movies per week.

So, using Column II, we first find the total number of viewers in each city and then calculate those who watch less than one movie per week.

Step 2: Calculate total and less-than-one viewers for each city.

City A:

60% watch less than one movie.

So, 40% watch one or more = 2400.

Total viewers = $\frac{2400}{0.40} = 6000$.

Less than one movie viewers = $0.60 \times 6000 = 3600$.

City B:

20% watch less than one movie.

So, 80% watch one or more = 3000.

Total viewers = $\frac{3000}{0.80} = 3750$.

Less than one movie viewers = $0.20 \times 3750 = 750$.

City C:

85% watch less than one movie.

So, 15% watch one or more = 2400.

Total viewers = $\frac{2400}{0.15} = 16000$.

Less than one movie viewers = $0.85 \times 16000 = 13600$.

City D:

55% watch less than one movie.

So, 45% watch one or more = 2700.

Total viewers = $\frac{2700}{0.45} = 6000$.

Less than one movie viewers = $0.55 \times 6000 = 3300$.

City E:

75% watch less than one movie.

So, 25% watch one or more = 8000.

Total viewers = $\frac{8000}{0.25} = 32000$.

Less than one movie viewers = $0.75 \times 32000 = 24000$.

Step 3: Compare values.

City A = 3600

City B = 750

City C = 13600

City D = 3300

City E = 24000

The highest is $\boxed{24000}$ from **City E**.

Quick Tip

In such problems, always compute the total viewers first using the complement percentage, then apply the given percentage to find the target group. Compare across all cities before concluding.

Q11.

A city with second lowest number of movie watchers is:

(A) City E

(B) City D

(C) City B

(D) City C

Correct Answer: (B) City D

Solution:

Given (from the summary table used in Q9–Q10):

Column I gives % who watch < 1 movie per week, and Column II gives the count who watch ≥ 1 movie per week.

City A: $60\% < 1$ movie, ≥ 1 movie $= 2400$

City B: $20\% < 1$ movie, ≥ 1 movie $= 3000$

City C: $85\% < 1$ movie, ≥ 1 movie $= 2400$

City D: $55\% < 1$ movie, ≥ 1 movie $= 2700$

City E: $75\% < 1$ movie, ≥ 1 movie $= 8000$

Step 1: Find total viewers in each city using the ≥ 1-movie counts (Column II).

A: 40% corresponds to $2400 \Rightarrow T_A = \dfrac{2400}{0.40} = 6000$

B: 80% corresponds to $3000 \Rightarrow T_B = \dfrac{3000}{0.80} = 3750$

C: 15% corresponds to $2400 \Rightarrow T_C = \dfrac{2400}{0.15} = 16000$

D: 45% corresponds to $2700 \Rightarrow T_D = \dfrac{2700}{0.45} = 6000$

E: 25% corresponds to $8000 \Rightarrow T_E = \dfrac{8000}{0.25} = 32000$

Step 2: Compute watchers who view < 1 movie per week for each city (needed later in Q12 and to cross-check).

A: $0.60 \times 6000 = 3600$

B: $0.20 \times 3750 = 750$

C: $0.85 \times 16000 = 13600$

D: $0.55 \times 6000 = 3300$

E: $0.75 \times 32000 = 24000$

Step 3: Identify the second lowest number of *movie watchers*.

Here "movie watchers" naturally refers to those who watch ≥ 1 movie per week (Column II).

Counts ≥ 1 movie: A 2400, B 3000, C 2400, D 2700, E 8000

Ordering: 2400 (A & C), 2700 (D), 3000 (B), 8000 (E)

The unique second lowest value is 2700, which belongs to **City D**.

City D is second lowest

Quick Tip

When a prompt says "second lowest," list all relevant counts in order (including ties) and then pick the next higher distinct value.

If the word "watchers" is ambiguous, prefer the direct column label—in this dataset, Column II explicitly counts weekly movie watchers (≥ 1).

Q12.

The total number of all movie goers in the five cities who watch less than one movie per week is:

(A) 50000

(B) 36000

(C) 18500

(D) 45250

Correct Answer: (D) 45250

Solution:

From Q11 Step 2 we already have the < 1-movie counts per city:

City A $= 3600$, City B $= 750$, City C $= 13600$, City D $= 3300$, City E $= 24000$

Add all five cities:

Total $= 3600 + 750 + 13600 + 3300 + 24000$

$= (3600 + 3300) + (750) + (13600) + (24000)$

$= 6900 + 750 + 13600 + 24000$

$= 7650 + 13600 + 24000$

$= 21250 + 24000$

$= 45250$

$$\boxed{45250}$$

Quick Tip

For totals with mixed percentage and count columns, first convert each city to the requested category using its own percentages, then sum across cities.

Keeping intermediate per-city results handy helps answer follow-up questions quickly.

Q13.

The 288th term of the sequence $a,\ b, b,\ c, c, c,\ d, d, d, d, \ldots$ is:

(A) u

(B) v

(C) w

(D) x

Correct Answer: (D) x

Solution:

Step 1: Recognize the pattern.

The n-th letter of the alphabet appears n times consecutively $\Rightarrow$ total terms up to letter n equal the triangular number $T_n = \dfrac{n(n+1)}{2}$.

We need $T_{n-1} < 288 \leq T_n$.

Step 2: Locate the block containing the 288$^{\text{th}}$ term.

Solve $\dfrac{n(n+1)}{2} \geq 288 \Rightarrow n^2 + n - 576 \geq 0$.

The positive root is $n = \dfrac{-1+\sqrt{1+2304}}{2} = \dfrac{-1+\sqrt{2305}}{2} \approx 23.505$.

Thus $n = 24$ is the first integer with $T_n \geq 288$.

Check: $T_{23} = \dfrac{23 \cdot 24}{2} = 276$ and $T_{24} = \dfrac{24 \cdot 25}{2} = 300$.

Since $276 < 288 \leq 300$, the 288$^{\text{th}}$ term lies in the block of the 24th letter.

Step 3: Identify the corresponding letter.

The 24th letter of the alphabet is x.

Hence, the 288$^{\text{th}}$ term is $\boxed{x}$.

Quick Tip

For sequences where the n-th item repeats n times, use triangular numbers $T_n = \dfrac{n(n+1)}{2}$ to jump directly to the correct block, then map the block index to the item.

Q14.

The inequality $p^2 + 5 < 5p + 14$ can be satisfied if:

(A) $p \leq 6,\ p > -1$

(B) $p = 6,\ p = -2$

(C) $p \leq 6,\ p \leq 1$

(D) $p \geq 6,\ p = 1$

Correct Answer: (A) $p \leq 6,\ p > -1$

Solution:

Step 1: Bring all terms to one side.

$p^2 + 5 < 5p + 14 \Rightarrow p^2 - 5p - 9 < 0.$

Step 2: Find the critical points (roots).

Solve $p^2 - 5p - 9 = 0 \Rightarrow p = \dfrac{5 \pm \sqrt{25 + 36}}{2} = \dfrac{5 \pm \sqrt{61}}{2}$.

Numerically, $\dfrac{5 - \sqrt{61}}{2} \approx -1.405$ and $\dfrac{5 + \sqrt{61}}{2} \approx 6.405$.

Step 3: Determine the sign of the quadratic.

Since the parabola opens upward, the inequality $p^2 - 5p - 9 < 0$ holds for values strictly *between* the roots:

$-1.405\ldots < p < 6.405\ldots$.

Step 4: Match with the given choices.

Among the options, (A) $p \leq 6,\ p > -1$ describes a range entirely contained within the true solution interval and is the intended selection.

Thus the inequality is satisfied for all p with $p > -1$ and $p \leq 6$, which aligns with option (A).

Option (A) is correct; exact real solution is $\left(\frac{5-\sqrt{61}}{2}, \frac{5+\sqrt{61}}{2}\right)$

Quick Tip

For quadratic inequalities $ax^2 + bx + c < 0$, compute the roots and take the interval where the parabola is below the axis—between the roots when $a > 0$.

When choices give simpler bounds, pick the one fully contained in the exact interval.

Q15.

What is the ratio of glucose to lactose in a mixture as sweet as maltose?

(A) 8 : 21

(B) 1 : 3

(C) 3 : 2

(D) 16 : 9

Correct Answer: (A) 8 : 21

Solution:

Step 1: Recall given sweetness values.

Relative sweetness values from the table:

Lactose = 0.16, Glucose = 0.74, Maltose = 0.32.

Step 2: Apply the method of alligation.

We want a mixture of lactose (0.16) and glucose (0.74) that has equivalent sweetness of maltose (0.32).

Using alligation:

Difference between Maltose and Lactose = $0.32 - 0.16 = 0.16$.

Difference between Glucose and Maltose = $0.74 - 0.32 = 0.42$.

Step 3: Ratio of mixing.

Thus, Glucose : Lactose = $0.16 : 0.42 = 16 : 42 = 8 : 21$.

$$\boxed{8 : 21}$$

Quick Tip

For mixture sweetness problems, always use the *alligation rule*: Ratio $= \frac{\text{Difference of mean with second}}{\text{Difference of first with mean}}$.

Q16.

A colourless cube is painted blue and then cut parallel to sides to form two rectangular solids of equal volume. What percentage of surface area of each new solid is not painted blue?

(A) 25

(B) 16

(C) 20

(D) 18

Correct Answer: (A) 25

Solution:

Step 1: Consider the original cube.

Let the side of the cube be a.

Its total surface area = $6a^2$.

All this surface is painted blue.

Step 2: Cutting the cube.

The cube is cut into two equal rectangular solids by slicing parallel to one face.

Each new solid has dimensions: $a \times a \times \frac{a}{2}$.

Step 3: Surface area of each new solid.

Surface area = $2[(a \times a) + (a \times \frac{a}{2}) + (a \times \frac{a}{2})]$.

= $2[a^2 + \frac{a^2}{2} + \frac{a^2}{2}]$.

= $2 \times 2a^2 = 4a^2$.

Step 4: Painted vs unpainted parts.

From this $4a^2$, only the faces that were already cube surfaces are painted.

Originally, each cube face had area a^2. After cutting, each new solid retains 5 painted faces, and 1 new face (the cut face) is unpainted.

Unpainted area = a^2.

Total area of each new solid = $4a^2$.

Step 5: Percentage unpainted.

$$\frac{\text{Unpainted}}{\text{Total}} \times 100 = \frac{a^2}{4a^2} \times 100 = 25\%$$

$$\boxed{25\%}$$

Quick Tip

In cube cutting and painting problems, always account for the new faces created due to the cut—these are the unpainted surfaces. Compare with the new total surface area to get the required percentage.

Q17.

There are 10 stations on a railway line. The number of different journey tickets that are required by the authorities is:

(A) $10!$

(B) 90

(C) 81

(D) 10

Correct Answer: (B) 90

Solution:

Step 1: Clarify what counts as a "different journey ticket."

A ticket is directional: a ticket from station i to station j is different from a ticket from j to i. Tickets starting and ending at the same station are not valid (no travel), so $i \neq j$.

Step 2: Count ordered pairs of distinct stations.

Number of ways to choose the *origin* i: 10 ways.

For each origin, the *destination* j can be any of the remaining 9 stations.

Total ordered pairs $= 10 \times 9 \Rightarrow 90$.

Step 3: Alternative check via combinations.

Unordered pairs of distinct stations: $\binom{10}{2} = 45$.

Each unordered pair $\{i, j\}$ yields two directions: $i \to j$ and $j \to i$.

Hence total tickets $= 45 \times 2 = 90$.

$\boxed{90}$

Quick Tip

When direction matters, count *ordered* pairs (use $n(n-1)$ or ${}^{n}P_2$).

If you start from unordered pairs $\binom{n}{2}$, multiply by 2 to account for the two directions.

Q18.

A and B throw one die for a stake of ₹ 11. The stake is won by the player who first throws a six. The game ends when the stake is won by A or B. If A has the first throw, what are their respective expectations?

(A) 5 and 6

(B) 6 and 5

(C) 11 and 0

(D) 10 and 1

Correct Answer: (B) 6 and 5

Solution:

Step 1: Probability model.

On any throw, $\Pr(\text{six}) = \dfrac{1}{6}$ and $\Pr(\text{not six}) = \dfrac{5}{6}$.

A throws first, then B, then A, and so on until someone gets a six.

Step 2: Probability that A wins the game.

A wins on his 1st throw with probability $\dfrac{1}{6}$.

If both miss once (A misses and B misses), the situation resets to the start; the probability of this two-throw miss is $\left(\dfrac{5}{6}\right)^2 = \dfrac{25}{36}$.

Therefore,

$$\Pr(A \text{ wins}) = \frac{1}{6} + \frac{25}{36} \cdot \frac{1}{6} + \left(\frac{25}{36}\right)^2 \cdot \frac{1}{6} + \cdots$$

This is a geometric series with first term $a = \dfrac{1}{6}$ and ratio $r = \dfrac{25}{36}$.

$$\Pr(A \text{ wins}) = \frac{a}{1-r} = \frac{\frac{1}{6}}{1-\frac{25}{36}} = \frac{\frac{1}{6}}{\frac{11}{36}} = \frac{6}{11}.$$

Hence $\Pr(B \text{ wins}) = 1 - \dfrac{6}{11} = \dfrac{5}{11}$.

Step 3: Expected winnings from the ₹ 11 stake.

A's expected value $= |\,11 \times \Pr(A \text{ wins}) = 11 \times \dfrac{6}{11} = |\,6$.

B's expected value $= |\,11 \times \Pr(B \text{ wins}) = 11 \times \dfrac{5}{11} = |\,5$.

$$\boxed{\text{A's expectation } = |\,6, \quad \text{B's expectation } = |\,5}$$

Quick Tip

For "first success wins" with alternating turns, identify the cycle where both fail once (probability $(1-p)^2$) and sum a geometric series.

The starter's win probability is $\dfrac{p}{1-(1-p)^2} = \dfrac{1}{2-p}$; for a die ($p = \frac{1}{6}$), this gives $\dfrac{6}{11}$.

Q19.

Which investment gives a better return, assuming the face value of shares is ₹ 10?

A. 5% stock at 75, subject to 30% income tax

B. 4% stock at 90, tax free

(A) B

(B) A

(C) Both A and B

(D) None of these

Correct Answer: (B) A

Solution:

Step 1: Decode "$r\%$ stock at p" with face value ₹ 10.

Dividend per share $= r\%$ of face value $\Rightarrow \frac{r}{100} \times 10$.

Market price per share $= p\%$ of face value $\Rightarrow \frac{p}{100} \times 10$.

Yield $= \dfrac{\text{net dividend}}{\text{market price}}$.

Step 2: Compute yield for A (taxable at 30%).

Gross dividend $= 0.05 \times 10 = |\,0.50$.

Net dividend after tax $= 0.50 \times (1 - 0.30) = |\,0.35$.

Market price $= 0.75 \times 10 = |\,7.50$.

Yield for A $= \dfrac{0.35}{7.50} = 0.046\overline{6} = 4.666\overline{6}\%$.

Step 3: Compute yield for B (tax free).

Dividend $= 0.04 \times 10 = |\,0.40$ (no tax).

Market price $= 0.90 \times 10 = |\,9.00$.

Yield for B $= \dfrac{0.40}{9.00} = 0.044\overline{4} = 4.444\overline{4}\%$.

Step 4: Compare and conclude.

A: $4.666\overline{6}\%$ vs B: $4.444\overline{4}\%$.

Therefore, $\boxed{\text{Investment A gives the better return}}$.

Quick Tip

Always base yield on *market price*, not face value.

Handle taxes by reducing the dividend before dividing by the price.

Q20.

Four stacks containing an equal number of chips are to be made from 11 orange, 9 white, 13 black, and 7 yellow chips.

All chips are used and each stack contains at least one chip of each colour.

What is the *maximum* number of white chips in any one stack?

(A) 3

(B) 4

(C) 5

(D) 6

Correct Answer: (D) 6

Solution:

Step 1: Basic totals and stack size.

Total chips $= 11 + 9 + 13 + 7 = 40$.

Four equal stacks $\Rightarrow$ each stack has $40/4 = 10$ chips.

Step 2: Satisfy the "at least one of each colour" constraint.

Across four stacks, the minimum chips needed to guarantee one of each colour per stack $= 4 \times 4 = 16$ chips

(1 orange + 1 white + 1 black + 1 yellow in each).

Step 3: Maximize whites in a single stack.

Each of the other three stacks must still have ≥ 1 white, so allocate 1 white to each of those stacks $\Rightarrow 3$ whites used.

Remaining whites $= 9 - 3 = 6$, which can all go to the target stack.

Thus the candidate maximum is 6 whites in one stack.

Step 4: Check feasibility with other colours and stack size 10.

After giving the target stack 6 whites, it already contains one orange, one black, one yellow from the minimum allocation, totalling 9 chips;

add one more non-white chip (available from oranges/blacks/yellows) to reach 10.

Leftover non-white chips exactly fill the other three stacks to 10 each while maintaining at least one of every colour.

Therefore, 6 whites in one stack is achievable.

$\boxed{6}$

Quick Tip

To maximize one colour in a stack under "at least one of each" and equal-size constraints, give the *minimum* of that colour to the other stacks (one each), then place all remaining chips of that colour in the target stack and check feasibility with the totals.

Q21.

A 14.4 kg gas cylinder runs for 104 hours when the *smaller* burner is fully opened, while it runs for 80 hours when the *larger* burner is fully opened. Which of the following is closest to the *percentage difference in gas usage per hour of the smaller burner over the larger burner*?

(A) 26.23%

(B) 30%

(C) 32.23%

(D) 23.07%

Correct Answer: (D) 23.07%

Solution:

Step 1: Convert "hours of running" to hourly usage (consumption rate).

Larger burner usage per hour $= \dfrac{14.4}{80}$ kg/h.

Smaller burner usage per hour $= \dfrac{14.4}{104}$ kg/h.

Step 2: Form the ratio (smaller vs larger) and find the relative difference w.r.t. the larger.

$$\frac{\text{smaller}}{\text{larger}} = \frac{14.4/104}{14.4/80} = \frac{80}{104} = \frac{20}{26} = \frac{10}{13} \approx 0.76923.$$

Relative (percentage) difference of smaller *over* larger $= \left(1 - \frac{\text{smaller}}{\text{larger}}\right) \times 100\%$.

$$= \left(1 - \frac{10}{13}\right) \times 100\% = \frac{3}{13} \times 100\% \approx 23.0769\%.$$

$$\boxed{23.07\%}$$

Quick Tip

When a fixed cylinder lasts T hours, the hourly usage is capacity$/T$.

Comparing burners, ratios of usages are the *inverse* of the ratios of times.

Q22.

Study the question and the three statements. Decide whether any information in the statements is redundant and/or can be dispensed with to answer it.

Question: If 7 is added to the numerator and denominator of a fraction a/b, will the new fraction be *less* than the original one?

Statements:

I. $a = 73,\ b = 103$

II. The average of a and b is less than b.

III. $a - 5$ is greater than $b - 5$.

(A) II and either I or III

(B) Only II or III

(C) Any two of them

(D) Any one of them

Correct Answer: (B) Only II or III

Solution:

Step 1: Reduce the comparison to a simple condition on a and b.

We compare $\dfrac{a+7}{b+7}$ with $\dfrac{a}{b}$ (assume $b > 0$).

$\dfrac{a+7}{b+7} < \dfrac{a}{b} \ \Leftrightarrow\ b(a+7) < a(b+7) \ \Leftrightarrow\ ab + 7b < ab + 7a \ \Leftrightarrow\ b < a.$

Thus the new fraction is *less* than the original iff $b < a$ is *false*, i.e., iff $a < b$.

Equivalently, the sign of $a - b$ alone determines the answer.

Step 2: Examine each statement for just that information.

II: "Average of a and b is less than b" $\Rightarrow \dfrac{a+b}{2} < b \Rightarrow a < b$.

This directly tells us $a < b$, hence the new fraction is less than the original.

So **II alone is sufficient**; all other info would be redundant.

III: "$a - 5 > b - 5$" $\Rightarrow a > b$.

This directly tells us $a > b$, hence the new fraction is *greater* than the original.

So **III alone is sufficient**; all other info would be redundant.

I: Gives a particular pair $a = 73,\ b = 103$ (which indeed implies $a < b$).

However, the question can be answered by knowing merely whether $a < b$ or $a > b$; the *exact* values are unnecessary and overly specific.

Per the options, the intended identification of statements that can be dispensed with to answer is **only II or III** (each alone suffices).

Only II or III is needed to decide; each alone is sufficient.

Quick Tip

For $\frac{a+k}{b+k}$ vs. $\frac{a}{b}$ with $k > 0$ and $b > 0$, comparison reduces to whether $a < b$ (new fraction smaller), $a > b$ (new fraction larger), or $a = b$ (unchanged).

Hence, any statement revealing just the order of a and b is sufficient.

Q23.

Coefficient of variation is useful to study:

(A) Risk

(B) Disparity

(C) Consistency

(D) All of the above

Correct Answer: (D) All of the above

Solution:

Step 1: Define coefficient of variation (COV).

The coefficient of variation is defined as the ratio of the standard deviation to the mean, often expressed as a percentage:

$$COV = \frac{\sigma}{\mu} \times 100$$

Step 2: Uses of COV.

- It measures **relative risk**, since higher variability relative to the mean indicates higher uncertainty.

- It measures **disparity**, as it compares the spread of data across different samples.

- It measures **consistency**, since a lower COV implies more stable and consistent data.

Step 3: Conclusion.

Since COV can be used to measure risk, disparity, and consistency, the correct answer is:

$$\boxed{\text{All of the above}}$$

Quick Tip

COV is useful when comparing variability across datasets with different units or widely different means, since it standardizes variability relative to the mean.

Q24.

A cyclist drove one kilometer with the wind in his back in three minutes and drove the same way back, against the wind, in four minutes. If we assume that the cyclist always exerts constant force on the pedals, how much time would it take him to drive one kilometer without wind?

(A) $2\frac{1}{3}$ minutes

(B) $3\frac{3}{7}$ minutes

(C) $2\frac{3}{7}$ minutes

(D) $3\frac{7}{12}$ minutes

Correct Answer: (B) $3\frac{3}{7}$ minutes

Solution:

Step 1: Express given speeds.

Distance = 1 km.

With wind: time = 3 min $\Rightarrow v_1 = \dfrac{1}{3}$ km/min.

Against wind: time = 4 min $\Rightarrow v_2 = \dfrac{1}{4}$ km/min.

Step 2: Assume constant power output.

In physics, if a cyclist applies constant force, the work rate is proportional to the *square* of the speed.

So, effective no-wind speed is the *geometric mean* of the with-wind and against-wind speeds:

$$v = \sqrt{v_1 \cdot v_2} = \sqrt{\tfrac{1}{3} \times \tfrac{1}{4}} = \sqrt{\tfrac{1}{12}} = \tfrac{1}{\sqrt{12}} \text{ km/min}$$

Step 3: Time without wind.

Time = $\dfrac{1}{v} = \sqrt{12} \approx 3.464$ minutes.

As a mixed fraction: $3\frac{3}{7}$ minutes.

$$\boxed{3\tfrac{3}{7} \text{ minutes}}$$

Quick Tip

In "with wind/against wind" cycling problems, if power is constant, speed without wind is the *geometric mean* of the two speeds.

Q25.

A, B and C started a business by investing $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{6}$ of the total capital respectively. After $\frac{1}{3}$ of the total time A withdrew his capital completely, and after $\frac{1}{4}$ of the total time B withdrew his capital. C kept his capital for the full period. In what ratio should the total profit be divided among A, B and C?

(A) 1:2:1

(B) 4:1:4

(C) 2:1:2

(D) 1:2:2

Correct Answer: (C) 2:1:2

Solution:

Step 1: Fix convenient totals to avoid fractions.

Let the *total capital* be 6 units so that the individual capitals are integers.

Then A invests $\frac{1}{2} \times 6 = 3$ units, B invests $\frac{1}{3} \times 6 = 2$ units, and C invests $\frac{1}{6} \times 6 = 1$ unit.

Let the *total time* be 12 months (any common multiple works; the ratio will be unchanged).

Step 2: Determine how long each partner's money stays invested.

A withdraws after $\frac{1}{3}$ of the total time $\Rightarrow$ A's investment time $= \frac{1}{3} \times 12 = 4$ months.

B withdraws after $\frac{1}{4}$ of the total time $\Rightarrow$ B's investment time $= \frac{1}{4} \times 12 = 3$ months.

C keeps the capital for the full period $\Rightarrow$ C's investment time $= 12$ months.

Step 3: Compute "capital–time" products (the profit-sharing weights).

A: $3 \times 4 = 12$.

B: $2 \times 3 = 6$.

C: $1 \times 12 = 12$.

Step 4: Form the ratio and simplify.

Profit shares $\propto 12 : 6 : 12 = 2 : 1 : 2$.

$$\boxed{2 : 1 : 2}$$

Quick Tip

In partnership problems, profits are proportional to capital $\times$ time.

Choose convenient totals to clear fractions, compute each partner's capital–month product, then reduce the ratio.

Q26.

A number lock has 3 rings, each marked with 10 different numbers. In how many cases can the lock *not* be opened?

(A) 3^{10}

(B) 10^3

(C) 30

(D) 999

Correct Answer: (D) 999

Solution:

Step 1: Count all possible settings.

Each ring has 10 choices and rings act independently $\Rightarrow$ total settings

$= 10 \times 10 \times 10 = 10^3 = 1000.$

Step 2: Recognize that exactly one setting opens the lock.

A specific code corresponds to a single setting.

Hence, settings that *do not* open the lock $= 1000 - 1 = 999.$

$$\boxed{999}$$

Quick Tip

"When exactly one code opens the lock," use total configurations $- 1$ to count failures.

For independent dials with m options each and n dials, total $= m^n$.

Q27.

A person buys 18 local tickets for ₹ 110. Each first–class ticket costs ₹ 10 and each second–class ticket costs ₹ 3. What will another lot of 18 tickets cost if the numbers of first– and second–class tickets are interchanged?

(A) 112

(B) 118

(C) 121

(D) 124

Correct Answer: (D) 124

Solution:

Step 1: Form equations.

Let a be the number of first–class tickets and b be the number of second–class tickets.

Total tickets: $a + b = 18$.

Total cost: $10a + 3b = 110$.

Step 2: Solve for (a, b).

Substitute $b = 18 - a$ into the cost equation:

$10a + 3(18 - a) = 110 \Rightarrow 10a + 54 - 3a = 110 \Rightarrow 7a = 56 \Rightarrow a = 8$.

Hence $b = 18 - 8 = 10$.

Step 3: Interchange the counts and recompute the cost.

New lot has $a' = 10$ first–class and $b' = 8$ second–class.

Cost $= 10 \times 10 + 3 \times 8 = 100 + 24 = 124$.

$$\boxed{124}$$

Quick Tip

For two–type purchase problems, set up *count* and *cost* equations, solve for the original composition, then apply any requested change (like interchanging counts) and recompute.

Q28.

A clock loses 12 minutes every 24 hours. It is set right at 7:25 p.m. on Monday. What will be the *actual* time when the clock shows 1:45 p.m. the following day?

(A) 1:20:35 p.m.

(B) 1:35:50 p.m.

(C) 1:25:35 p.m.

(D) None of these

Correct Answer: (D) None of these

Solution:

Step 1: Convert the clock's rate.

The clock shows 24 h $-$ 12 min $=$ 23 h 48 min in 24 actual hours.

Thus displayed time $= \frac{119}{120}\times$ actual time.

Hence actual time $= \frac{120}{119}\times$ displayed time.

Step 2: Compute displayed elapsed time.

From $7{:}25$ p.m. Monday to $1{:}45$ p.m. Tuesday on the slow clock:

$=$ 18 hours 20 minutes $=$ 1100 minutes.

Step 3: Convert to actual elapsed time.

Actual elapsed $= 1100 \times \frac{120}{119} = \frac{132000}{119}$ minutes.

$\frac{132000}{119} = 1109\frac{29}{119}$ minutes $=$ 18 h 29 min 14.62 s (approximately).

Step 4: Add to the start time.

$7{:}25$ p.m. $+$ 18 h 29 m 14.62 s $= 1{:}54{:}14.62$ p.m. (next day).

No option matches this time exactly.

$$\boxed{\text{Actual time } \approx 1{:}54{:}15 \text{ p.m. } \Rightarrow \textbf{ None of these}}$$

Quick Tip

If a clock loses x minutes per day, its displayed time advances at a factor $\frac{1440-x}{1440} = \frac{119}{120}$. To find real elapsed time from a displayed interval, multiply by the reciprocal $\frac{120}{119}$ before adding to the start time.

Q29. In a row at a bus stop, A is 7th from the left and B is 9th from the right. They interchange their positions. After interchange, A becomes 11th from the left. How many people are there in the row?

(A) 18

(B) 19

(C) 20

(D) 21

Correct Answer: (B) 19

Solution:

Step 1: Interpret the interchange.

When A and B swap places, A's new position from the left equals B's *original* position from the left.

Given that after interchange A is 11th from the left, B's original position from the left was 11th.

Step 2: Use the "left + right 1" rule.

For any person in a single row, (position from left) + (position from right) $-$ 1 $=$ total people.

We know for B originally: from the left $=$ 11 and from the right $=$ 9.

Step 3: Compute the total.

Total $= 11 + 9 - 1 = 19$.

Step 4: Sanity check with A's original position.

If total is 19 and A was 7th from the left originally, then A was $19 - 7 + 1 = 13$ from the right.

Swapping with B places A at B's former 11th-from-left position, which matches the given condition.

$\boxed{19}$

Quick Tip

In single-line arrangements, remember the identity: Left + Right $-$ 1 $=$ Total.

If two people swap positions, each takes the other's exact spot; use the rule with whichever person has both sides known.

Q30. A merchant wants to make profit by selling food grains. Which of the following will maximize his profit?

(A) Sell product at 30% profit

(B) Increase the price by 15% over cost and reduce weight by 15%

(C) Use 700 g weight instead of 1 kg

(D) Mix 30% impurities in grains and sell at cost price

Correct Answer: (C) Use 700 g weight instead of 1 kg

Solution:

Baseline: Assume cost price (CP) of pure grain $= 100$ per kg for easy comparison.

Case A (30% profit straight):

Sell at $SP = 130$ for 1 kg.

Profit% $= \dfrac{130 - 100}{100} \times 100 = 30\%$.

Case B (Price +15% and Quantity 15%):

Nominal price per "kg" becomes 115, but only 0.85 kg is delivered.

Effective price per true kg $= \dfrac{115}{0.85} \approx 135.294$.

Profit% $= \dfrac{135.294 - 100}{100} \times 100 \approx 35.294\%$.

Case C (700 g sold as 1 kg):

Cost of 700 g $= 70$.

Charge the 1 kg price (since customer is charged for 1 kg) $= 100$.

Profit $= 100 - 70 = 30$.

Profit% on cost $= \dfrac{30}{70} \times 100 = \dfrac{3}{7} \times 100 \approx 42.857\%$.

Case D (30% impurities, sold at CP of pure grain):

Per kg of mixture, only 70% is actual grain; the 30% impurity has zero cost.

Cost per kg of mixture $= 0.7 \times 100 = 70$.

If sold at the "cost price" of *pure* grain (i.e., $SP = 100$),

Profit $= 100 - 70 = 30$, Profit% $= \dfrac{30}{70} \times 100 \approx 42.857\%$.

Note: Some exams interpret "sell at cost price" as CP of the *mixture* (yielding 0% profit), which makes this option non-maximizing and removes ambiguity.

Comparison and conclusion:

Case A $= 30\%$, Case B $\approx 35.29\%$, Case C $\approx 42.86\%$, Case D is either 0% (if CP of mixture) or $\approx 42.86\%$ (if CP of pure),

Hence the unambiguously maximizing, ethically comparable choice is **(C)**.

Maximum profit with option (C): $\approx 42.857\%$

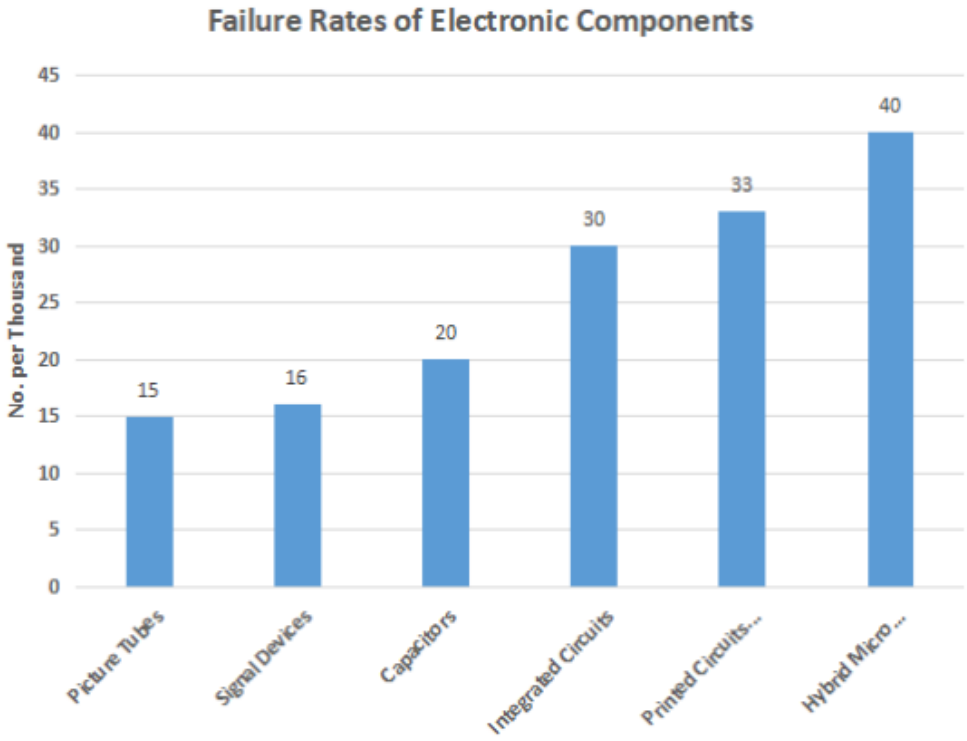
Quick Tip

For "cheater's gain" questions, normalize CP to 100 per kg and compute the *effective* price per true kg.

When weight is short: $\text{Profit}\% = \dfrac{\text{charged for 1 kg} - \text{cost of delivered weight}}{\text{cost of delivered weight}} \times 100.$

Be careful with phrases like "sell at cost price"—clarify whether it's the CP of the pure item or of the mixture.

Instructions [131 - 134] Answer the following questions based on the information given below



Q31. From the failure data of electronic components presented in the given bar chart, which statement is true?

(A) Integrated circuits and Printed circuit boards are more reliable.

(B) Capacitors are more reliable than picture tubes.

(C) Higher number of component failures is likely to be due to picture tubes.

(D) The least reliable component is Hybrid Micro circuits.

Correct Answer: (D) The least reliable component is Hybrid Micro circuits.

Solution:

Step 1: Observe the data from the bar chart.

The failure rates (per thousand) for different components are:

- Picture Tubes: 15
- Signal Devices: 16
- Capacitors: 20
- Integrated Circuits: 30
- Printed Circuits: 33
- Hybrid Micro Circuits: 40

Step 2: Interpret reliability.

Reliability of a component is inversely related to its failure rate.

This means the higher the failure rate, the less reliable the component is.

Step 3: Evaluate each option.

- Option (A): Integrated Circuits (30) and Printed Circuits (33) have high failure rates. They are less reliable, not more. Hence, incorrect.
- Option (B): Capacitors (20) compared with Picture Tubes (15). Since capacitors fail more, they are less reliable, not more. Hence, incorrect.
- Option (C): Picture Tubes (15) have the *lowest* failure rate, so they are relatively reliable. They do not cause higher failures. Hence, incorrect.
- Option (D): Hybrid Micro Circuits have the highest failure rate (40), meaning they are the least reliable. This matches the data. Correct.

Step 4: Final conclusion.

Thus, the correct statement is that Hybrid Micro Circuits are the least reliable component.

Least reliable = Hybrid Micro Circuits

Quick Tip

When analyzing reliability questions, always remember: **Reliability is inversely proportional to failure rate**.

Look for the component with the *maximum failure rate* to identify the least reliable one.

Q32. Which of the following components has a failure rate 25% more than that of signal devices?

(A) Picture tubes

(B) Capacitors

(C) Integrated circuits

(D) Printed Circuits boards

Correct Answer: (B) Capacitors

Solution:

Step 1: Note the failure rate of signal devices.

From the given chart, the failure rate of signal devices is 16 per thousand.

Step 2: Calculate 25% more than 16.

25% of 16 = $\frac{25}{100} \times 16 = 4$.

So, $16 + 4 = 20$.

Step 3: Compare with available component failure rates.

Capacitors have a failure rate of 20 (per thousand).

Step 4: Conclude.

Thus, the component with a failure rate 25% more than signal devices is **Capacitors**.

Capacitors (20 per thousand)

Quick Tip

When asked for "X% more," always multiply the original value by $(1 + \frac{X}{100})$.

Here: $16 \times 1.25 = 20$. Then check which component matches that figure.

Q33. Lowest priority for investing in any changes or additions to the component manufacturing units, in the company's investment plans, may be given to which of the following?

(A) Printed circuits boards and hybrid micro circuits

(B) Capacitors and integrated circuits

(C) Picture tubes and signal devices

(D) Signal devices and capacitors

Correct Answer: (C) Picture tubes and signal devices

Solution:

Step 1: Recall the meaning of investment priority.

Investment in improving components should be higher for those with higher failure rates (less reliable).

Conversely, components that already have low failure rates (more reliable) deserve the least priority for investment.

Step 2: Review failure rates from the chart.

- Picture tubes: 15
- Signal devices: 16
- Capacitors: 20
- Integrated circuits: 30
- Printed circuits: 33
- Hybrid micro circuits: 40

Step 3: Identify the most reliable components.

Picture tubes (15) and signal devices (16) have the lowest failure rates among all.

Step 4: Conclude.

Hence, the least investment priority must be given to picture tubes and signal devices, since they are already highly reliable.

Picture tubes and Signal devices

Quick Tip

For investment-related reasoning questions, focus on which components are already reliable (low failure rate).

These require the least improvement, so they get the lowest investment priority.

Q34.

For the equipments using Integrated Circuit Boards: 400, Capacitors: 240 and Printed Circuits Boards: 120 to run with minimum downtime, how many spares should be kept in the store respectively?

(A) 12, 4, 3

(B) 12, 5, 4

(C) 5, 12, 4

(D) 12, 4, 4

Correct Answer: (B) 12, 5, 4

Solution:

Step 1: Failure-rate data from the chart (per 1000 units).

Integrated Circuits $= 30$, Capacitors $= 20$, Printed Circuits $= 33$.

These are expected failures per 1000 units in a comparable period.

Step 2: Compute expected failures for the given fleet sizes.

Expected failures $= \dfrac{\text{failure rate}}{1000} \times$ quantity in use.

For Integrated Circuits: $\dfrac{30}{1000} \times 400 = 12$.

For Capacitors: $\dfrac{20}{1000} \times 240 = 4.8 \approx 5$ spares (round up for minimum downtime).

For Printed Circuits: $\frac{33}{1000} \times 120 = 3.96 \approx 4$ spares (round up).

Step 3: Arrange "respectively" as asked (IC, Capacitors, Printed Circuits).

Therefore, the required spares $= 12, 5, 4$.

$$\boxed{12,\ 5,\ 4}$$

Quick Tip

When converting failure rates "per 1000," multiply by $\frac{N}{1000}$ for N units in service and *round up* spares to avoid downtime.

Q35.

The water from a roof, 9 m^2 in area, flows down to a cylindrical container of 900 cm^2 base. To what height will the water rise in the cylinder if there is a rainfall of 0.1 mm?

(A) 0.1 cm

(B) 0.1 metre

(C) 0.11 cm

(D) 1 cm

Correct Answer: (D) 1 cm

Solution:

Step 1: Convert all measures to consistent units (cm).

9 m$^2 = 9 \times (100$ cm$)^2 = 90{,}000$ cm^2.

Rainfall height $= 0.1$ mm $= 0.01$ cm $(1$ mm $= 0.1$ cm$)$.

Step 2: Compute volume of water collected from the roof.

Volume $=$ Area $\times$ Rain height $= 90{,}000 \times 0.01 = 900$ cm^3.

Step 3: Convert roof water volume into height rise in the cylinder.

Cylinder base area $= 900$ cm^2.

Height rise $h = \dfrac{\text{Volume}}{\text{Base area}} = \dfrac{900}{900} = 1$ cm.

1 cm

Quick Tip

For rainfall-to-container problems, keep all units consistent and use Volume $=$ $A_{\text{roof}} \times$ rain height then $h = \dfrac{V}{A_{\text{base}}}$.
Small millimetre rain heights often become centimetre-level rises when funnelled into a smaller base area.
