

Answers

1. Answer: d

Explanation:

Examining the Grammatical Structure

This question asks us to identify any grammatical errors within the provided sentence. The sentence is segmented into four parts: (A) Neither of, (B) the children seemed, (C) concerned about the journey, though, and (D) No error. We need to determine if any part contains a mistake or if the sentence is correct as is.

Analyzing the Subject and Verb Agreement

A crucial aspect of grammar is subject-verb agreement, where the verb must correspond in number (singular or plural) with its subject. Let's identify the subject and verb in the sentence:

- **Subject Identification:** The phrase is "Neither of the children." In this structure, the pronoun "Neither" acts as the grammatical subject of the sentence.
- **Subject Number:** "Neither" is a singular pronoun. It refers to 'not one' or 'not the other' of two items, or informally, 'none' of more than two. Regardless of the plural noun ("the children") that follows the preposition "of," the subject remains singular.
- **Verb Analysis:** The verb used is "seemed," which is the past tense form of the verb "seem."
- **Agreement Check:** Standard English grammar requires a singular subject to take a singular verb. In the present tense, this would mean using "seems" (e.g., "Neither of the children *seems*..."). However, in the past tense, the verb form "seemed" is used for all subjects, whether singular or plural (e.g., "He *seemed* happy," "They *seemed* happy"). Since the subject "Neither" is singular and the verb "seemed" is the appropriate past tense form, there is no violation of subject-verb agreement rules.

Evaluating Other Sentence Components

We also check the correctness of other parts:

- **Part (A) "Neither of":** This is a standard construction, correctly introducing the noun phrase "the children."
- **Part (C) "concerned about the journey, though":** The prepositional phrase "concerned about" is idiomatic and correct. The conjunction "though" is appropriately used to introduce a contrasting idea.

Final Verdict on Sentence Correctness

After careful examination of subject-verb agreement, verb tense, and the usage of prepositions and conjunctions, the sentence "Neither of the children seemed concerned about the journey, though" is grammatically sound.

There are no errors in any of the parts (A), (B), or (C).

Therefore, the correct option is D, signifying "No error."

2. Answer: c

Explanation:

Identifying Grammatical Errors in Sentences

The task is to identify the part of the given sentence that contains a grammatical error. The sentence structure involves correlative conjunctions, specifically 'Not only... but also...'.

Understanding Subject-Verb Agreement with 'Not Only... But Also'

Correlative conjunctions like 'Not only... but also...' connect two subjects. A key grammatical rule states that the verb must agree with the subject that is closer to it. This is called subject-verb agreement.

Let's examine the structure:

- 'Not only' + Subject 1 + 'but also' + Subject 2 + Verb

The verb should match the number (singular or plural) of Subject 2.

Analyzing the Sentence Parts

The sentence is: "Not only Shami (A)/ but also Kohli (B)/ were injured and could not play the match (C). No error (D)"

- **Part (A): 'Not only Shami'** – This correctly starts the sentence with the first part of the correlative conjunction and the first subject, Shami.
- **Part (B): 'but also Kohli'** – This correctly continues the structure, introducing the second subject, Kohli, with the second part of the conjunction.
- **Part (C): 'were injured and could not play the match'** – This part contains the error. The verb used is '**were**'. The subject immediately preceding the verb is 'Kohli', which is singular. Therefore, the verb should be singular ('**was**') to agree with 'Kohli'. Using the plural verb '**were**' violates the subject-verb agreement rule.
- **Part (D): 'No error'** – Since there is a clear error in Part C, this option is incorrect.

Locating the Grammatical Error

The error is in the verb choice within Part C. The sentence connects two subjects, 'Shami' (singular) and 'Kohli' (singular), using '**Not only... but also...**'. The verb must agree with the closer subject, 'Kohli'.

Incorrect Verb: '**were**' (plural)

Correct Verb: '**was**' (singular)

The corrected clause would read: "...but also Kohli **was** injured and could not play the match."

Final Identification

Based on the subject-verb agreement rule for the correlative conjunction '**Not only... but also...**', the verb in Part C is incorrect. The correct choice indicating the location of

the error is C.

Key Term Recap: The sentence structure involves 'Not only... but also...', linking 'Shami' and 'Kohli'. The verb must agree with the closer subject, 'Kohli'. The verb '**were**' in Part C is plural, while 'Kohli' is singular, making it the incorrect part.

3. Answer: b

Explanation:

Identifying the Grammar Error in the Sentence

The question requires identifying the part of the given sentence that contains a grammatical error. The sentence is: "Virat Kohli is the (A)/ richest and smarter (B)/ cricketer of the modern era (C). No error (D)". We need to carefully examine each part to find the mistake.

Analyzing Sentence Parts for Errors

Let's break down the sentence and analyze each part:

- **Part (A):** "Virat Kohli is the" – This part is grammatically correct. It introduces the subject and the definite article 'the', suggesting a superlative or unique quality follows.
- **Part (B):** "richest and smarter" – This part contains two adjectives, 'richest' and 'smarter', linked by 'and'. 'Richest' is a superlative adjective (the highest degree of 'rich'). 'Smarter' is a comparative adjective (higher degree of 'smart' compared to someone else or a group).
- **Part (C):** "cricketer of the modern era" – This phrase correctly identifies the role and context. The structure is sound.
- **Part (D):** "No error" – This option suggests the entire sentence is correct.

Understanding Parallel Structure and Adjective Degrees

A key grammar rule involves **parallel structure**, especially when using multiple adjectives or listing items. When adjectives are joined by 'and', they should typically be in the same grammatical form or degree.

In this sentence, 'richest' is a superlative, implying the highest degree among all cricketers in the modern era. 'Smarter' is a comparative, implying a comparison between two or a select group. Using a superlative ('richest') and a comparative ('smarter') together in this construction is generally incorrect.

To maintain parallel structure and correct grammar when describing someone as having the highest degree of multiple qualities within a group, both adjectives should be in the superlative form. Therefore, 'smarter' should ideally be 'smartest' to match 'richest'. The corrected phrase would be "the richest and smartest".

Locating the Specific Error

Based on the analysis of parallel structure and adjective degrees:

- The error is specifically in the use of 'smarter' (comparative) alongside 'richest' (superlative) in Part (B).
- The structure implies Virat Kohli holds the top position in both wealth ('richest') and intelligence ('smarter') among cricketers of the modern era. However, the degrees of the adjectives used are inconsistent.

Conclusion on the Incorrect Part

The grammatical flaw lies in the adjective forms used in Part (B). The correct parallel structure requires adjectives of the same degree.

4. Answer: c

Explanation:

Identifying the Grammatical Error in the Sentence

This question requires identifying the specific part of a given sentence that contains a grammatical mistake. We need to carefully examine each segment:

Analysis of Part (A): "The news of India winning the series"

- The core subject here is "The news".
- "News" is treated as a singular noun in English grammar.
- The phrase "of India winning the series" correctly acts as a prepositional phrase modifying "news".
- This part of the sentence is structured correctly.

Analysis of Part (B): "was a great shock for the Australian captain"

- The verb "was" is the past tense singular form, which correctly agrees with the singular subject "news".
- The phrase "a great shock for the Australian captain" appropriately describes the impact of the news on the captain.
- This segment is grammatically sound.

Analysis of Part (C): "but he bore for bravely"

- This part contains the grammatical error.
- The verb "bore" is the simple past tense of the verb "bear".
- The verb "bear" (meaning to endure or carry) requires specific prepositions or no preposition depending on the context. For example, one might "bear the pain" or "bear with someone".
- The structure "bore for bravely" is incorrect. The preposition "for" is misplaced here.
- The adverb "bravely" correctly modifies the verb, but the verb phrase itself is flawed due to the incorrect preposition "for".
- A correct version might be "but he bore it bravely" (meaning he endured it) or potentially "but he fought bravely", depending on the intended meaning. The inclusion of "for" makes this part ungrammatical.

Analysis of Part (D): "No error"

- As an error has been identified in Part (C), this option stating "No error" is incorrect.

Conclusion on Sentence Structure and Errors

The analysis confirms that the error occurs in Part (C) due to the incorrect use of the preposition "for" following the verb "bore". The sentence requires correction in this segment to be grammatically accurate.

5. Answer: b

Explanation:

Understanding the Sentence Context about Opportunity

The sentence structure "It would be _____ not to take advantage of this opportunity" sets up a scenario where failing to utilize a specific chance or advantage is being described.

- The phrase implies that not seizing the opportunity is a negative or unwise action.
- We need a word that captures the foolishness or irrationality of missing out on something beneficial.

Analyzing Word Choices for Missing an Opportunity

Let's examine the options provided to determine the most suitable word:

- **reasonable**: This means sensible or having good judgment. Missing an opportunity isn't typically considered reasonable.
- **insane**: This means foolish, irrational, or lacking good sense. This word strongly suggests that not taking advantage of the opportunity is a very bad idea.
- **unemotional**: This relates to a lack of emotion and doesn't fit the context of making a decision about an opportunity.

- **rational:** This means logical and based on reason. Similar to 'reasonable', it doesn't fit the implied meaning that missing the opportunity is unwise.

The core idea is that the opportunity is valuable, and failing to benefit from it would be a mistake. The word "insane" effectively conveys the extreme lack of good judgment involved in such a failure.

Selecting the Best Word for the Blank

Comparing the options, "insane" is the most fitting word to complete the sentence:

It would be **insane** not to take advantage of this opportunity.

This phrasing emphasizes that ignoring or failing to utilize the valuable opportunity would be extremely foolish and irrational.

6. Answer: a

Explanation:

Choosing the Correct Verb: Subject-Verb Agreement

This question tests our understanding of **subject-verb agreement** and **verb tense** in English grammar. We need to find the word that correctly fits the blank in the sentence: "The watchdogs _____ asleep when the bulls ran riot."

Analyzing the Sentence Components

- **Subject:** The subject of the sentence is "The watchdogs". The word "watchdogs" is **plural**, meaning it refers to more than one watchdog.
- **Context/Tense:** The phrase "when the bulls ran riot" clearly indicates that the action happened in the **past**. Therefore, we need a past tense verb.

Evaluating the Options

Let's look at each option to see if it fits the subject ("watchdogs" – plural) and the past tense context:

- **1. were:** This is the **past tense** form of the verb "to be" used with **plural** subjects. It matches both the plural subject "watchdogs" and the past tense context.
- **2. was:** This is the **past tense** form of the verb "to be" used with **singular** subjects. It does not agree with the plural subject "watchdogs".
- **3. is:** This is the **present tense** form of the verb "to be" used with **singular** subjects. It is incorrect because the subject is plural and the context is past tense.
- **4. are:** This is the **present tense** form of the verb "to be" used with **plural** subjects. It is incorrect because the context requires the past tense.

Final Conclusion

Based on the analysis, the verb must be in the past tense and agree with the plural subject "watchdogs". The only option that satisfies both conditions is "were". Therefore, the completed sentence is: "The watchdogs **were** asleep when the bulls ran riot."

7. Answer: a

Explanation:

Selecting the Best Preposition for 'Train' and 'Tunnel'

The goal is to find the most suitable preposition to describe how a **train** moved in relation to a **tunnel**. We need to analyze the meaning of the prepositions 'through', 'across', and 'to' in this specific context.

Understanding Preposition Choices

Prepositions help define relationships, especially movement. Let's look at the options:

- **through:** This preposition is used when something moves from one end or side of something to the other. It implies entering, traversing the length inside, and

exiting. Example: Walking **through** a door, driving **through** a town.

- **across**: This preposition typically describes movement from one side to the opposite side of a surface, area, or boundary. Example: Swimming **across** a river, walking **across** a field.
- **to**: This preposition usually indicates direction or destination. Example: Going **to** the station, moving **to** the right.

Applying Prepositions to the Sentence

The sentence is: "The train passed _____ the tunnel."

A **tunnel** is a passage, often underground or through a hill. A **train** travels *inside* the **tunnel** from the entrance to the exit.

- Using '**through**': "The train passed **through** the tunnel." This fits perfectly. The **train** entered the tunnel, moved the entire length inside it, and came out the other end.
- Using '**across**': "The train passed **across** the tunnel." This is less suitable. 'Across' suggests movement over a surface. While the train does go from one side of the tunnel entrance to the exit, the action happens *within* the enclosed space, making 'through' a better fit than 'across'. We usually pass *across* a bridge, not a tunnel.
- Using '**to**': "The train passed **to** the tunnel." This implies the tunnel was the destination, not the path. It doesn't describe the action of traversing the tunnel itself.

Finalizing the Answer

The action of a **train** entering a **tunnel**, traveling inside it, and emerging on the other side is best described using the preposition '**through**'. This word accurately conveys movement within and exiting the confines of the tunnel.

8. Answer: b

Explanation:

Examining Pratibha's Examination Failure

The question asks to find the correct verb form to complete the sentence: "Pratibha failed in the examination because she _____ it offhand." The sentence explains the reason for Pratibha's failure in the past. This requires a verb that reflects a past action and fits the context of treating something casually.

Understanding Verb Tense and 'Offhand'

The key elements here are the past event ("Pratibha failed") and the explanatory clause starting with "because". The verb in the second clause must also refer to a past action. Let's analyze the options based on verb tense:

- **takes:** This is the present simple tense. It's used for habitual actions or general truths. It does not fit the past context of the sentence.
- **took:** This is the past simple tense of the verb 'to take'. It indicates an action completed in the past.
- **taken:** This is the past participle. It usually requires an auxiliary verb like 'has', 'have', or 'had' (e.g., "she had taken it offhand"). Used alone, it's grammatically incorrect here.
- **take:** This is the base form or present simple tense (for I/you/we/they). It does not fit the past context.

The phrase "**offhand**" means casually, without much thought or preparation. When used with "take" (as in "take something offhand"), it means to treat something lightly or without the seriousness it deserves.

Why 'Took' is the Correct Verb

Since Pratibha *failed* (past tense), the reason must also be a past action. She treated the examination casually in the past. The past simple tense "**took**" correctly conveys this past action.

The completed sentence reads: "Pratibha failed in the examination because she **took** it offhand." This means she treated the examination casually, without proper preparation, which led to her failure.

The other options are incorrect because:

- 'takes' and 'take' are present tenses and do not fit the past context.
- 'taken' is a past participle and requires a helping verb, which is missing.

Therefore, the most appropriate word to fill in the blank is "**took**".

9. Answer: d

Explanation:

Equivocal: Identifying the Correct Synonym

The task is to find the best synonym for the word **Equivocal** among the choices provided. Understanding the meaning of *equivocal* is key to selecting the correct option.

Definition: What Does Equivocal Mean?

A word or statement is **Equivocal** if it can be understood in more than one way. It suggests uncertainty, ambiguity, or a deliberate lack of clarity, often with the potential for double meaning.

Analyzing the Options for Equivocal

We need to compare the meaning of each option with the definition of **Equivocal**:

- **clear**
Clear signifies something that is easy to understand and has only one interpretation. This is the opposite of *equivocal*.
- **determinable**
Determinable refers to something that can be precisely figured out or established. This does not match the unclear nature of an *equivocal* term.
- **certain**
Certain implies absolute surety and lack of doubt. Like *clear*, this is an antonym

(opposite) of *equivocal*.

- **ambiguous**

Ambiguous means something is open to interpretation, having more than one possible meaning, or being unclear. This definition is very similar to *equivocal*.

Selecting the Best Synonym for Equivocal

Based on the analysis, the word **ambiguous** shares the core meaning of lacking clarity and being open to multiple interpretations, making it the most appropriate synonym for **Equivocal**.

10. Answer: a

Explanation:

The correct answer is- 'fashion'

★ Key Points

- The word 'FAD' is a **noun** and it means 'a fashion, interest, etc. that will probably not last long.'
 - *Example: There was a **fad** for wearing ripped jeans a few years ago.*

Hence **option 1** is the **most appropriate** answer here.

WORDS	MEANING
boredom (<i>noun</i>)	the state of feeling bored.
hate (<i>verb</i>)	feel intense or passionate dislike for (someone).
dullness (<i>noun</i>)	lack of interest or excitement.

11. Answer: d

Explanation:

Synonym Identification: Mystique

This explanation focuses on finding the best synonym for the word **Mystique** among the choices provided.

Understanding the Meaning of Mystique

The word **Mystique** refers to a special quality, often mysterious or fascinating, that surrounds a person, place, or thing. It creates an air of intrigue, charm, or even magic that makes something captivating and perhaps difficult to fully understand. Think of the special appeal or aura associated with something enigmatic.

Analysis of Provided Options

Let's examine each option to see if it matches the meaning of **Mystique**:

- **Option 1: wet**
The term **wet** describes something covered or saturated with liquid, usually water. This is a literal, physical condition. It does not relate to the abstract concept of mystery or fascination that defines **Mystique**.
- **Option 2: cyclone**
A **cyclone** is a type of storm characterized by strong, rotating winds and low atmospheric pressure. This is a term from meteorology and has no connection to the meaning of **Mystique**.
- **Option 3: atmosphere**
The word **atmosphere** has two main meanings: the layer of gases surrounding the Earth, or the prevailing mood or feeling of a place or event. While a person or thing with **mystique** might create a certain **atmosphere**, the word **atmosphere** itself is not a synonym for the enigmatic quality of **mystique**.

Determining the Correct Synonym

Comparing the definitions, we can see that neither 'wet', 'cyclone', nor 'atmosphere' accurately reflects the meaning of **Mystique**. A true synonym would involve concepts like mystery, allure, enchantment, or a captivating aura. Since none of the first three options fit this description, the correct choice must be the one indicating that no suitable synonym is available.

Conclusion on Mystique Synonym Choice

Given that options 1, 2, and 3 do not align with the meaning of **Mystique**, the most appropriate answer is **None of these**.

Final Answer

The correct option is **None of these**.

12. Answer: d

Explanation:

Understanding the Word Debacle

The question asks us to find the antonym for the word "**Debacle**". First, let's understand what "**Debacle**" means. A "**Debacle**" refers to a sudden and often embarrassing failure, a disaster, or a complete collapse. It signifies a situation that has gone terribly wrong, leading to a significant downfall or defeat.

Analyzing the Options for Antonyms

We need to examine each option provided to see how it relates to the meaning of "**Debacle**":

- **Fiasco**: This word means a complete failure, especially in a ludicrous or humiliating way. "Fiasco" is very similar in meaning to "**Debacle**", making it a synonym, not an antonym.

- **Catastrophe:** This term describes an event causing great and often sudden damage or suffering; a disaster. Like "**Debacle**", it points towards a major failure or disastrous outcome. Therefore, it is also a synonym or a closely related term.
- **Botch:** This word means to carry out a task badly or incompetently. While it indicates failure or poor execution, it usually refers to a specific task or action rather than a complete collapse like a "**Debacle**". It's related to failure but not the opposite.
- **Victory:** This word means success in a struggle or contest, or the act of defeating an opponent. It signifies achievement and triumph, which is the direct opposite of failure or collapse implied by "**Debacle**".

Identifying the Correct Antonym

Comparing the meanings, we can see that "**Fiasco**", "**Catastrophe**", and "**Botch**" all relate to different forms or degrees of failure. "**Debacle**" itself means a major failure. The word that represents the opposite of failure and collapse is success and triumph.

Therefore, "**Victory**" stands out as the word with the opposite meaning to "**Debacle**". A "**Debacle**" is a great failure, while a "**Victory**" is a great success.

Final Answer Selection

Based on the analysis, the antonym of "**Debacle**" is "**Victory**".

The correct option is 4.

Keywords: Antonym, Debacle, Fiasco, Catastrophe, Botch, Victory, Failure, Success, Meaning, Vocabulary, English Language

13. Answer: c

Explanation:

Understanding the Meaning of 'Allure'

The question asks us to find the antonym, which means the word with the opposite meaning, for the word '**Allure**'. First, let's understand what '**Allure**' means. '**Allure**' refers to the quality of being powerfully and mysteriously attractive or fascinating; a strong attraction or charm. It suggests drawing someone towards something or someone with charm or temptation.

Analyzing the Options for Antonyms

We need to examine each option to see which one has a meaning opposite to '**Allure**'.

- **Enticement**: This word means something that attracts or tempts by offering pleasure or advantage. It is similar in meaning to '**Allure**', making it a synonym, not an antonym.
- **Attraction**: This refers to the action or power of evoking interest, liking, or desire. Like 'Enticement', 'Attraction' is very close in meaning to '**Allure**' and is considered a synonym.
- **Dissuade**: This word means to persuade someone not to take a particular course of action. If '**Allure**' means to attract or draw someone towards something, '**Dissuade**' means to deter or discourage someone from doing something. This is the opposite meaning.
- **Temptation**: This refers to the desire to do something, especially something wrong or unwise, or something that tempts someone. 'Temptation' is closely related to the idea of '**Allure**' and is therefore a synonym.

Identifying the Correct Antonym

Comparing the meanings, we can see that 'Enticement', 'Attraction', and 'Temptation' are all related to drawing someone in, which is similar to the meaning of '**Allure**'. However, '**Dissuade**' means to discourage or persuade someone **not** to do something, which is the direct opposite of attracting or alluring someone.

Conclusion on the Antonym of 'Allure'

Therefore, the word that represents the opposite meaning of 'Allure' among the given options is 'Dissuade'.

14. Answer: d

Explanation:

Subjugate Antonym Explained

This question requires identifying the word that means the opposite of **Subjugate**. Finding the correct **antonym** involves understanding the core meaning of the given word and comparing it with the meanings of the provided options.

Understanding the Meaning of Subjugate

The term **Subjugate** refers to the act of bringing a person or group under the control or rule of another, typically by force or conquest. It implies overpowering and establishing dominance or submission.

Analyzing the Options for the Antonym

Let's look at each option to see how its meaning relates to **Subjugate**:

- **Conquer:** To **Conquer** means to successfully overcome and take control of a place or people by military force. This action is very similar to subjugating someone, making it a **synonym** rather than an antonym.
- **Vanquish:** This word means to defeat someone or something completely, usually in a battle or competition. Like 'Conquer', it involves overpowering and defeating, aligning it as a **synonym** of **Subjugate**.
- **Defeat:** To **Defeat** means to win against someone in a battle, game, or conflict. It signifies gaining mastery over an opponent, which is closely related to the concept of subjugation and thus acts as a **synonym**.
- **Liberate:** The meaning of **Liberate** is to set someone free from a situation where their freedom is severely restricted, such as imprisonment or oppression. This

act of freeing someone is the direct opposite of bringing them under control or domination.

Determining the Correct Antonym

Based on the analysis, 'Conquer', 'Vanquish', and 'Defeat' all describe actions involving overpowering and establishing control, which are similar in meaning to **Subjugate**. In contrast, **Liberate** describes the action of freeing someone from control, which is the opposite meaning.

Therefore, the correct antonym for **Subjugate** among the given choices is **Liberate**.

15. Answer: a

Explanation:

Understanding One-Word Substitutions

This question requires us to find the most suitable single word that replaces a given phrase. The phrase we need to substitute is: "Someone who is in a place or situation where they are not wanted." Our goal is to identify the best term for a person who is present but unwelcome.

Defining the Unwanted Presence

The core meaning of the phrase centers on the concept of being somewhere without invitation or consent. It describes a person whose presence is not desired or permitted in a particular place or circumstance.

Analyzing the Provided Options

Let's examine the meaning of each potential one-word substitution:

- **intruder**: An intruder is defined as a person who enters a place, particularly a building, without permission or unlawfully. This word directly relates to being

somewhere unwanted or uninvited.

- **burglar**: A burglar is specifically someone who commits burglary, which involves entering a building illegally with the intention of stealing. This is a narrower definition, focused on theft.
- **housebreaker**: This term is similar to a burglar and usually refers to someone who breaks into houses, often implying forceful entry, with the purpose of theft. It highlights illegal entry and criminal intent.
- **stealer**: A stealer (or thief) is someone who steals property. This term focuses primarily on the act of stealing rather than the condition of being unwanted in a specific location.

Selecting the Best One-Word Fit

We need to choose the word that most accurately and broadly matches the description "Someone who is in a place or situation where they are not wanted."

- The term **intruder** is the most fitting choice. It encompasses anyone who enters or exists in a place without being wanted, regardless of their specific motive.
- Options like **burglar** and **housebreaker** describe specific types of intruders who have criminal intentions like theft. The original phrase doesn't specify any intent, only that the person is unwanted.
- The term **stealer** focuses solely on the act of stealing and doesn't necessarily imply being present in a place where one is unwanted, although these actions can overlap.

Therefore, **intruder** is the most appropriate and general one-word substitution for the given phrase because it captures the essential meaning of being an unwanted presence.

16. Answer: a

Explanation:

Meaning of the Idiom 'Broke into'

The question asks for the most appropriate meaning of the English idiom "Broke into". Idioms are phrases where the words together have a meaning that is different from the dictionary definitions of the individual words. Understanding the context and common usage is key to identifying the correct meaning.

Understanding 'Broke into'

The idiom "Broke into" generally signifies the act of **suddenly starting** an action or activity. It often implies an abrupt beginning, sometimes unexpected or even unwanted. Common uses include starting to cry, laugh, sing, or illegally entering a place.

For example:

- *She **broke into** tears* means she suddenly started crying.
- *The singer **broke into** song* means she suddenly started singing.
- *They **broke into** the house* means they illegally entered the house suddenly.

The core concept is the initiation or **sudden beginning** of an action.

Analysis of Options

Let's examine the provided options in relation to the idiom "Broke into":

- **Option 1: to suddenly begin to do something**
This meaning aligns perfectly with the common usage of the idiom "Broke into". It captures the essence of an abrupt start to an action.
- **Option 2: At the last possible moments**
This phrase describes timing, usually referring to completing something just before a deadline. It is unrelated to the idiom "Broke into".
- **Option 3: to suddenly ended to do something**
This is the opposite of the idiom's meaning. "Broke into" refers to starting something, not ending it.
- **Option 4: At the first possible moments**
Similar to option 2, this describes timing and is not the meaning of "Broke into".
- **Option 5:** This option is incomplete and cannot be evaluated.

Conclusion on the Idiom's Meaning

Based on the analysis, the phrase "to suddenly begin to do something" is the most accurate and appropriate meaning for the idiom "Broke into". It correctly reflects the concept of starting an action abruptly.

Final Answer Selection

Therefore, the most fitting meaning for the idiom "Broke into" among the choices provided is the first one.

17. Answer: a

Explanation:

Understanding the Idiom: Get into Hot Water

Idioms are phrases where the words together have a meaning that is different from the dictionary definitions of the individual words. Understanding the figurative meaning is key to mastering them. This section explains the meaning of the idiom "Get into hot water".

Meaning of Get into Hot Water

The idiom "**Get into hot water**" means to get into trouble or a difficult situation, usually as a result of something you have said or done.

Analysis of Options for Get into Hot Water

Let's examine the provided options to find the most appropriate meaning for the idiom:

- Option 1: To get into trouble

- This option aligns perfectly with the established idiomatic meaning. When someone gets into hot water, they are facing difficulties or problems, which is synonymous with getting into trouble.
- **Option 2: To get into a swimming pool having hot water**
 - This is a literal interpretation of the words "hot water". Idioms often have non-literal meanings, so this interpretation is incorrect.
- **Option 3: To get into a fight**
 - While getting into a fight is a form of trouble, the idiom "Get into hot water" covers a broader range of difficult situations, not exclusively fights. It could involve breaking rules, making mistakes, or facing consequences for actions that might not necessarily lead to a physical altercation. Therefore, this option is too specific and not the best fit.
- **Option 4: To feel unhappy**
 - Feeling unhappy might be a consequence of being in trouble, but it is not the core meaning of the idiom itself. The idiom describes the situation of being in trouble, rather than the emotional response to it.
- **Option 5: (No text provided)**
 - This option is incomplete and cannot be evaluated.

Conclusion on Idiom Meaning

Based on the analysis, the most accurate and appropriate meaning for the idiom "Get into hot water" is "To get into trouble". This captures the essence of finding oneself in a problematic situation due to one's actions or words.

18. Answer: a

Explanation:

Idiom Meaning: An Axe to Grind

The idiom "an axe to grind" refers to having a hidden motive or a personal grievance that influences one's actions or opinions. It suggests that someone is acting or

speaking not for the reasons they state, but because they have a private interest or a hidden agenda to pursue.

Analyzing the Options for "An Axe to Grind"

Let's look at the meaning of the idiom "an axe to grind" and compare it with the given options:

- **Option 1: Something done for selfish reasons:** This option suggests that the action or statement is motivated by personal benefit or a hidden agenda, which aligns well with the meaning of having "an axe to grind."
- **Option 2: Something done for the public:** This implies acting for the common good or for the benefit of society. This is the opposite of having a hidden, selfish motive.
- **Option 3: Philanthropist:** A philanthropist is someone who actively tries to improve the welfare of others, often through donations. This involves altruism, not a hidden selfish motive.
- **Option 4: To take risk:** While pursuing a personal agenda might involve taking risks, the idiom itself specifically points to the motive behind an action, not the act of taking a risk itself.
- **Option 5:** This option is empty and cannot be evaluated.

Explanation of "An Axe to Grind"

The phrase "an axe to grind" originates from the idea of someone having a personal reason (their "axe") to seek out another person, perhaps to get their axe sharpened, implying they want something from that person or have a score to settle. Over time, it evolved to mean having a hidden motive or a selfish reason for doing or saying something. Someone who has an axe to grind is often biased because their actions are driven by this underlying personal interest. Therefore, when we say someone has "an axe to grind," we mean they are acting with a hidden, often **selfish**, agenda.

Conclusion: The Most Appropriate Meaning

Comparing the idiom's meaning with the options, the most fitting definition for "an axe to grind" is having **something done for selfish reasons**. This captures the essence

of a hidden motive or personal grievance that drives someone's behavior or opinions.

19. Answer: a

Explanation:

Understanding the Idiom: Bird's Eye View

This section explains the meaning of the common English idiom "Bird's Eye View" and analyzes the given options to find the most appropriate definition.

Defining 'Bird's Eye View' Meaning

The idiom "**Bird's Eye View**" describes a perspective obtained from a high vantage point, similar to how a bird might see the world from above. It implies looking at something in its entirety, often providing a broad, general overview rather than focusing on specific details.

Key characteristics include:

- Perspective from a high altitude.
- Viewing a large area or the whole subject.
- Providing a general overview or summary.

Analyzing the Options for 'Bird's Eye View'

Let's examine each option provided to determine which one best matches the idiom's meaning:

1. **Option 1 Analysis:** This option describes "a view from a very high place that allows you to see a large area". This aligns perfectly with the concept of a bird's eye view, emphasizing both the high vantage point and the extensive area visible.

2. **Option 2 Analysis:** This suggests "a very vague view". A bird's eye view is typically clear and offers a comprehensive perspective, not a vague one. Therefore, this option is incorrect.
3. **Option 3 Analysis:** This describes "a view from a very high place that allows you to see a small area". While it correctly mentions the high place, it incorrectly limits the scope to a small area. A bird's eye view usually encompasses a large area.
4. **Option 4 Analysis:** This option mentions "a view from the ground that allows you to see a small area". This is incorrect on two counts: it specifies a ground-level view, not one from a high place, and it limits the view to a small area.
5. **Option 5 Analysis:** This option appears incomplete in the provided data, but based on the analysis of the other options, Option 1 is the most suitable choice.

Conclusion on 'Bird's Eye View'

Based on the analysis, the most appropriate meaning for the idiom "Bird's Eye View" is a perspective from a high place that allows one to see a large area, providing a general overview of the subject.

20. Answer: a

Explanation:

Understanding COVID-19 Vaccination Events

This question requires selecting the most appropriate word to fill in the blank labeled (1) in a passage about COVID-19 vaccination in India. The specific sentence is: "India reporting 0.18% ____ (1) ____ events following immunisation and 0.002% hospitalisation". We need to determine which of the provided options best fits this context.

Analyzing the Context for Blank (1)

The passage discusses the rates of certain occurrences related to COVID-19 vaccination. The key phrase is "events following immunisation". This refers to any health-related occurrences that happen after a person has been vaccinated.

Let's evaluate each option:

- **adverse:** This term refers to unintended and undesirable effects that occur after vaccination. The phrase "adverse events following immunisation" (AEFI) is a standard and widely used term in medical and public health contexts to describe potential negative reactions to vaccines. Reporting low percentages, such as 0.18%, is common when monitoring the safety profile of vaccines.
- **favorable:** This word implies positive outcomes or beneficial effects. While vaccines aim for favorable outcomes (like immunity), reporting them as a low percentage following immunisation in this specific manner is not standard practice, especially when juxtaposed with "hospitalisation".
- **complimentary:** This word means expressing praise or something given free. It has no relevance in the context of medical events following vaccination.
- **uncritical:** This adjective means lacking careful judgment or analysis. It does not fit grammatically or contextually as a descriptor for medical events.

Selecting the Most Appropriate Term

Based on the analysis, the word **adverse** is the most fitting choice. It correctly describes the type of events that are monitored and reported following immunisation, especially when low percentages are mentioned alongside hospitalisation rates, indicating a focus on safety monitoring.

Therefore, the complete phrase would be "0.18% **adverse** events following immunisation", which aligns with standard terminology used to report vaccine safety data.

21. Answer: b

Explanation:

COVID-19 Vaccination Coverage Analysis

This question requires filling in a blank in a passage discussing COVID-19 vaccination coverage across different Indian states. The passage highlights states with low coverage, such as Punjab, Puducherry, and Tamil Nadu, and contrasts them with states showing high coverage, like Lakshadweep and Sikkim. We need to select the most appropriate word from the given options to correctly complete the sentence containing blank (2).

Identifying the Correct Word for Blank (2)

The sentence in question is: "____(2)____ only 27.6% of the beneficiaries have received the shot in Punjab, the figures for Puducherry and Tamil Nadu stood at 34.6% and 34.9%, respectively." This sentence follows a mention of low coverage in these states and precedes a list of states with high coverage. The blank needs a word that effectively links the specific vaccination data for Punjab to the preceding context or the subsequent contrast.

Analyzing Sentence Context

- The passage initially mentions low coverage in Punjab, Puducherry, and Tamil Nadu.
- The sentence with blank (2) provides specific data for Punjab (27.6% coverage).
- The passage then lists states with significantly higher coverage (e.g., Lakshadweep at 89.3%).
- Therefore, the blank likely introduces a specific detail or a contrasting point related to Punjab's vaccination numbers within the broader discussion.

Evaluating Options for Blank (2)

Let's examine how each option fits:

- **Option 1: Through** - Using "Through" would imply a process or duration, such as "Through only 27.6%...", which does not make grammatical or logical sense in this context.

- **Option 2: While** – Using "While" introduces a clause that contrasts with or complements the main clause or the preceding statement. "**While** only 27.6% of the beneficiaries have received the shot in Punjab..." effectively sets up a specific data point that might contrast with the overall situation or the high-coverage states mentioned later. It highlights the low vaccination rate in Punjab within the broader context.
- **Option 3: By** – "By" is typically used to indicate a margin, method, or agent. "By only 27.6%..." doesn't fit the meaning required here.
- **Option 4: For** – "For" usually indicates purpose, duration, or a recipient. "For only 27.6%..." is grammatically awkward and contextually incorrect.

Conclusion for Blank (2)

The word "While" serves as the most suitable conjunction. It appropriately introduces the specific low vaccination coverage figure for Punjab, connecting it to the initial statement about low coverage and setting the stage for the comparison with states having high vaccination rates. It correctly frames the data point as a specific instance within the larger context.

22. Answer: b

Explanation:

Analyzing the Terminology for COVID-19 Vaccination Coverage Data

Understanding the Context of Vaccination Rates

The provided passage discusses the COVID-19 vaccination coverage across various Indian states and union territories. It contrasts states with low vaccination rates, such as Punjab, Puducherry, and Tamil Nadu, with those that have achieved significantly higher rates. The question asks to fill in blank number (3) in the

sentence: "At the other end of the ____ (3) ____ are Lakshadweep (89.3%), Sikkim (85.7%), Odisha (82.6%), Telangana (81.1%), Arunachal Pradesh (75.4%), Uttar Pradesh (71.4%) and Rajasthan (71.3%)."

Evaluating Options for Blank (3): Vaccination Data Extremes

The sentence highlights states with high vaccination coverage, positioning them in contrast to the previously mentioned low-coverage states. We need a word that describes this range or scale where low and high coverage figures represent opposite ends.

- **Option 1: incapability** – This term refers to a lack of ability or power. It does not fit the context of comparing different levels of vaccination coverage.
- **Option 2: spectrum** – A spectrum represents a range or a series of different things or points that are related. In this context, vaccination coverage varies, and the states listed fall at different points along this range, with some at the low end and others, like Lakshadweep, at the high end. The phrase "other end of the spectrum" correctly signifies the contrast between low and high coverage states.
- **Option 3: leave** – This word relates to departing or permission to depart and has no relevance to describing a range of data points.
- **Option 4: standstill** – This term means a complete stop or lack of movement or progress. It doesn't apply to comparing vaccination rates, which show varying levels of progress, not a complete halt.

Selecting the Most Appropriate Word

The passage contrasts states with low vaccination coverage against states with high vaccination coverage. The phrase "At the other end of the ____ (3) ____" implies a scale or range. The word **spectrum** accurately describes this range of vaccination coverage percentages. States like Punjab are at one end (low coverage), while states like Lakshadweep are at the other end (high coverage) of this **spectrum**.

Therefore, **spectrum** is the most suitable word to complete the sentence, effectively conveying the comparison between the lowest and highest vaccination coverage rates mentioned in the passage.

23. Answer: c

Explanation:

Understanding Vocabulary Acquisition through Reading and Listening

The provided passage emphasizes the crucial role of **vocabulary** in mastering a new language (L2). It highlights that **vocabulary** acquisition is fundamental for improving all language skills, including speaking, reading, listening, and writing. The passage suggests that developing strong vocabulary not only aids in writing but also supports the other language abilities, leading to overall language competence. It also introduces the concept of **incidental vocabulary** learning, which occurs naturally rather than through direct instruction.

Hunt and Beglar's View on Incidental Vocabulary Learning

The passage specifically references the work of Hunt and Beglar (1998) regarding how learners acquire vocabulary incidentally. According to their findings mentioned in the text, **many vocabularies are learned incidentally through extensive reading and listening**. This implies that engaging in a significant amount of reading and listening activities provides learners with opportunities to encounter and learn new words in context, contributing to their vocabulary growth naturally.

Analyzing the Options for Incidental Vocabulary Learning

The question asks specifically about the method of **incidental vocabulary** learning according to Hunt and Beglar, as presented in the passage. Let's examine the given options:

- **Option 1: Through extensive reading and writing** – The passage mentions extensive reading but not extensive writing as a primary method for incidental vocabulary learning according to Hunt and Beglar.
- **Option 2: Through extensive writing and speaking** – Neither extensive writing nor extensive speaking is cited by Hunt and Beglar in the passage for incidental vocabulary acquisition.
- **Option 3: Through extensive reading and listening** – This option directly aligns with the statement made in the passage attributed to Hunt and Beglar (1998): "many vocabularies are learned incidentally through extensive reading and listening".
- **Option 4: Through extensive reading and speaking** – While extensive reading is mentioned, extensive speaking is not cited by Hunt and Beglar in the passage as a means for incidental vocabulary learning.

Based on the direct statement from Hunt and Beglar within the provided text, the most accurate answer is that **many vocabularies** are learned **incidentally** through **extensive reading and listening**. Encouraging learners to engage in these activities can significantly enhance their vocabulary development.

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24. Answer: a

Explanation:

Understanding the Role of Vocabulary in Language Learning

This explanation delves into the core function of vocabulary as presented in the provided text, highlighting its essential nature in the process of acquiring a new language.

Vocabulary's Foundational Role

The passage emphasizes that vocabulary is not just a collection of words but a crucial building block for language acquisition. It states very clearly:

"Vocabulary is a basic component of language proficiency which provides the basis for learners' performance in other skills, such as speaking, reading, listening and writing."

This sentence directly answers the question by defining vocabulary as a fundamental part of **language proficiency**. Proficiency in a language encompasses the ability to use it effectively across various skills, and the passage confirms that vocabulary underpins this ability.

Analysis of Options

Let's analyze why **Language Proficiency** is the correct choice based on the text:

- **Language Proficiency:** The passage explicitly identifies vocabulary as a basic component of this. It's the most accurate description according to the provided text.
- **Grammar Proficiency:** While grammar and vocabulary are interconnected in language learning, the passage specifically points to vocabulary's role in the broader concept of *language proficiency*, not solely grammar.
- **English Proficiency:** The passage discusses learning an 'L2' (Second Language) in general terms. It doesn't limit the discussion specifically to English. Therefore, while vocabulary is key to English proficiency, the text's phrasing is more general.
- **Fundamental Proficiency:** This term is vague. The text specifies *language* proficiency, making it a more precise and correct answer in this context.

In summary, the passage clearly establishes that vocabulary serves as a cornerstone for overall **language proficiency**, impacting a learner's ability in speaking, reading, listening, and writing.

25. Answer: b

Explanation:

Understanding Vocabulary's Role in Language Skills

The provided passage emphasizes the crucial role of **vocabulary** in mastering a new language (L2). It explains that vocabulary is not just about knowing words, but it forms the foundation upon which other language abilities are built.

Vocabulary as a Foundation for Language Performance

According to the passage, **vocabulary** acquisition is a fundamental process in learning a second language. It directly impacts a learner's ability in various language skills. The passage explicitly states, quoting Nation (2008), that "Vocabulary is a basic component of language proficiency which provides the basis for learners 'performance in other skills...".

Identifying Key Language Skills Supported by Vocabulary

The passage specifically lists the skills that benefit directly from a strong vocabulary base. These are essential for overall language competence. Based on the text:

- Vocabulary provides the basis for learners' performance in speaking.
- Vocabulary provides the basis for learners' performance in reading.
- Vocabulary provides the basis for learners' performance in listening.
- Vocabulary provides the basis for learners' performance in writing.

The passage highlights that these four skills are interconnected ("the four skills will be hand in hand") and that developing vocabulary strengthens all of them, ultimately leading to greater language proficiency.

Analyzing the Options Provided

Let's examine the given options in light of the passage's information:

- Option 1 mentions "Dancing, singing, reading, writing". Dancing is not mentioned in the passage as a skill directly supported by vocabulary in this context.

- Option 2 lists "speaking, reading, listening and writing". This aligns perfectly with the skills explicitly mentioned in the passage.
- Option 3 includes "singing" instead of speaking or writing, which is not supported by the passage.
- Option 4 includes "dancing" instead of listening or speaking, which is also not supported by the passage.

Conclusion on Vocabulary and Language Skills

The passage clearly indicates that **vocabulary** is essential for proficiency in **speaking, reading, listening, and writing**. Therefore, the option that correctly lists these skills is the accurate answer.

26. Answer: a

Explanation:

1930 Commonwealth Games Host Location

The Commonwealth Games, formerly known as the British Empire Games, is a major international multi-sport event involving athletes from the Commonwealth of Nations. The inaugural event holds historical significance, marking the beginning of a tradition that continues to this day. Understanding where this major sporting event began is key to grasping its history.

Origin of the Commonwealth Games

The idea for the games originated from Reverend Astley Cooper in 1891, who proposed a festival to promote goodwill within the British Empire. However, it wasn't until 1930 that the first games were actually organized. The driving force behind the 1930 event was Melville Marks Robinson, a Canadian sports enthusiast.

The Inaugural Games in 1930

The very first edition of the event, then called the British Empire Games, took place in 1930. The host city was selected to be Hamilton, located in Canada.

Analyzing the Options

Let's look at the options provided to confirm the correct location for the first Commonwealth Games held in 1930:

- **Canada:** This option is correct. The first British Empire Games were successfully hosted in Hamilton, Canada, in 1930.
- **USA:** The United States of America is not a member of the Commonwealth of Nations, and therefore has never hosted the Commonwealth Games.
- **Greece:** Greece is famous for hosting the ancient and modern Olympic Games, but it is not associated with the Commonwealth Games.
- **France:** France is also not a member of the Commonwealth of Nations and has no connection to hosting the Commonwealth Games.

Summary of the First Event

Key details about the first Commonwealth Games:

- **Year:** 1930
- **Event Name (then):** British Empire Games
- **Host Nation:** Canada
- **Host City:** Hamilton

Therefore, the correct answer is indeed Canada, specifically the city of Hamilton, which proudly hosted the very first Commonwealth Games in 1930.

27. Answer: a

Explanation:

First Asian Games Location Unveiled

This question concerns the historical venue of the **first-ever Asian Games**. The Asian Games represent a major continental sporting event that brings together athletes from across Asia. Identifying the location of the inaugural event is key to understanding its origins.

New Delhi Hosted the Inaugural Asian Games

Historical records confirm that the **first Asian Games** were held in **New Delhi**, India. This landmark event took place in the year 1951.

Key details about the first Asian Games:

- **Host City:** New Delhi, India
- **Year:** 1951
- **Purpose:** The games were established to foster unity and friendly competition among Asian nations following World War II.

Evaluating the Provided Options

The options presented were:

- **New Delhi:** This city was indeed the host of the inaugural Asian Games in 1951.
- **Calcutta:** While Calcutta (now Kolkata) is a prominent Indian city, it was not the host for the first Asian Games.
- **Bombay:** Bombay (now Mumbai), another major Indian metropolis, did not serve as the host city for the initial Asian Games.
- **Chennai:** Chennai (formerly Madras) is a significant city in South India, but it was not associated with the first Asian Games event.

Confirming New Delhi as the First Asian Games Venue

Considering the historical facts, **New Delhi** is the correct city where the **first-ever Asian Games** were held in 1951. The event marked a significant milestone in the history of Asian sports.

28. Answer: d

Explanation:

Understanding the 'Bank-shot' Sport Connection

The question asks to identify the sport associated with the term 'bank-shot'. This involves understanding sports terminology and common techniques used in different games.

Defining the 'Bank-shot'

A 'bank-shot' is a specific type of shot in certain sports where the ball is intentionally bounced off a surface, referred to as the 'bank', before proceeding towards the target (like a hoop or goal). The angle and force of the bounce are crucial for the shot's success.

'Bank-shot' Significance in Basketball

The term 'bank-shot' is most commonly and significantly associated with **Basketball**. In basketball, the 'bank' is the backboard, a rectangular surface situated behind the hoop. Players frequently use the backboard to help guide the ball into the basket, particularly when shooting from close range or angles where a direct shot might be difficult. By aiming the shot off the backboard, players can control the ball's trajectory and increase their chances of scoring. It's a fundamental technique taught and used by players at all levels of the game.

'Bank-shot' Terminology in Other Sports

- **Football:** While players might occasionally use walls or other surfaces for practice drills, the term 'bank-shot' is not a standard or recognized term within the official rules or common strategies of football. The primary actions involve kicking or heading the ball.
- **Archery:** Archery requires precision aiming directly at a target. The sport does not involve bouncing projectiles off surfaces to score points.

- **Cricket:** In cricket, the game involves batting and bowling. Shots are played using a bat, and the ball is delivered by a bowler. The concept of a 'bank-shot' does not apply to the mechanics or strategies of cricket.

Based on the established terminology and common practices within various sports, the 'bank-shot' is a defining technique primarily related to **Basketball**.

29. Answer: c

Explanation:

Major Dhyan Chand's Birthday: National Sports Day Date in India

National Sports Day in India is observed annually to commemorate the birth anniversary of a legendary figure in Indian sports history, Major Dhyan Chand. This day serves to recognize his immense contributions to hockey and to promote sports and fitness across the country.

Significance of Major Dhyan Chand

Major Dhyan Chand, often referred to as "The Wizard" or "The Magic Maestro" of hockey, was an extraordinary athlete whose skills and achievements left a lasting legacy. He is widely considered one of the greatest hockey players in the history of the sport.

- Born on August 29, 1905.
- Led the Indian hockey team to three Olympic gold medals in 1928 (Amsterdam), 1932 (Los Angeles), and 1936 (Berlin).
- His career spanned over two decades, during which he scored an astonishing number of goals, estimated to be over 400.
- His masterful stick work and goal-scoring ability earned him international acclaim.

Why August 29th is Celebrated as National Sports Day

In honor of Major Dhyan Chand's unparalleled achievements and his role in popularizing hockey in India and globally, the Government of India declared his birthday, **August 29th**, as the National Sports Day. This decision was made to pay tribute to his dedication and excellence in sports.

The key details are:

- The date chosen for National Sports Day is **August 29th**.
- This date coincides with the birthday of Major Dhyan Chand.
- The day aims to inspire people, especially the youth, to engage in sports and physical activities.

Conclusion

Therefore, Major Dhyan Chand's birthday, celebrated on **August 29th**, is designated as National Sports Day in India. This day is a reminder of the importance of sports in building a healthy and vibrant nation.

30. Answer: d

Explanation:

French Establishments Sovereignty Transfer

The question asks about the specific territories that France ceded to India in full sovereignty. These territories were historically known as the French Establishments in India (Établissements français dans l'Inde). Understanding which territories constituted these establishments is key to answering the question correctly.

Details of Ceded French Territories

France held several small territorial enclaves in India. Following India's independence, negotiations took place regarding the status of these French possessions. Eventually, France decided to transfer full sovereignty of these territories to India. The main French Establishments included:

- Pondicherry (now Puducherry)
- Karikal (now Karaikal)
- Yanam (in Andhra Pradesh)
- Mahe (in Kerala)
- Chandernagore (in West Bengal, ceded earlier in 1950)

Analysis of Options

Let's examine the options provided in relation to the historical French Establishments:

- **Pondicherry:** This was the largest and most prominent of the French Establishments and was indeed ceded to India.
- **Karikal:** Located south of Pondicherry, Karikal was another significant French possession that was transferred to India.
- **Mahe:** Situated on the Malabar Coast, Mahe was also part of the French territories ceded to India.

Since Pondicherry, Karikal, and Mahe were all territories that France formally ceded to India, the option that includes all of them represents the complete set of territories mentioned in the question's context.

Conclusion on Cession

The process of cession culminated in the formal transfer, making all the mentioned territories – Pondicherry, Karikal, and Mahe – fully sovereign Indian territories. Therefore, the correct answer encompasses all these specific locations.

31. Answer: a

Explanation:

This solution explains the historical significance of Alma Ata and identifies the country it served as the capital of.

Alma Ata: Historical Capital Significance

Alma Ata, formerly known as Verniy and later as Alma-Ata, holds significant historical importance in Central Asia. Understanding its role requires looking back at the political geography of the region during the 20th century.

Identifying Alma Ata's Capital Role

Alma Ata served as the capital city of **Kazakhstan** for a considerable period. It was the capital during the Soviet era and continued to be the capital after Kazakhstan gained independence from the Soviet Union.

- **1929–1997:** Alma Ata was the capital of the Kazakh Soviet Socialist Republic (SSR) and subsequently the independent Republic of Kazakhstan.

Historical Context and Capital Transition

The city's tenure as the capital ended in 1997 when the government relocated the capital functions to Astana (now Nur-Sultan), which is centrally located.

- The transition from Alma Ata to Astana marked a new chapter in Kazakhstan's development, reflecting a strategic move towards a more centralized location within the country.

Examining Other Options

To confirm the correct answer, it's useful to consider the other options:

- **Uzbekistan:** The capital of Uzbekistan is Tashkent.
- **Turkmenistan:** The capital of Turkmenistan is Ashgabat.
- **Mongolia:** The capital of Mongolia is Ulaanbaatar.

None of these Central Asian countries had Alma Ata as their capital city.

Conclusion on Alma Ata's Capital Status

Based on historical records, Alma Ata was the capital of **Kazakhstan** for many decades, playing a crucial role in the country's administration and development before the capital was moved.

32. Answer: c

Explanation:

Beaufort Scale: Measuring Wind Velocity

The **Beaufort scale** is a widely recognized system used to estimate **wind velocity** (or wind speed) at sea or on land. It was developed in the early 19th century by Sir Francis Beaufort of the British Royal Navy. The scale links wind speed to observed conditions, such as the state of the sea or the effects of the wind on land-based objects like trees and buildings.

The scale ranges from Force 0 (calm) to Force 12 (hurricane). Each force number corresponds to a specific range of wind speeds, described by observable phenomena. For example, Force 4 (moderate breeze) is described as winds that raise dust and loose paper and are felt on the face, with speeds between 11–16 knots (13–18 mph or 20–28 km/h). Force 10 (storm) involves very high winds causing extensive damage, with speeds between 48–55 knots (55–63 mph or 89–102 km/h).

Analyzing Measurement Options for the Beaufort Scale

Let's examine the options provided to understand what the **Beaufort scale** measures:

- **Atmospheric pressure:** This is typically measured using a barometer, not the Beaufort scale. Atmospheric pressure relates to the weight of the air pressing

down on the Earth's surface.

- **Altitudes of mountains:** Measuring the height or altitude of mountains involves techniques like surveying, using altimeters (often based on barometric pressure or GPS), or trigonometric methods. The Beaufort scale is not related to altitude measurement.
- **Wind velocity:** This is precisely what the Beaufort scale estimates. It provides a qualitative and quantitative description of wind speed based on observed conditions, making it a practical tool for sailors and meteorologists.
- **Intensity of earthquakes:** The intensity of earthquakes is measured using scales like the Richter scale (for magnitude) or the Modified Mercalli Intensity (MMI) scale (for observed effects and damage), neither of which is the Beaufort scale.

Conclusion on Beaufort Scale Measurement

Based on its definition and application, the **Beaufort scale** is specifically designed to describe and estimate **wind velocity**. It connects observed environmental effects directly to wind speed categories, providing a practical way to gauge the strength of the wind.

33. Answer: d

Explanation:

This question asks to identify the specific strait that the International Date Line traverses. Let's explore the geography related to the International Date Line and the given options.

Understanding the International Date Line

The **International Date Line** is an imaginary line that runs mostly north-south across the Pacific Ocean on the globe. It serves as the line that separates one calendar day from the next. When you cross the line, the date changes: moving westward advances the date by one day, while moving eastward moves it back one day.

Locating the Bering Strait

The **Bering Strait** is a narrow sea strait that connects the Arctic Ocean (specifically the Chukchi Sea) to the Pacific Ocean (specifically the Bering Sea). It separates Russia's Chukchi Peninsula to the west from the Seward Peninsula of Alaska, United States, to the east.

Crucially, the **International Date Line** is routed through the Bering Strait. It deviates from the 180th meridian to avoid cutting through the Aleutian Islands or the territory of Alaska and Siberia, passing between Big Diomed Island (Russia) and Little Diomed Island (USA). This makes the Bering Strait the correct answer.

Analyzing Other Straits

Let's look at why the other options are incorrect:

- **Strait of Malacca:** This is a major shipping lane located between the Malay Peninsula and the Indonesian island of Sumatra. It connects the Pacific Ocean to the Indian Ocean and does not intersect the International Date Line.
- **Strait of Magellan:** Located at the southern tip of South America, this strait separates mainland Chile from Tierra del Fuego. It connects the Atlantic Ocean to the Pacific Ocean and is far from the International Date Line.
- **Strait of Gibraltar:** This strait connects the Atlantic Ocean to the Mediterranean Sea and separates Spain (Europe) from Morocco (Africa). It is not related to the International Date Line.

Conclusion

Based on the geographical location and the defined path of the International Date Line, it passes through the **Bering Strait**.

34. Answer: b

Explanation:

Double Fault Usage in Tennis

The term "**double fault**" is a specific rule and terminology used in the sport of **Tennis**. It signifies a particular type of error made by a player during their service turn.

Understanding the Double Fault in Tennis

In **Tennis**, a player is allowed two attempts to serve the ball legally into the opponent's designated service box. The sequence of events leading to a double fault is as follows:

- **First Serve Attempt:** The server attempts to hit the ball into the opponent's service box.
- **Fault on First Serve:** If the first serve is unsuccessful (e.g., it hits the net and doesn't go over, lands outside the correct service box, or the server steps on or over the baseline before hitting the ball), it is called a "fault".
- **Second Serve Attempt:** The server then gets a second chance to serve.
- **Fault on Second Serve:** If the second serve attempt is also unsuccessful in the same manner as the first serve, it results in a "**double fault**".

When a **double fault** occurs, the server immediately loses the point. This makes the second serve a high-pressure moment for players.

Comparing with Other Sports

The term "**double fault**" is specific to **Tennis** and does not apply to the other sports mentioned:

- **Volleyball:** While errors can occur during serves in Volleyball (e.g., serving into the net, serving out of bounds), leading to a loss of serve and a point for the opposition, there isn't a specific rule called a "double fault" where two consecutive serving errors result in a unique penalty.
- **Snooker:** Snooker involves potting balls. Faults happen, such as the cue ball being potted or making contact with a ball illegally. Penalties are awarded, but the concept of a "double fault" related to serving does not exist.
- **Kabaddi:** Kabaddi is a contact sport with different rules involving raids and defence. Faults or rule violations might occur, but they are unrelated to serving.

and the term "double fault" is not applicable.

Significance of Double Faults

In **Tennis**, minimizing **double faults** is crucial for players, especially during important matches. It often results from trying to serve with excessive speed or spin, leading to a loss of control. Players work on their serving technique and mental focus to avoid committing double faults.

35. Answer: b

Explanation:

Leander Paes Association with Sports

This section explains the sport associated with the renowned athlete Leander Paes. Leander Paes is a globally recognized figure in the world of sports, particularly famous for his achievements in professional sports.

Exploring Leander Paes' Sporting Career

Leander Paes has had a long and distinguished career. He is most famous for his success in **doubles** and **mixed doubles** categories in professional tennis.

- He has won multiple Grand Slam titles in doubles and mixed doubles.
- He represented India in numerous Davis Cup tournaments and Olympic Games.
- His partnership with various players, like Mahesh Bhupathi and Martina Navratilova, is well-known in the tennis circuit.

Detailed Analysis of Sports Options

Let's examine the options provided to determine the correct sport associated with Leander Paes.

Understanding Tennis and Leander Paes

Tennis is a racket sport that can be played individually against a single opponent (singles) or between two teams of two players each (doubles). The game is played with a racket that is used to strike a ball over a net into the opponent's court. Leander Paes is one of India's most celebrated tennis players. His expertise lies primarily in doubles and mixed doubles, where he has achieved significant international success, including Grand Slam victories and Olympic medals.

Evaluating Other Sports

The question asks for the sport Leander Paes is associated with. While he is a prominent athlete, his career is specifically linked to one sport:

- **Badminton:** This is a racket sport played using rackets to hit a shuttlecock across a net. Leander Paes is not primarily known for playing professional badminton.
- **Gymnastics:** This involves performances of exercises requiring physical strength, flexibility, agility, balance, and control. Leander Paes's athletic discipline is not gymnastics.
- **Hockey:** This is a team sport played with sticks used by players to hit a ball or a puck into the opposing goal. Leander Paes is not associated with professional hockey.

Based on Leander Paes's career highlights and international recognition, his primary sport is **Tennis**.

36. Answer: d

Explanation:

The correct answer is **1965**.

Lord Louis Mountbatten, India's last Viceroy and first Governor-General of independent India (1947–48), returned to the Royal Navy after his Indian tenure. He

rose to become **First Sea Lord (1955–59)** and then **Chief of the Defence Staff of the United Kingdom (1959–1965)**. He retired from active service in 1965.

He was later assassinated in 1979 by the Provisional IRA. The other years are not linked to his retirement: 1947 marks his arrival as Viceroy of India, 1950 has no relevance to his career, and 1959 is when he became Chief of the Defence Staff, not when he retired.

37. Answer: c

Explanation:

First Governor General of Dominion of India Post 1947 Act

This solution explains who became the first Governor General of the new Dominion of India following the enactment of the Indian Independence Act of 1947. Understanding this role is crucial for grasping the initial transition of power in independent India.

Historical Context: Indian Independence Act 1947

The Indian Independence Act of 1947 marked a significant turning point in history, leading to the end of British rule in India and the creation of two independent dominions: India and Pakistan. This Act officially designated the new political structure, including the roles of the Governor-General for each dominion.

Analysis of Candidates for First Governor General

Let's analyze the roles of the individuals mentioned in the options in the context of India's independence:

- **Jawahar Lal Nehru:** While a towering figure in India's independence movement and the first Prime Minister of independent India, he did not serve as the

Governor-General. His primary role was leading the government as Prime Minister.

- **C. Rajagopalachari:** Chakravarti Rajagopalachari was a prominent leader and statesman. He later served as the Governor-General of India from June 1948 to January 1950, succeeding Lord Mountbatten. He was the first and last Indian to hold this position before India became a republic.
- **Lord Mountbatten:** Louis Mountbatten, the last Viceroy of British India, was appointed as the first Governor-General of the independent Dominion of India. He played a key role in the partition process and oversaw the transition from British rule to Indian self-governance. His term began on August 15, 1947.
- **Sardar Vallabhbhai Patel:** Sardar Patel was a crucial leader, instrumental in integrating princely states into the Indian union. He served as the Deputy Prime Minister and Home Minister in the first independent government but was not the Governor-General.

Conclusion on the First Governor General

Based on the historical events and the provisions of the Indian Independence Act of 1947, **Lord Mountbatten** was appointed as the first Governor-General of the new Dominion of India. He transitioned from his role as Viceroy to this new position, overseeing the initial phase of India's independence.

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38. Answer: c

Explanation:

Mauryan Empire Administration and Accounts

The Mauryan Empire featured a complex and organised administrative structure designed to manage its vast territories effectively. A key aspect of this administration was the meticulous maintenance of records and accounts, essential for governance, taxation, and resource management. Several officials held specific responsibilities within this system.

The Role of the Gopa in Village Accounts

The question asks about the official responsible for accounts in the Mauryan empire. Among the options provided, the **Gopa** held a crucial position related to record-keeping and foundational accounting at the local level.

- The **Gopa** was essentially the village superintendent or administrator.
- Their duties included managing the village's affairs and, importantly, maintaining detailed records.
- These records encompassed vital information such as the village population (census data), number of livestock, land ownership details, and other property assessments within the village.
- This meticulous record-keeping served as the bedrock for calculating taxes and managing village resources, making the Gopa responsible for the basic accounting functions at the grassroots level of the Mauryan administration.

Other Mauryan Officials and Their Functions

Understanding the roles of the other officials helps clarify the Gopa's specific responsibility concerning accounts:

- **Yavaharika:** This official served as the Chamberlain or Steward, primarily responsible for the management of the king's royal household, including its expenses and potentially the king's private treasury. While related to finance, this role focused specifically on the royal household rather than the general state revenue or village-level records.
- **Akaradhyaksha:** This title refers to the Superintendent of Mines. Their responsibilities were centered around the administration of mines and the revenue generated from them.
- **Navaadhyaksha:** This official was the Superintendent of Ships, overseeing matters related to ships, possibly including maritime trade, transport, or naval activities.

Identifying Responsibility for Accounts

While officials like the 'Kosadhyaksha' (Treasurer, not an option here) were directly in charge of the state treasury, the **Gopa's** role in maintaining village-specific records of population, property, and livestock made them fundamentally responsible for the initial and essential data collection that formed the basis of the empire's accounts and revenue system. Therefore, in the context of foundational record-keeping vital for the empire's finances, the Gopa is identified as responsible.

39. Answer: a

Explanation:

Identifying the Founder of the Slave Dynasty

The question asks to identify the individual who was a slave of Muhammad Ghori and became the ruler after Ghori's death, subsequently founding the Slave Dynasty. This period marks the beginning of the Delhi Sultanate in India.

Analysis of Options for Slave Dynasty Founder

Let's look at the options provided:

- **Qutub-ud-din Aibak:** Known to be a trusted slave and general of Muhammad Ghori. He played a crucial role in Ghori's conquests in India. After Ghori's death, he declared independence and established his rule.
- **Iltutmish:** He was also a slave, initially of Qutub-ud-din Aibak, and later became Aibak's son-in-law and successor. He is considered a significant ruler who consolidated the Slave Dynasty and the Delhi Sultanate.
- **Ghiyas ud din Balban:** A prominent later ruler of the Slave Dynasty. He served earlier rulers before ascending the throne. He was a powerful figure who strengthened the Sultanate's administration and military.
- **Nasir-ud-din Mahmud:** A grandson of Iltutmish. He was a weak ruler, and Balban served as his regent before eventually succeeding him.

Based on historical records, Qutub-ud-din Aibak fits the description of being Muhammad Ghori's slave who founded the Slave Dynasty after his master's death.

Qutub-ud-din Aibak: Muhammad Ghori's Slave and Founder

Qutub-ud-din Aibak was a Turkic slave who rose through the ranks in the service of Muhammad Ghori. Ghori, a ruler from the Ghurid dynasty, invaded and conquered significant parts of northern India in the late 12th century. Aibak proved to be a loyal and capable general and administrator, managing the conquered territories in India on behalf of Ghori.

After Muhammad Ghori's death in 1206 CE, without a direct heir in India, Aibak seized the opportunity to establish his own independent rule. He founded a new dynasty, which came to be known as the Slave Dynasty (or Mamluk Dynasty) because its rulers, including Aibak himself, had originated as slaves. This event marked the effective beginning of the Delhi Sultanate, with Delhi eventually becoming the capital under his successors.

Establishment of the Slave Dynasty in Delhi Sultanate

The Slave Dynasty was the first of the dynasties that ruled the Delhi Sultanate. While Aibak founded the dynasty and is considered the first Sultan of Delhi, his reign was relatively short. It was his successor, Iltutmish, who is often credited with truly consolidating the Sultanate and establishing its administrative structure firmly in Delhi. Balban, another prominent ruler from this dynasty, further strengthened the state.

Key Figures in the Slave Dynasty's Beginning

The early rulers were connected through servitude:

- **Qutub-ud-din Aibak:** Slave of Muhammad Ghori, founder of the dynasty.
- **Iltutmish:** Slave of Aibak, his son-in-law and successor, considered the real consolidator.
- **Balban:** A later prominent ruler of the dynasty.

Revision Table: Key Figures and Roles in the Early Delhi Sultanate

Figure	Relation/Origin	Role/Contribution
Muhammad Ghori	Ghurid Ruler	Conquered parts of Northern India
Qutub-ud-din Aibak	Slave of Muhammad Ghori	Founded the Slave Dynasty, first ruler of Delhi Sultanate
Iltutmish	Slave of Qutub-ud-din Aibak	Consolidated the Slave Dynasty and Delhi Sultanate
Ghiyas ud din Balban	Prominent later ruler	Strengthened the Sultanate

Additional Information on the Slave Dynasty and Delhi Sultanate

The term "Slave Dynasty" or "Mamluk Dynasty" refers to the fact that its founders were originally slaves who rose to positions of power and military command under their masters. This was a common system in the Islamic world, where loyal and capable slaves (Mamluks) were preferred for military and administrative roles over hereditary nobles, to ensure loyalty to the Sultan. When their master died, some of these Mamluks were able to establish their own independent kingdoms. The Delhi Sultanate, established by Aibak, lasted for over 300 years, ruled by various dynasties including the Khiljis, Tughlaqs, Sayyids, and Lodis, before being conquered by the Mughals.

40. Answer: b

Explanation:

The correct answer is option 2) i.e. Bengaluru.

- Bengaluru, capital of Karnataka is called as the Space city of India, as it houses ISRO and other space application centres like URSC & ISTRAC .
- U R Rao Satellite Centre (URSC), Bengaluru, formerly known as ISRO Satellite Centre (ISAC) is the lead centre for building satellites and developing associated satellite technologies.
- ISRO Telemetry, Tracking and Command Network (ISTRAC), Bengaluru is entrusted with the major responsibility to provide tracking support for all the satellite and launch vehicle missions of ISRO.
- Bengaluru is also called Silicon Valley of India, Electronic city of India & Garden city of India.

41. Answer: c

Explanation:

Understanding the Solar Constant Value

The Solar Constant is a fundamental measure in physics and meteorology that describes the rate at which energy from the Sun is received per unit area at the top of Earth's atmosphere, on a surface perpendicular to the Sun's rays, when the Earth is at its mean distance from the Sun. It is essentially a measure of the intensity of solar radiation.

Defining the Solar Constant

The Solar Constant is not truly constant over very long periods (geological timescales) or even short periods (due to solar activity like sunspots). However, it is relatively stable compared to the variations caused by Earth's orbit or atmospheric conditions. The term "constant" refers to the average value measured outside the atmosphere, eliminating atmospheric absorption and scattering effects.

The unit for the Solar Constant is typically Watts per square meter (W/m^2), which represents power (energy per unit time) per unit area.

Typical Value of the Solar Constant

Measurements from satellites and other instruments have provided increasingly precise values for the Solar Constant. While slightly different values might be cited depending on the source or time of measurement, a commonly accepted average value is around 1361 Watts per square meter (W/m^2). However, values in textbooks or older sources might vary slightly.

Analyzing the Given Options for Solar Constant

Let's look at the provided options for the value of the Solar Constant:

- 1347 W/m^2
- 1357 W/m^2
- 1400 W/m^2
- 1377 W/m^2

Comparing these options to the typical measured values, 1347 W/m^2 and 1357 W/m^2 are somewhat close to the modern average ($\sim 1361 W/m^2$). 1377 W/m^2 is also relatively close. The value 1400 W/m^2 is slightly higher than the most current accepted averages but has historically been used as an approximate or rounded value in some contexts.

Based on the options provided and common historical or simplified values, we consider which value is presented as a potential Solar Constant.

Determining the Solar Constant Value

Among the given choices, the value that is presented as a potential Solar Constant is 1400 W/m^2 . While more recent precise measurements hover around 1361 W/m^2 , older references or simplified figures might use values slightly above this, such as 1400 W/m^2 . Therefore, selecting from the provided options, the value indicated is 1400 W/m^2 .

Summary of Solar Constant Concept

Concept	Description	Unit
Solar Constant	Solar energy received per unit area at Earth's mean distance, outside atmosphere	W/m^2
Typical Value (approx.)	Around $1361\ W/m^2$; varies slightly with solar activity	W/m^2

Revision Table: Key Concepts on Solar Constant

Term	Definition	Typical Value (approx)
Solar Constant	Measure of solar radiation intensity at Earth's average orbital distance, perpendicular to rays, above the atmosphere.	$1361\ W/m^2$ (modern average) $1400\ W/m^2$ (sometimes used approximation)
Units	Power per unit area	Watts per square meter (W/m^2)

Additional Information on Solar Radiation

The Solar Constant is a crucial input for climate models and understanding Earth's energy balance. The actual amount of solar radiation reaching Earth's surface varies significantly depending on:

- **Atmospheric conditions:** Clouds, aerosols, and greenhouse gases absorb and scatter solar radiation.
- **Latitude:** The angle at which solar rays hit the surface affects the intensity.
- **Time of day and season:** Influenced by the angle of the sun and length of daylight.
- **Earth's orbital variations:** Earth's distance from the sun varies throughout the year (perihelion and aphelion), causing small changes in the solar radiation

received.

The Solar Constant represents the energy available before these factors modify it as it travels through the atmosphere.

42. Answer: c

Explanation:

Identifying the North Flowing World River

This question asks us to identify which major world river among the given options flows predominantly in a northward direction. Understanding the geographical flow of major rivers is key to answering this question.

River Flow Direction Analysis

Let's examine the general direction of flow for each river listed in the options:

- **The Amazon River:** This massive river, located in South America, primarily flows eastward across the continent. It empties into the Atlantic Ocean.
- **The Ganges River:** Situated in the Indian subcontinent, the Ganges flows generally eastward through India and Bangladesh. It drains into the Bay of Bengal.
- **The Nile River:** The Nile is famously known as a north-flowing river. It originates in northeastern Africa and flows northwards through several countries, including Egypt, before emptying into the Mediterranean Sea.
- **The Mississippi River:** This major river system in North America flows generally southward through the central United States. It empties into the Gulf of Mexico.

Conclusion on River Flow

Based on the analysis of the general directions of these significant rivers, **The Nile** is the river that flows north.

43. Answer: b

Explanation:

Understanding Raniganj's Fame in West Bengal

Raniganj, located in the Paschim Bardhaman district of West Bengal, holds a significant place in India's industrial history. It is widely recognized for a specific mineral resource that has shaped its economy and identity for centuries.

Let's explore why Raniganj is famous by examining the given options:

- **Iron Ore:** Iron ore is a key mineral, but major iron ore belts in India are primarily located in states like Odisha, Jharkhand, Chhattisgarh, Karnataka, and Goa. While West Bengal has some mineral deposits, it is not primarily famous for iron ore production on the same scale as other regions.
- **Coal Mines:** Coal is a fossil fuel extensively used for energy generation and industrial purposes. Raniganj is home to the Raniganj Coalfield, which is one of the oldest and most important coal mining areas in India. Commercial exploitation of coal in India began in the Raniganj Coalfield in the late 18th century. This region is synonymous with coal mining.
- **Uranium:** Uranium is a radioactive element primarily used as fuel in nuclear power plants. Significant uranium deposits in India are found in states like Jharkhand (Jaduguda), Andhra Pradesh, and Meghalaya. West Bengal is not known for major uranium reserves.
- **Bauxite:** Bauxite is the primary ore of aluminium. Major bauxite deposits in India are found in states like Odisha, Andhra Pradesh, Gujarat, Chhattisgarh, Madhya Pradesh, Maharashtra, Jharkhand, and Karnataka. West Bengal is not a leading producer of bauxite.

Based on the historical and geographical significance, Raniganj is predominantly famous for its extensive coal reserves and mining activities.

The Significance of Raniganj Coalfield

The Raniganj Coalfield is part of the larger Damodar Valley Coalfield. It covers a significant area and has been a major source of coal for India's energy needs for over two centuries. The coal from this region is primarily of the sub-bituminous to bituminous type.

Key facts about the Raniganj Coalfield:

- It is one of the oldest coalfields in India.
- Commercial mining started here around 1774.
- It is a vital source of coal for various industries and power plants in Eastern India and beyond.
- The region has a long history and cultural association with coal mining.

Comparing Mineral Resources in West Bengal

While West Bengal has deposits of several minerals, its fame regarding Raniganj is undeniably linked to coal. Here's a brief comparison:

Mineral	Presence in West Bengal	Raniganj's Association	Overall Fame of Raniganj
Iron Ore	Limited presence	Not significant	Low
Coal	Extensive reserves	Home to oldest coalfield	Very High
Uranium	Not significant	None	None
Bauxite	Not significant	None	None

This comparison clearly shows that Raniganj's fame is rooted in its contribution to coal mining.

Conclusion on Raniganj's Famous Resource

Considering the historical context, geological facts, and industrial significance, Raniganj in West Bengal is famously known for its **Coal Mines**. The Raniganj Coalfield has played a pivotal role in the industrial development of India.

Revision Table: Raniganj Coal Mines

Aspect	Details
Location	Raniganj, Paschim Bardhaman district, West Bengal, India
Primary Fame	Coal Mines
Associated Coalfield	Raniganj Coalfield
Historical Significance	One of the oldest coal mining areas in India (mining since late 18th century)
Type of Coal	Primarily sub-bituminous to bituminous

Additional Information: Coal Mining in India

India is one of the largest producers and consumers of coal globally. Coal is a critical source of energy for power generation (thermal power plants) and is used in various industries, including steel production (coking coal). The coal industry in India is largely managed by government-owned companies like Coal India Limited (CIL) and its subsidiaries, which include Eastern Coalfields Limited (ECL) operating in the Raniganj area. Coal mining involves various methods, including opencast mining (surface mining) and underground mining. Despite its importance, coal mining and usage also raise environmental concerns, such as air pollution and greenhouse gas emissions, leading to increasing focus on renewable energy sources.

44. Answer: d

Explanation:

Locating Namibia Geographically

This question asks about the continent where the country of Namibia is found. Understanding the geographical placement of countries is important in geography studies.

Namibia's Position on the World Map

Namibia is a country located in the southwestern region of the continent of **Africa**. It has a long coastline along the Atlantic Ocean.

Understanding Namibia's Location

- **Continent:** Africa
- **Region:** Southern Africa
- **Geographical Context:** Namibia is situated between Angola to the north, Zambia and Botswana to the east, South Africa to the south and east, and the Atlantic Ocean to the west.

Comparing Continental Locations

Let's briefly consider why the other options are not correct locations for Namibia:

- **North America:** This continent includes countries like Canada, the USA, and Mexico. Namibia is nowhere near North America.
- **Asia:** This is a vast continent containing countries like China, India, and Russia. Namibia is geographically separate from Asia.
- **South America:** This continent includes countries such as Brazil and Argentina. Namibia is located across the Atlantic Ocean from South America and shares no borders or proximity with it.

Based on these geographical facts, Namibia is located in **Africa**.

45. Answer: a

Explanation:

The Visionary Creator of Chandigarh's Rock Garden

The Rock Garden in Chandigarh is a unique masterpiece, famous for its stunning mosaic of sculptures created entirely from recycled waste materials. It's a symbol of innovation and artistic dedication.

Identifying the Rock Garden's Architect

The genius behind the creation of this iconic Rock Garden is **Nek Chand**. He began this remarkable project secretly in 1957, transforming a collection of discarded items into a sprawling, magical realm. His work showcases immense creativity and a deep understanding of sculpting with unconventional materials.

Examining the Options for the Rock Garden Creator

Let's review the names presented in the options:

- **Nek Chand**: This is the correct individual credited with conceiving and building the Rock Garden of Chandigarh from scrap materials.
- **Khuswant Singh**: Known primarily as a respected author and journalist, he is not associated with the creation of the Rock Garden.
- **Edward Baker**: This name does not correspond to the creator of the Rock Garden.
- **Charles Corbusier**: While the famous architect Charles-Édouard Jeanneret-Gris (known as Le Corbusier) was instrumental in designing the city of Chandigarh, he was not involved in the creation of the Rock Garden. The garden is the work of **Nek Chand**.

Nek Chand's persistent efforts and unique artistic vision transformed discarded waste into a celebrated work of art, making him the definitive creator of the Rock Garden of Chandigarh.

46. Answer: b

Explanation:

Gulliver Travels Author Identification

This question requires identifying the author of the famous satirical novel, '**Gulliver Travels**'. Understanding the authorship of classic literature is key to appreciating its context and meaning.

Exploring the Author of 'Gulliver Travels'

The celebrated work '**Gulliver Travels**' was penned by **Jonathan Swift**. Published in 1726, this satirical masterpiece remains widely read and studied today.

Jonathan Swift and His Work

Jonathan Swift was a prominent Irish writer, known particularly for his sharp wit and satirical style. '**Gulliver Travels**' is perhaps his most famous work, detailing the journeys of the fictional character Lemuel Gulliver to various imaginary lands. The novel serves as a vehicle for Swift's critique of human nature, society, and politics.

Analysis of Options Provided

To confirm the correct author, let's briefly consider the options:

- James Fraser: This writer is not known for authoring '**Gulliver Travels**'.
- **Jonathan Swift**: As established, Swift is the author of '**Gulliver Travels**'.
- John Gunther: John Gunther was a 20th-century American journalist and author, famous for his 'Inside' series, but unrelated to '**Gulliver Travels**'.
- None of the above: This option is incorrect because Jonathan Swift is the correct author.

The analysis confirms that **Jonathan Swift** is the writer behind the influential book '**Gulliver Travels**'.

47. Answer: c

Explanation:

Understanding Newton's Law of Gravitation and Force Proportionality

Newton's law of universal gravitation is a fundamental principle in physics that describes the gravitational attraction between any two objects with mass. This law explains why planets orbit stars and why objects fall to the ground on Earth. Let's break down the relationship described by this famous law.

Explaining Newton's Law of Universal Gravitation

Sir Isaac Newton proposed that the gravitational force (F) between two objects depends on two main factors:

- The **masses** of the objects involved.
- The **distance** separating the objects.

Specifically, the law states that the gravitational force is:

- **Directly proportional** to the **product of the masses** of the two objects. This means if you increase the mass of either object (or both), the gravitational force between them increases proportionally.
- **Inversely proportional** to the **square of the distance** between their centers. This means if you double the distance between the objects, the gravitational force becomes four times weaker (since $1/2^2 = 1/4$).

Mathematical Representation

We can express Newton's law of universal gravitation using the following formula:

$$F = G \frac{m_1 m_2}{r^2}$$

Where:

- F is the gravitational force between the objects.
- G is the universal gravitational constant (a fixed value).
- m_1 and m_2 are the masses of the two objects.
- r is the distance between the centers of the two objects.

From this formula, we can clearly see the proportionality:

$$F \propto m_1 m_2$$

$$F \propto \frac{1}{r^2}$$

Analyzing the Options

Now, let's look at the given options in relation to Newton's law:

- **Option 1: Sum of their masses** - The law states the force is proportional to the product ($m_1 \times m_2$), not the sum ($m_1 + m_2$). So, this is incorrect.
- **Option 2: The distance between them** - The force is related to the distance, but it's inversely proportional to the square of the distance, not directly proportional to the distance itself. So, this is incorrect.
- **Option 3: Product of their masses** - As shown in the formula ($F \propto m_1 m_2$), the gravitational force is directly proportional to the product of the masses. This matches the law.
- **Option 4: Square of distance between them** - The force is inversely proportional to the square of the distance ($F \propto 1/r^2$), meaning it decreases as the square of the distance increases. It is not directly proportional to r^2 . So, this is incorrect.

Conclusion on Gravitational Force

Based on Newton's law of universal gravitation, the **gravitational force** between two objects is directly proportional to the **product of their masses**.

48. Answer: a

Explanation:

Origin of Four Vedic Classes in Purusha Sukta

The structure of Vedic society underwent significant evolution over time. Early Vedic society was more fluid, but later texts describe a more defined social hierarchy. The question asks specifically about the mention of dividing Vedic society into four distinct classes. This division is a foundational concept in understanding ancient Indian social stratification.

Analyzing the Purusha Sukta and Social Division

The **Purusha Sukta** is a famous hymn found in the **Rigveda**, which is considered the oldest of the four Vedas. This hymn describes the creation of the universe through the cosmic sacrifice of a primordial being, known as Purusha.

Within the Purusha Sukta, there's a specific verse that describes how the four orders, or *varnas*, of society originated from different parts of Purusha's body:

- **Brahmins** (priests and scholars) emerged from his mouth.
- **Kshatriyas** (warriors and rulers) emerged from his arms.
- **Vaishyas** (merchants and farmers) emerged from his thighs.
- **Shudras** (laborers and service providers) emerged from his feet.

This hymn is widely recognized by scholars as the earliest textual reference to this conceptualization of a four-fold division of society based on occupation and birth, establishing a hierarchical structure.

Significance of Other Vedic Texts

Let's briefly consider the other options:

- **Yajurveda**: This Veda focuses primarily on sacrificial rituals and mantras. While it contains social and religious information, it doesn't contain the origin myth of the four classes as described in the Purusha Sukta.
- **Mundaka Upanishad**: This Upanishad is part of the later Vedic period and delves into philosophical and metaphysical concepts, particularly about

knowledge and liberation. It discusses different types of knowledge but isn't the primary source for the origin of the four social classes.

- **Shatapatha Brahmana:** This text is a detailed commentary on the sacrificial rituals associated with the Yajurveda. It elaborates on various practices and theories but the initial mention of the four-class origin is attributed to the earlier Rigvedic hymn.

Conclusion on Vedic Social Structure

Therefore, the **Purusha Sukta** within the **Rigveda** is the foundational text that explicitly mentions the division of Vedic society into four classes, explaining their origin from the cosmic Purusha. This concept significantly influenced the development of the *varna* system in ancient India.

49. Answer: b

Explanation:

Exploring India's First Indigenous Aircraft Carrier

India has been progressively strengthening its naval capabilities, with the development of aircraft carriers being a significant milestone. An **indigenous developed Aircraft Carrier** refers to a carrier that is designed and built within India, showcasing the nation's technological and manufacturing prowess in naval shipbuilding.

Understanding Indigenous Naval Development

The term **indigenous** is key here. It means that the aircraft carrier was conceived, designed, and constructed within India. This contrasts with acquiring or refitting ships built in other countries.

Analysis of Indian Aircraft Carrier Options

Let's examine the options provided to identify the **1st indigenously developed Aircraft Carrier of India**:

- **INS Vikramaditya**: This aircraft carrier is a modified Kiev-class Soviet Navy aircraft carrier, Admiral Gorshkov. It was purchased by India from Russia and underwent extensive refitting and upgrades before being commissioned into the Indian Navy. Therefore, it is not *indigenously developed*.
- **INS Vikrant**: This is India's first aircraft carrier built indigenously. Its construction began in 2009 at the Cochin Shipyard Limited (CSL) in Kochi, Kerala. It was designed by the Indian Navy's Directorate of Naval Design and represents a major step in indigenous naval design and construction capabilities. It was commissioned in September 2022.
- **INS Vishal**: This is a planned, larger aircraft carrier for the Indian Navy, intended to be the third carrier. While it will be indigenous, it is a future project and not the first one.
- **INS Khanderi**: This ship is a diesel-electric attack submarine of the Scorpène-class, designed by Naval Group of France and manufactured by Mazagon Dock Limited in India. It is a submarine, not an aircraft carrier.

Conclusion: Identifying India's First Indigenous Carrier

Based on the analysis, INS Vikrant is the vessel that meets the criteria of being the **1st indigenously developed Aircraft Carrier of India**. It was designed and built entirely within the country, marking a significant achievement in India's defense manufacturing sector.

50. Answer: a

Explanation:

Missile Identification: Short Range Surface-to-Air

This explanation focuses on identifying the correct **short range surface to air missile** from the provided options. Surface-to-air missiles (SAMs) are designed to be

launched from the ground to intercept and destroy targets in the air, such as aircraft or helicopters. They are often categorized by their range, including short-range, medium-range, and long-range systems. We will examine each option to determine which fits the description of a **short range surface to air missile**.

Understanding the Missile Options

- **Maitri Missile:** This missile is a result of collaboration between India and France. It is specifically designed as a Very Short Range Air Defence (VSHORAD) system. VSHORAD systems are crucial for close-in defence against low-flying targets and operate at short distances, making the Maitri Missile a prime candidate for the correct answer. Its role aligns perfectly with the "short range" requirement for a surface-to-air missile.
- **Barak-8:** Developed jointly by India and Israel, the Barak-8 is an advanced long-range surface-to-air missile system. It is designed for area air defence, capable of engaging multiple targets at extended ranges. Therefore, it does not fit the description of a **short range** missile.
- **Akash Missile:** India's Akash missile is a medium-range surface-to-air missile. While it is a surface-to-air missile, its operational range falls into the medium category, not the short-range category specified in the question.
- **Helina:** The Helina (Helicopter Integrated Nag) missile is an Indian helicopter-derived anti-tank guided missile (ATGM). Its primary role is to engage enemy armour and ground targets, not aerial threats. Hence, it is not a surface-to-air missile, and specifically not a short-range one.

Conclusion on Missile Classification

Based on the analysis of each option:

- Maitri Missile is a VSHORAD (Very Short Range Air Defence) system.
- Barak-8 is a medium-to-long range SAM.
- Akash Missile is a medium-range SAM.
- Helina is an anti-tank guided missile.

The question specifically asks for the **short range surface to air missile**. The Maitri Missile, with its VSHORAD designation, is the only option that accurately fits this

description. The other options are either medium-range SAMs or have different roles (anti-tank).

51. Answer: a

Explanation:

Understanding Simple Interest Problems

This question involves calculating time based on simple interest principles. We are given that a sum of money grows to three times its original value in **6 years** and asked to find the time it takes to grow to ten times its original value.

Analyzing the Simple Interest Scenario

Let the initial principal amount be denoted by P . Simple interest means the interest earned each year is constant and calculated only on the principal amount.

Condition 1: Sum Triples in 6 Years

- The sum **triples itself** in **6 years**. This means the final amount (A_1) is $3P$.
- The simple interest (SI_1) earned during this period is the final amount minus the principal: $SI_1 = A_1 - P = 3P - P = 2P$.
- The time (T_1) taken for this is 6 years.

Condition 2: Sum Becomes 10 Times

- We want to find the time (T_2) it takes for the sum to become 10 times its original value. This means the final amount (A_2) will be $10P$.
- The total simple interest (SI_2) needed to reach this amount is the difference between the final amount and the principal: $SI_2 = A_2 - P = 10P - P = 9P$.

Calculating the Required Time Using Proportionality

A key property of **simple interest** is that the interest earned is directly proportional to the time period, assuming the principal and interest rate remain constant. This property allows for a simplified calculation.

We can establish a relationship between the interest earned (SI) and the time taken (T):

- From Condition 1: Interest $SI_1 = 2P$ was earned in Time $T_1 = 6$ years.
- From Condition 2: Interest $SI_2 = 9P$ needs to be earned. Let the time required be T_2 years.

Since the interest earned is directly proportional to the time, we can set up the following ratio:

$$\frac{\text{Simple Interest}_1}{\text{Time}_1} = \frac{\text{Simple Interest}_2}{\text{Time}_2}$$

Substituting the values we found:

$$\frac{2P}{6 \text{ years}} = \frac{9P}{T_2}$$

We can cancel the principal amount P from both sides of the equation (as P must be greater than zero):

$$\frac{2}{6} = \frac{9}{T_2}$$

Simplify the fraction on the left side:

$$\frac{1}{3} = \frac{9}{T_2}$$

To find the required time T_2 , we can cross-multiply:

$$T_2 = 9 \times 3$$

$$T_2 = 27 \text{ years}$$

Final Answer Explanation

Therefore, based on the principles of simple interest and the direct proportionality between interest earned and time, it will take **27 years** for the sum of money to become 10 times its original value.

52. Answer: b

Explanation:

Finding the Rate of Interest for Money Doubling

This guide explains how to calculate the rate of interest when an investment doubles in value over a specific period using simple interest.

Understanding the Simple Interest Scenario

The core of the problem involves understanding how simple interest works when the final amount is double the initial principal.

- **Principal Amount (P):** Let the starting sum of money be ' P '.
- **Time Period (T):** The money doubles in 4 years, so $T = 4$ years.
- **Final Amount (A):** Since the sum doubles, the final amount $A = 2P$.
- **Simple Interest (SI):** The interest earned is the difference between the final amount and the principal.

Calculating the Simple Interest (SI)

The simple interest earned is calculated as the final amount minus the principal amount.

Using the formula:

$$SI = A - P$$

Given that the amount doubles ($A = 2P$):

$$SI = 2P - P$$

$$SI = P$$

This calculation shows that the interest earned over the 4 years is equal to the original principal amount.

Step-by-Step Calculation of the Rate of Interest (R)

The formula for simple interest is:

$$SI = \frac{P \times R \times T}{100}$$

We need to find the rate ' R ' (in percent). Let's plug in the values we know:

- $SI = P$ (as calculated above)
- $T = 4$ years

Substituting these into the formula:

$$P = \frac{P \times R \times 4}{100}$$

Now, we solve for ' R ':

1. **Simplify the equation:** Since ' P ' is on both sides (and we assume $P \neq 0$), we can divide both sides by ' P '.

$$1 = \frac{R \times 4}{100}$$

2. **Isolate R:** Multiply both sides by 100 to get the interest rate factor.

$$1 \times 100 = R \times 4$$

$$100 = 4R$$

3. **Calculate R:** Divide by 4 to find the rate of interest.

$$R = \frac{100}{4}$$

$$R = 25$$

Conclusion: The Rate of Interest

The calculation clearly indicates that the rate of interest is 25% per annum.

This means that for the money to double in 4 years at simple interest, the interest rate must be 25%.

53. **Answer: c**

Explanation:

This problem involves calculating the total distance traveled by a boy on a round trip to school. We are given his speed going to school, his speed returning home, and the total time for the entire journey. We need to find the total distance.

Understanding the Key Information

First, let's list the details provided in the question:

- Speed from home to school (let's call it v_1): 10 km/h
- Speed from school back home (let's call it v_2): 6 km/h
- Total time for the journey (home to school and back home, let's call it T): 3 hours

Strategy for Calculating Total Distance

The core relationship we need is between distance, speed, and time:

$$\text{Distance} = \text{Speed} \times \text{Time}$$

This can also be written as:

$$\text{Time} = \text{Distance} / \text{Speed}$$

Let's denote the distance from the boy's home to the school as ' d ' (this is the one-way distance).

- The time taken to travel from home to school (t_1) can be calculated using $t_1 = d/v_1$.
- The time taken to travel from school back home (t_2) can be calculated using $t_2 = d/v_2$.
- The total time (T) is the sum of these two times: $T = t_1 + t_2$.
- The question asks for the total distance traveled, which is the distance going to school plus the distance coming back. Since the distance is the same each way, the total distance is $d + d = 2d$.

Step-by-Step Calculation of One-Way Distance (d)

We can use the total time information to find the one-way distance ' d '.

1. Substitute the expressions for t_1 and t_2 into the total time equation:

$$T = \frac{d}{v_1} + \frac{d}{v_2}$$

2. Plug in the given values:

$$3 \text{ hours} = \frac{d}{10 \text{ km/h}} + \frac{d}{6 \text{ km/h}}$$

3. To solve for ' d ', let's combine the terms on the right side. We can factor out ' d ':

$$3 = d \left(\frac{1}{10} + \frac{1}{6} \right)$$

4. Find a common denominator for $\frac{1}{10}$ and $\frac{1}{6}$. The least common multiple (LCM) of 10 and 6 is 30.

$$\frac{1}{10} = \frac{1 \times 3}{10 \times 3} = \frac{3}{30}$$

$$\frac{1}{6} = \frac{1 \times 5}{6 \times 5} = \frac{5}{30}$$

5. Add the fractions:

$$\frac{3}{30} + \frac{5}{30} = \frac{3+5}{30} = \frac{8}{30}$$

This fraction can be simplified by dividing both numerator and denominator by 2:

$$\frac{8}{30} = \frac{4}{15}$$

6. Now substitute this back into the equation:

$$3 = d \left(\frac{4}{15} \right)$$

7. Solve for 'd' by multiplying both sides by $\frac{15}{4}$:

$$d = 3 \times \frac{15}{4}$$

$$d = \frac{45}{4}$$

8. Convert the fraction to a decimal:

$$d = 11.25 \text{ km}$$

So, the distance from home to school is 11.25 km.

Calculating the Total Distance Travelled

The question asks for the total distance the boy travelled, which includes the trip to school and the trip back home.

- Total Distance = One-way distance (home to school) + One-way distance (school to home)
- Total Distance = $d + d = 2d$

- Substitute the value of ' d ' we found:

$$\text{Total Distance} = 2 \times 11.25 \text{ km}$$

$$\text{Total Distance} = 22.5 \text{ km}$$

Final Answer Verification

Let's quickly check if this total distance works with the given times:

- Time to school (t_1): $11.25 \text{ km} / 10 \text{ km/h} = 1.125 \text{ hours}$
- Time back home (t_2): $11.25 \text{ km} / 6 \text{ km/h} = 1.875 \text{ hours}$
- Total time = $t_1 + t_2 = 1.125 + 1.875 = 3.000 \text{ hours}$.

This matches the total time given in the problem, confirming our calculation.

Conclusion

The total distance travelled by the boy is 22.5 km.

54. Answer: d

Explanation:

This problem involves calculating the ratio of the speeds of two trains based on the time they take to cross a stationary pole and the time they take to cross each other when moving in opposite directions.

Understanding Train Crossing Concepts

Key concepts to remember:

- **Crossing a Pole:** When a train crosses a pole (or a stationary object of negligible length), the distance the train covers is equal to its own length. The formula used is:

$$\text{Speed} = \text{Length} / \text{Time}.$$

- **Crossing Each Other:** When two trains move in opposite directions and cross each other, the total distance covered is the sum of their lengths. Their relative speed is the sum of their individual speeds. The formula is: $\text{Relative Speed} = (\text{Sum of Lengths}) / \text{Time to Cross}$.

Step-by-Step Solution

Let's denote the length of the first train as L_1 and its speed as S_1 . Similarly, let the length of the second train be L_2 and its speed be S_2 .

Calculating Lengths in Terms of Speeds

We are given the time each train takes to cross a pole:

- Train 1 takes 54 seconds to cross a pole. Using the formula $\text{Speed} = \text{Distance} / \text{Time}$, we have: $S_1 = L_1/54$. This implies the length of the first train is $L_1 = 54 \times S_1$.
- Train 2 takes 34 seconds to cross a pole. Similarly: $S_2 = L_2/34$. This implies the length of the second train is $L_2 = 34 \times S_2$.

Calculating Relative Speed and Crossing Time

The trains are running in opposite directions. Therefore, their relative speed is the sum of their individual speeds: $\text{Relative Speed} = S_1 + S_2$.

When they cross each other, the total distance covered is the sum of their lengths: $\text{Total Distance} = L_1 + L_2$.

We are given that they cross each other in 46 seconds.

Using the relative speed formula: $\text{Relative Speed} = \text{Total Distance} / \text{Time to Cross}$

Substituting the expressions we have:

$$(S_1 + S_2) = (L_1 + L_2)/46$$

Finding the Ratio of Speeds

Now, substitute the expressions for L_1 and L_2 into the equation:

$$S_1 + S_2 = (54 \times S_1 + 34 \times S_2)/46$$

Multiply both sides by 46:

$$46 \times (S_1 + S_2) = 54 \times S_1 + 34 \times S_2$$

$$46S_1 + 46S_2 = 54S_1 + 34S_2$$

Now, rearrange the terms to group S_1 terms on one side and S_2 terms on the other:

$$46S_2 - 34S_2 = 54S_1 - 46S_1$$

$$12S_2 = 8S_1$$

To find the ratio of their speeds ($S_1 : S_2$), we can rearrange the equation:

$$S_1/S_2 = 12/8$$

Simplify the fraction:

$$S_1/S_2 = 3/2$$

Therefore, the ratio of their speeds ($S_1 : S_2$) is 3 : 2.

Summary of Calculation

Parameter	Train 1	Train 2	Combined
Time to cross pole	54 s	34 s	-
Length (in terms of speed)	$L_1 = 54S_1$	$L_2 = 34S_2$	-
Time to cross each other (opposite directions)	-	-	46 s
Equation derived	$(S_1 + S_2) = (L_1 + L_2)/46 \implies 46S_1 + 46S_2 = 54S_1 + 34S_2$		
Resulting Ratio ($S_1 : S_2$)	3 : 2		

Conclusion

The ratio of the speeds of the two trains is **3 : 2**.

55. Answer: c

Explanation:

Calculating Train Speed: Passing Platform and Man

This problem involves calculating the speed of a train based on the time it takes to pass a platform of a known length and the time it takes to pass a stationary man.

Understanding the Concepts

- When a train passes a stationary object of negligible length (like a man or pole), the distance covered by the train is equal to its own length.
- When a train passes a platform or a bridge, the total distance covered by the train is the sum of its own length and the length of the platform or bridge.
- The fundamental formula relating speed, distance, and time is:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

Step-by-Step Solution

1. Define Variables:

- Let the length of the train be L meters.
- Let the speed of the train be S m/s.

2. Analyze Passing the Man:

- The train passes a man in 15 seconds.
- The distance covered when passing the man is the length of the train, L .
- Using the speed formula:

$$S = \frac{L}{15}$$

(Equation 1)

3. Analyze Passing the Platform:

- The train passes a platform 90 m long in 30 seconds.
- The distance covered when passing the platform is the length of the train plus the length of the platform, which is $(L + 90)$ meters.
- Using the speed formula:

$$S = \frac{L + 90}{30}$$

(Equation 2)

4. Equate the Speeds:

Since the speed of the train (S) is constant in both scenarios, we can equate Equation 1 and Equation 2:

$$\frac{L}{15} = \frac{L + 90}{30}$$

5. Solve for the Length of the Train (L):

- Cross-multiply the equation:

$$30 \times L = 15 \times (L + 90)$$

- Simplify the equation:

$$30L = 15L + 1350$$

- Subtract $15L$ from both sides:

$$30L - 15L = 1350$$

$$15L = 1350$$

- Divide by 15 to find L :

$$L = \frac{1350}{15}$$

$$L = 90 \text{ meters}$$

So, the length of the train is 90 meters.

6. Calculate the Speed of the Train (S):

Now, substitute the value of L (90 meters) back into Equation 1:

$$S = \frac{L}{15}$$

$$S = \frac{90}{15}$$

$$S = 6 \text{ m/s}$$

Final Answer Determination

The calculated speed of the train is 6 m/s. This matches option 3.

56. Answer: b

Explanation:

Understanding the Initial Selling Price and Loss

The question describes a scenario where a seller sells an item for **Rs. 1,200** and incurs a **20% loss**. We need to find the price at which the item should be sold to achieve a **5% profit**.

First, it's crucial to determine the original **Cost Price (CP)** of the item. When a loss occurs, the selling price is less than the cost price.

A **20% loss** means the seller received only **80%** of the Cost Price ($100\% - 20\% = 80\%$).

We can express this relationship using the formula:

$$\text{Selling Price (SP)} = \text{Cost Price (CP)} \times (1 - \text{Loss Percentage})$$

Plugging in the known values:

$$\text{Rs. 1,200} = \text{CP} \times (1 - 0.20)$$

$$\text{Rs. 1,200} = \text{CP} \times 0.80$$

Calculating the Cost Price

To find the **Cost Price (CP)**, we rearrange the equation:

$$\text{CP} = \frac{\text{Selling Price (SP)}}{1 - \text{Loss Percentage}}$$

$$\text{CP} = \frac{\text{Rs. 1,200}}{0.80}$$

To simplify the calculation, we can write 0.80 as $\frac{8}{10}$:

$$\text{CP} = \frac{\text{Rs. 1,200}}{\frac{8}{10}}$$

$$\text{CP} = \text{Rs. 1,200} \times \frac{10}{8}$$

$$\text{CP} = \text{Rs. 1500}$$

So, the original **Cost Price** of the item was **Rs. 1,500**.

Determining the New Selling Price for Profit

The goal now is to find the selling price that yields a **5% profit**. A profit means the selling price must be greater than the cost price.

A **5% profit** means the seller wants to receive 105% of the Cost Price ($100\% + 5\% = 105\%$).

We can use the profit formula:

$$\text{New Selling Price (New SP)} = \text{Cost Price (CP)} \times (1 + \text{Profit Percentage})$$

Using the calculated **Cost Price** (Rs. 1,500) and the desired **Profit Percentage** (5% or 0.05):

$$\text{New SP} = \text{Rs. } 1,500 \times (1 + 0.05)$$

$$\text{New SP} = \text{Rs. } 1,500 \times 1.05$$

Final Calculation

Let's calculate the final selling price:

$$\text{New SP} = 1500 \times 1.05$$

$$\text{New SP} = 1500 \times (1 + 0.05)$$

$$\text{New SP} = (1500 \times 1) + (1500 \times 0.05)$$

$$\text{New SP} = 1500 + 75$$

$$\text{New SP} = \text{Rs. } 1,575$$

Therefore, to make a **5% profit**, the seller must sell the item for **Rs. 1,575**.

Summary of Calculations

Metric	Value
Initial Selling Price (SP)	Rs. 1,200
Loss Percentage	20%
Calculated Cost Price (CP)	Rs. 1,500
Desired Profit Percentage	5%
Required Selling Price for 5% Profit	Rs. 1,575

57. Answer: c

Explanation:

This problem requires us to calculate the overall **gain percentage** experienced by a **dishonest dealer**. The dealer sells **rice** under two false pretenses: claiming a **loss of 5%** and using **faulty weights** which result in him **weighing 20% less** than the stated amount.

Understanding the Dealer's Operations

To determine the dealer's true profit, we must analyze both the price reduction he claims and the actual quantity of goods he delivers. Here's a breakdown:

- **Claimed Loss of 5%:** This means the dealer sets his selling price such that it appears he is losing 5% of the cost price. If the cost price (CP) of a certain quantity is C , the intended selling price (SP) would be $C \times (1 - 0.05) = 0.95C$.
- **Weighing 20% Less:** This is the crucial part where deception occurs. For any quantity the dealer claims to sell (e.g., 1 kg), he actually provides only $100\% - 20\% = 80\%$ of that quantity.

Calculating the Overall Gain Percentage

We will calculate the gain percentage by comparing the cost price of the goods actually sold to the total revenue received by the dealer.

Step 1: Assume a Base Value for Cost Price

To make calculations easier, let's assume the **cost price** (CP) for 100 units of rice is \$100.

Step 2: Calculate the Intended Selling Price (SP)

The dealer claims a 5% loss. Therefore, the selling price he intends to charge for 100 units is:

Intended SP for 100 units = Cost Price $\times$ (1 - Loss Percentage)

In mathematical terms:

$$SP_{\text{intended}} = CP \times \left(1 - \frac{\text{Loss Percentage}}{100}\right)$$

Substituting the values:

$$SP_{\text{intended}} = 100 \times \left(1 - \frac{5}{100}\right) = 100 \times (1 - 0.05) = 100 \times 0.95 = 95$$

This means the dealer charges **\$95** for what he represents as 100 units.

Step 3: Determine the Actual Quantity of Rice Sold

The dealer uses faulty weights and provides 20% less rice. So, for the quantity he claims to sell (100 units), the actual amount delivered is:

Actual Quantity = Claimed Quantity $\times$ (1 - Percentage Weighed Less)

Using LaTeX:

$$\text{Actual Quantity} = 100 \times \left(1 - \frac{20}{100}\right) = 100 \times (1 - 0.20) = 100 \times 0.80 = 80 \text{ units}$$

Thus, the dealer actually sells **80 units** of rice.

Step 4: Calculate the Cost Price (CP) for the Actual Quantity Sold

We established that the cost price for 100 units is 100. Therefore, the cost price for the 80 units that were actually sold is **\$80**.

$$CP_{\text{actual}} = 80$$

Step 5: Determine the Selling Price (SP) Received

The dealer receives the amount he intended to charge for 100 units, which is 95. This revenue is obtained for the 80 units actually delivered.

$$SP_{\text{obtained}} = 95$$

Step 6: Calculate the Profit

Profit is calculated as the difference between the selling price obtained and the cost price of the goods actually supplied.

Profit = Selling Price Obtained - Cost Price of Actual Goods Sold

In mathematical terms:

$$\text{Profit} = SP_{\text{obtained}} - CP_{\text{actual}} = 95 - 80 = 15$$

The dealer makes a profit of **\$15**.

Step 7: Calculate the Overall Gain Percentage

The overall gain percentage is computed with respect to the cost price of the goods actually sold.

$$\text{Gain Percentage} = \frac{\text{Profit}}{\text{Cost Price of Actual Goods Sold}} \times 100$$

Using LaTeX for the calculation:

$$\text{Gain Percentage} = \frac{15}{80} \times 100$$

Simplifying the expression:

$$\text{Gain Percentage} = \frac{3}{16} \times 100 = \frac{300}{16} = \frac{75}{4} = 18.75\%$$

Therefore, the **dishonest dealer** makes an overall **gain of 18.75%** on his transactions.

58. Answer: a

Explanation:

Evaluating the Expression: 35% of 450 – 75% of 196

This question requires us to calculate the value represented by the question mark (?) in the given mathematical expression. The expression involves finding percentages of specific numbers and then subtracting the results.

The expression is:

$$35\% \text{ of } 450 - 75\% \text{ of } 196 = ?$$

We need to break down the problem into smaller steps to find the solution accurately.

Step 1: Calculating 35% of 450

The first part of the expression is finding **35% of 450**. To do this, we convert the percentage into a fraction or a decimal.

Converting 35% to a fraction gives us $\frac{35}{100}$.

Now, we multiply this fraction by 450:

$$\text{Calculation} = \frac{35}{100} \times 450$$

We can simplify this calculation:

$$\text{Calculation} = \frac{35 \times 450}{100}$$

$$\text{Calculation} = \frac{15750}{100}$$

Calculation = 157.5

So, 35% of 450 is equal to 157.5.

Step 2: Calculating 75% of 196

The second part of the expression is finding 75% of 196.

We convert 75% to a fraction. $\frac{75}{100}$ simplifies to $\frac{3}{4}$.

Now, we multiply this fraction by 196:

$$\text{Calculation} = \frac{75}{100} \times 196$$

Using the simplified fraction:

$$\text{Calculation} = \frac{3}{4} \times 196$$

To make the calculation easier, we can first divide 196 by 4:

$$\frac{196}{4} = 49$$

Now, multiply the result by 3:

$$\text{Calculation} = 3 \times 49$$

$$\text{Calculation} = 147$$

Thus, 75% of 196 is 147.

Step 3: Performing the Subtraction

The final step is to subtract the result from Step 2 from the result from Step 1, as indicated by the expression.

$$? = (35\% \text{ of } 450) - (75\% \text{ of } 196)$$

Substituting the values we calculated:

$$? = 157.5 - 147$$

Performing the subtraction:

$$? = 10.5$$

Step 4: Matching the Result with Options

The value calculated for the question mark (?) is 10.5.

Now, let's check the given options:

- Option 1: 10.5
- Option 2: 12.5
- Option 3: 9.5
- Option 4: 11.5

Our calculated result, 10.5, matches exactly with Option 1.

59. Answer: b

Explanation:

Understanding the Coin Ratio Problem

This problem requires us to find the specific quantity of 50 paise coins within a collection of coins. We are provided with the ratio connecting the number of Rs. 1 coins, 50 paise coins, and 25 paise coins, along with the total monetary value held in the bag.

Key information given:

- The ratio of the counts of Rs. 1 coins : 50 paise coins : 25 paise coins is 2 : 3 : 4.
- The total amount of money in the bag is Rs. 216.

The objective is to calculate the exact number of 50 paise coins.

Representing Coin Quantities with the Ratio

To handle the unknown quantities, we use a variable, let's call it ' x '. Based on the 2 : 3 : 4 ratio, we can express the number of each type of coin:

- Number of Rs. 1 coins = $2x$
- Number of 50 paise coins = $3x$
- Number of 25 paise coins = $4x$

Calculating Total Monetary Value in Paise

For accurate calculations, it's essential to convert all monetary values to a common unit, preferably the smallest one present, which is paise.

Conversion values:

- 1 Rupee (Rs. 1) = 100 paise
- 50 paise = 50 paise
- 25 paise = 25 paise

Now, let's determine the total value contributed by each type of coin in paise:

- Value from Rs. 1 coins = (Number of Rs. 1 coins) $\times$ (Value of 1 Rs. coin in paise) = $2x \times 100 \text{ paise} = 200x \text{ paise}$
- Value from 50 paise coins = (Number of 50 paise coins) $\times$ (Value of 50 paise coin) = $3x \times 50 \text{ paise} = 150x \text{ paise}$
- Value from 25 paise coins = (Number of 25 paise coins) $\times$ (Value of 25 paise coin) = $4x \times 25 \text{ paise} = 100x \text{ paise}$

The total amount in the bag is Rs. 216. Converting this to paise:

Total amount = Rs. 216 = $216 \times 100 \text{ paise} = 21600 \text{ paise}$.

Solving the Equation for the Unknown Variable

The aggregate value of all the coins must equal the total amount in the bag. We can formulate an equation by summing the values of each coin type:

$$(200x) + (150x) + (100x) = 21600$$

Combine the terms containing ' x ':

$$450x = 21600$$

To find the value of ' x ', divide both sides of the equation by 450:

$$x = \frac{21600}{450}$$

Simplify the fraction. First, divide both numerator and denominator by 10:

$$x = \frac{2160}{45}$$

Now, divide both by 9:

$$x = \frac{2160 \div 9}{45 \div 9} = \frac{240}{5}$$

Perform the final division:

$$x = 48$$

Calculating the Number of 50 Paise Coins

We have determined that the common multiplier ' x ' is equal to 48.

Recall that the number of 50 paise coins was represented by the expression $3x$.
Substitute the value of x we found:

$$\text{Number of 50 paise coins} = 3 \times x = 3 \times 48.$$

Performing the multiplication:

$$\text{Number of 50 paise coins} = 144.$$

Verification Table

Coin Type	Ratio Part	Number of Coins (Calculated with $x = 48$)	Value per Coin (Paise)	Total Value from This Coin Type (Paise)
Rs. 1	2	$2 \times 48 = 96$	100	$96 \times 100 = 9600$
50 Paise	3	$3 \times 48 = 144$	50	$144 \times 50 = 7200$
25 Paise	4	$4 \times 48 = 192$	25	$192 \times 25 = 4800$
Total		$96 + 144 + 192 = 432$ coins		$9600 + 7200 + 4800 = 21600$ paise = Rs. 216

The calculations confirm that there are 144 coins of 50 paise in the bag.

60. Answer: a

Explanation:

The problem asks us to find the average speed of the bike and the van together, given the ratio of their speeds and the distance and time covered by the lorry.

Calculating the Lorry's Speed

First, we need to determine the speed of the lorry. We are given that the lorry covers a distance of 360 km in 12 hours.

The formula for speed is:

$$\text{Speed} = \text{Distance} / \text{Time}$$

Using LaTeX for the formula:

$$\text{\text{Speed}} = \frac{\text{\text{Distance}}}{\text{\text{Time}}}$$

Plugging in the values for the lorry:

$$\text{Speed}_{\text{Lorry}} = \frac{360 \text{ km}}{12 \text{ hours}}$$

$$\text{Speed}_{\text{Lorry}} = 30 \text{ km/h}$$

So, the speed of the lorry is 30 km/h.

Determining Bike and Van Speeds from the Ratio

We are given the ratio of the speeds of the bike, van, and lorry as 3 : 7 : 5.

Let the speeds be represented as $3x$, $7x$, and $5x$ for the bike, van, and lorry, respectively, where x is a common multiplier.

From our previous calculation, we know the speed of the lorry is 30 km/h. This corresponds to the '5' part of the ratio.

Therefore, we can set up the equation:

$$5x = 30 \text{ km/h}$$

To find the value of x , we divide both sides by 5:

$$x = \frac{30}{5}$$

$$x = 6 \text{ km/h}$$

Now we can find the speeds of the bike and the van:

- Speed of Bike = $3x = 3 \times 6 \text{ km/h} = 18 \text{ km/h}$
- Speed of Van = $7x = 7 \times 6 \text{ km/h} = 42 \text{ km/h}$

Calculating the Average Speed of Bike and Van

The question asks for the average speed of the bike and the van together. To find the average speed, we add their individual speeds and divide by the number of vehicles (which is 2 in this case).

$$\text{Average Speed}_{\text{Bike and Van}} = \frac{\text{Speed}_{\text{Bike}} + \text{Speed}_{\text{Van}}}{2}$$

Plugging in the calculated speeds:

$$\text{Average Speed}_{\text{Bike and Van}} = \frac{18 \text{ km/h} + 42 \text{ km/h}}{2}$$

$$\text{Average Speed}_{\text{Bike and Van}} = \frac{60 \text{ km/h}}{2}$$

$$\text{Average Speed}_{\text{Bike and Van}} = 30 \text{ km/h}$$

Conclusion

The average speed of the bike and the van together is 30 km/h. This matches one of the options provided.

61. Answer: a

Explanation:

Understanding the Work Ratio and Time Calculation

This problem involves calculating the time taken by an individual (the child) to complete a task based on the combined effort and the ratio of their work efficiencies, represented by their wage ratio.

Analyzing the Wage Ratio and Work Rates

The question states that the ratio of wages for a Man, Woman, and Child is 5 : 4 : 3. In work problems, the wage ratio often reflects the ratio of their work rates or efficiency. This means:

- For every unit of work, the man does 5 parts, the woman does 4 parts, and the child does 3 parts.

- We can represent their daily work rates as $5x$, $4x$, and $3x$ respectively, where x is a common factor representing a base unit of work per day.

Calculating Combined Work Rate and Total Work

The Man, Woman, and Child work together to finish the work in 15 days. First, let's find their combined daily work rate:

Combined Daily Work Rate = Man's rate + Woman's rate + Child's rate

$$\text{Combined Daily Work Rate} = 5x + 4x + 3x = 12x$$

The total amount of work is the combined rate multiplied by the number of days they worked together:

Total Work = Combined Daily Work Rate $\times$ Number of Days

$$\text{Total Work} = 12x \times 15$$

$$\text{Total Work} = 180x \text{ units}$$

Determining Days Taken by the Child Working Alone

Now, we need to find out how many days the child would take to complete the same total work if working alone. We know the child's daily work rate is $3x$.

$$\text{Days taken by Child Alone} = \frac{\text{Total Work}}{\text{Child's Daily Work Rate}}$$

$$\text{Days taken by Child Alone} = \frac{180x}{3x}$$

Simplifying the expression:

$$\text{Days taken by Child Alone} = \frac{180}{3}$$

$$\text{Days taken by Child Alone} = 60$$

Conclusion

Therefore, the child would take 60 days to finish the work alone.

62. Answer: d

Explanation:

Understanding the Work and Time Problem

This problem involves calculating the time it takes for three individuals, A, B, and C, to complete a work when their combined work rates are known in pairs.

We are given:

- A and B can complete the work in 12 days.
- B and C can complete the work in 15 days.
- C and A can complete the work in 20 days.

We need to find out how many days A, B, and C will take to complete the work if they all work together.

Calculating Individual Pair Work Rates

The rate of work is the amount of work done per day. If a person or group can complete a work in 'x' days, their work rate is $\frac{1}{x}$ of the work per day.

- Work rate of A and B together is $\frac{1}{12}$ work per day.
- Work rate of B and C together is $\frac{1}{15}$ work per day.
- Work rate of C and A together is $\frac{1}{20}$ work per day.

Determining the Combined Work Rate of A, B, and C

Let the work rates of A, B, and C be represented by R_A , R_B , and R_C respectively. We have the following equations:

1. $R_A + R_B = \frac{1}{12}$
2. $R_B + R_C = \frac{1}{15}$
3. $R_C + R_A = \frac{1}{20}$

To find the combined rate of A, B, and C ($R_A + R_B + R_C$), we can add the three equations:

$$(R_A + R_B) + (R_B + R_C) + (R_C + R_A) = \frac{1}{12} + \frac{1}{15} + \frac{1}{20}$$

Combining the terms on the left side gives:

$$2R_A + 2R_B + 2R_C = 2(R_A + R_B + R_C)$$

Now, let's find a common denominator for the fractions on the right side. The least common multiple (LCM) of 12, 15, and 20 is 60.

$$\frac{1}{12} = \frac{1 \times 5}{12 \times 5} = \frac{5}{60}$$

$$\frac{1}{15} = \frac{1 \times 4}{15 \times 4} = \frac{4}{60}$$

$$\frac{1}{20} = \frac{1 \times 3}{20 \times 3} = \frac{3}{60}$$

So, the sum of the rates is:

$$2(R_A + R_B + R_C) = \frac{5}{60} + \frac{4}{60} + \frac{3}{60} = \frac{5+4+3}{60} = \frac{12}{60}$$

Simplifying the fraction:

$$2(R_A + R_B + R_C) = \frac{1}{5}$$

Now, to find the combined rate of A, B, and C working together, we divide by 2:

$$R_A + R_B + R_C = \frac{1}{5} \div 2 = \frac{1}{5 \times 2} = \frac{1}{10}$$

This means that working together, A, B, and C can complete $\frac{1}{10}$ of the work in one day.

Calculating the Total Time Taken Together

If the combined work rate is $\frac{1}{10}$ work per day, the time taken to complete the entire work (1 unit of work) is the reciprocal of the rate.

$$\text{Time} = \frac{\text{Total Work}}{\text{Combined Work Rate}}$$

$$\text{Time} = \frac{1}{\frac{1}{10}}$$

$$\text{Time} = 1 \times \frac{10}{1}$$

$$\text{Time} = 10 \text{ days}$$

Conclusion

Therefore, if A, B, and C work together, they will complete the work in 10 days.

63. Answer: b

Explanation:

Given:

Ratio of volume of three containers = 3 : 4 : 5

Ratio of milk and water in container 1 = 4 : 1

Ratio of milk and water in container 2 = 3 : 1

Ratio of milk and water in container 3 = 3 : 2

Calculation:

First we have to make the sum of ratios equal

$$\text{Ratio of milk and water in container 1} = 4/1 = (4 \times 4)/(1 \times 4) = 16/4$$

$$\text{Ratio of milk and water in container 2} = 3/1 = (3 \times 5)/(1 \times 5) = 15/5$$

$$\text{Ratio of milk and water in container 3} = 3/2 = (3 \times 4)/(2 \times 4) = 12/8$$

As they are mixed in the ratio 3 : 4 : 5

$$\text{Milk} = 16 \times 3 + 15 \times 4 + 12 \times 5 = 168$$

$$\text{Water} = 4 \times 4 + 5 \times 4 + 8 \times 5 = 72$$

$$\text{Ratio of milk to water} = 168 : 72 = 7 : 3$$

∴ Ratio of milk and water is 7 : 3

64. Answer: d

Explanation:

Given:

Ratio of male to female = 3 : 7

Children % among male = 25%

Children % among female = 30%

Number of adult males = 18000

Calculation:

Let the number of males and females be $3x$ and $7x$ respectively

Total population = $3x + 7x = 10x$

Percentage of adult males = $(100 - 25)\% = 75\%$

Adult males = 75% of $3x = 9x/4$

$\Rightarrow 18000 = 9x/4$

$\Rightarrow 9x = 18000 \times 4 = 72000$

$\Rightarrow x = 8000$

Total population = $10x = 10 \times 8000 = 80000$

∴ Total population of the city is 80,000

65. Answer: b

Explanation:

Rented Room Duration Calculation

This question requires us to determine the total number of days a room was rented. We are given the daily rent amounts which depend on whether the day is odd or even. We know the total rent paid and that the rental started on an even day.

Key Information Provided:

- Rent for odd days = Rs 1000
- Rent for even days = Rs 2000
- Total Rent Collected = Rs 30000
- The room rental commenced on an even day.

Understanding the Daily Rent Pattern:

The cost of renting the room changes daily. Since the rental started on an **even day**, the sequence of rent costs follows this pattern: Even Day (Rs 2000), Odd Day (Rs 1000), Even Day (Rs 2000), Odd Day (Rs 1000), and so forth.

Calculating the Total Duration:

Let's denote the total duration of the rental in days by ' d '.

We need to figure out how many odd days and even days are included in the total duration ' d '. We will consider two possibilities for ' d ':

Scenario 1: The Total Duration ' d ' is an Even Number

Assume the total duration ' d ' is even. Since the rental started on an even day, an even duration means there are an equal number of odd and even days. For example, if $d = 10$, the days are E, O, E, O, E, O, E, O, E, O. There are 5 even and 5 odd days.

Let $d = 2k$, where k is a positive integer.

- Number of Even Days (N_{even}) = $k = d/2$
- Number of Odd Days (N_{odd}) = $k = d/2$

The formula for the total rent is:

$$\text{Total Rent} = (N_{odd} \times \text{Rent per odd day}) + (N_{even} \times \text{Rent per even day})$$

Substituting the known values:

$$30000 = \left(\frac{d}{2} \times 1000\right) + \left(\frac{d}{2} \times 2000\right)$$

Let's simplify this equation to solve for 'd':

$$30000 = \frac{1000d}{2} + \frac{2000d}{2}$$

$$30000 = 500d + 1000d$$

$$30000 = 1500d$$

Now, isolate 'd':

$$d = \frac{30000}{1500}$$

$$d = \frac{300}{15}$$

$$d = 20$$

Our calculation resulted in $d = 20$. Since 20 is an even number, this result is consistent with our initial assumption for this scenario. Thus, 20 days is a possible duration.

Scenario 2: The Total Duration 'd' is an Odd Number

Now, let's assume the total duration 'd' is odd. Since the rental started on an even day, an odd duration means there will be one more even day than odd days. For example, if $d = 5$, the days are E, O, E, O, E. There are 3 even and 2 odd days.

Let $d = 2k + 1$, where k is a non-negative integer.

- Number of Even Days (N_{even}) = $k + 1 = \frac{d+1}{2}$
- Number of Odd Days (N_{odd}) = $k = \frac{d-1}{2}$

Using the total rent formula again:

$$\text{Total Rent} = (N_{odd} \times \text{Rent per odd day}) + (N_{even} \times \text{Rent per even day})$$

Substituting the values:

$$30000 = \left(\frac{d-1}{2} \times 1000 \right) + \left(\frac{d+1}{2} \times 2000 \right)$$

Simplify the equation:

$$30000 = \frac{1000(d-1)}{2} + \frac{2000(d+1)}{2}$$

$$30000 = 500(d-1) + 1000(d+1)$$

$$30000 = 500d - 500 + 1000d + 1000$$

$$30000 = 1500d + 500$$

Solve for 'd':

$$1500d = 30000 - 500$$

$$1500d = 29500$$

$$d = \frac{29500}{1500}$$

$$d = \frac{295}{15}$$

This calculation gives $d \approx 19.67$. Since the duration must be a whole number of days, and we assumed 'd' was odd, this scenario does not provide a valid solution.

Final Conclusion:

Comparing the two scenarios, only Scenario 1 (where 'd' is even) yields a valid whole number for the duration. The calculated duration is $d = 20$ days.

Let's verify the total rent for a 20-day period:

- Number of Even Days = $20/2 = 10$ days
- Number of Odd Days = $20/2 = 10$ days
- Total Rent = $(10 \text{ Odd Days} \times \text{Rs } 1000) + (10 \text{ Even Days} \times \text{Rs } 2000)$
- Total Rent = $(10 \times 1000) + (10 \times 2000)$
- Total Rent = $10000 + 20000$
- Total Rent = 30000

The calculated total rent of Rs 30000 matches the amount given in the question. Therefore, the total duration for which the room was rented is 20 days.

66. Answer: a

Explanation:

Analyzing the School Donation Scenario

This question involves calculating the required average donation from a portion of parents to meet a fundraising goal. We need to determine the average contribution from the remaining parents after an initial collection phase. Key information includes the percentage of the total donation collected, the percentage of parents who donated, and their average contribution amount.

Understanding the Donation Problem

- The school needs to collect a total donation amount, let's call it D .
- A portion of the parents, specifically 50% of the total number of parents (let's denote the total number of parents as N), made donations.
- These first 50% of parents (which is $0.50N$ parents) donated an average of Rs 1200 each.
- The total amount collected so far is 60% of the required donation, meaning the collected amount is $0.60D$.
- We need to find the average donation amount required from the other 50% of parents ($0.50N$ parents) to reach the total target D .

Step-by-Step Calculation for Average Donation

Let's break down the calculation step-by-step:

1. Calculate the total donation from the first 50% of parents:

$$\text{Number of parents} = 0.50N$$

$$\text{Average donation per parent} = \text{Rs } 1200$$

$$\text{Total donation from this group} = (\text{Number of parents}) \times (\text{Average donation})$$

$$\text{Total donation} = (0.50N) \times 1200 = 600N$$

2. Relate the collected amount to the first group's donation:

We are told that 60% of the total required donation ($0.60D$) was collected. This amount came entirely from the first 50% of parents.

Therefore, we can set the total donation from the first group equal to the collected amount:

$$600N = 0.60D$$

3. Determine the total required donation (D):

From the equation $600N = 0.60D$, we can find the value of D in terms of N .

$$D = \frac{600N}{0.60}$$

$$D = 1000N$$

This tells us the school's total required donation target was equivalent to Rs 1000 per parent.

4. Calculate the remaining amount needed:

The school has collected $0.60D$ and needs to collect the total D .

$$\text{Remaining amount needed} = D - 0.60D = 0.40D$$

Substitute the value of D we found ($D = 1000N$):

$$\text{Remaining amount needed} = 0.40 \times (1000N) = 400N$$

5. Calculate the average donation needed from the remaining 50% of parents:

The number of remaining parents is also 50% of the total, which is $0.50N$.

Let the average donation needed from these parents be x .

Total donation from the remaining parents = (Number of remaining parents) $\times$ (Average donation x)

$$\text{Total donation} = (0.50N) \times x$$

This amount must equal the remaining amount needed ($400N$):

$$(0.50N) \times x = 400N$$

6. Solve for the average donation (x):

Divide both sides of the equation by N (assuming $N \neq 0$):

$$0.50x = 400$$

Now, solve for x :

$$x = \frac{400}{0.50}$$

$$x = 800$$

Conclusion on Required Average Donation Amount

The calculation shows that the average amount that should be donated by the rest of the 50% of parents is Rs 800 to ensure the school collects the total required donation amount.

67. Answer: a

Explanation:

This solution explains how to find the individual shares of three workers, A, B, and C, when a total amount of Rs. 13400 is divided among them according to a specific ratio. We will calculate the amount each worker receives.

Calculating Workers' Shares Based on Ratio

The problem requires us to distribute a sum of money, Rs. 13400, among three workers, A, B, and C. The distribution is based on the ratio $\frac{4}{5} : 2 : \frac{5}{3}$. To find each worker's share, we first need to simplify this ratio into a ratio of whole numbers.

Simplifying the Ratio

The given ratio is:

$$\frac{4}{5} : 2 : \frac{5}{3}$$

To convert this ratio into whole numbers, we find the Least Common Multiple (LCM) of the denominators, which are 5 and 3. The LCM of 5 and 3 is 15.

Now, we multiply each part of the ratio by the LCM (15):

- Worker A's ratio part: $\frac{4}{5} \times 15 = 4 \times 3 = 12$
- Worker B's ratio part: $2 \times 15 = 30$
- Worker C's ratio part: $\frac{5}{3} \times 15 = 5 \times 5 = 25$

So, the simplified ratio of shares for A, B, and C is **12 : 30 : 25**.

Calculating the Sum of Ratio Parts

Next, we calculate the sum of these simplified ratio parts:

$$\text{Sum of ratio parts} = 12 + 30 + 25 = 67$$

Determining Each Worker's Share

The total amount to be divided is Rs. 13400. We can now calculate the share for each worker using their respective part of the ratio and the total sum of ratio parts.

The formula for each worker's share is:

$$\text{Share of a worker} = \left(\frac{\text{Worker's ratio part}}{\text{Sum of ratio parts}} \right) \times \text{Total Amount}$$

Let's calculate the share for each worker:

- **Worker A's Share:**

$$\text{A's share} = \frac{12}{67} \times 13400$$

$$\text{Since } 13400 \div 67 = 200,$$

$$\text{A's share} = 12 \times 200 = 2400$$

So, Worker A receives Rs. 2400.

- **Worker B's Share:**

$$\text{B's share} = \frac{30}{67} \times 13400$$

$$\text{B's share} = 30 \times 200 = 6000$$

So, Worker B receives Rs. 6000.

- **Worker C's Share:**

$$\text{C's share} = \frac{25}{67} \times 13400$$

$$\text{C's share} = 25 \times 200 = 5000$$

So, Worker C receives Rs. 5000.

Summary of Shares

The shares for the three workers are:

Worker A: Rs. 2400

Worker B: Rs. 6000

Worker C: Rs. 5000

We can check if the sum of these shares equals the total amount:

Total calculated share = Rs. 2400 + Rs. 6000 + Rs. 5000 = Rs. 13400

This matches the total amount given in the question.

Comparing these calculated shares with the given options, the shares Rs. 2400, Rs. 6000, and Rs. 5000 correspond to the amounts for workers A, B, and C, respectively.

68. Answer: b

Explanation:

This problem involves calculating the gain percentage when an item is bought, repaired, and then sold. To find the gain percentage, we first need to determine the total cost price of the scooter, calculate the gain amount, and then use the formula for gain percentage.

The initial cost of the scooter is given as Rs. 42,000. Additionally, X spends Rs. 6,000 on repairs. Any expenses incurred on the item after purchase are added to the initial cost to find the total cost price.

Calculating the Total Cost Price of the Scooter

The total cost price (CP) is the sum of the purchase price and the repair costs.

Total Cost Price = Initial Cost + Repair Expenses

Total Cost Price = 42000 + 6000

Total Cost Price = 48000

So, the total cost price for X is Rs. 48,000.

Determining the Gain Amount

Gain occurs when the selling price (SP) is greater than the total cost price (CP).

The selling price of the scooter is Rs. 54,000.

Gain = Selling Price - Total Cost Price

$$\text{Gain} = 54000 - 48000$$

$$\text{Gain} = 6000$$

X made a gain of Rs. 6,000 on selling the scooter.

Calculating the Gain Percentage

The gain percentage is calculated on the total cost price. The formula for gain percentage is:

$$\text{Gain Percentage} = \left(\frac{\text{Gain}}{\text{Total Cost Price}} \right) \times 100\%$$

Applying the values we calculated:

$$\text{Gain Percentage} = \left(\frac{6000}{48000} \right) \times 100\%$$

Now, we simplify the fraction:

$$\frac{6000}{48000} = \frac{6}{48} = \frac{1}{8}$$

So, the gain percentage is:

$$\text{Gain Percentage} = \frac{1}{8} \times 100\%$$

$$\text{Gain Percentage} = 12.5\%$$

Therefore, X's gain percentage is 12.5%.

Key Concepts in Profit and Loss

Term	Definition	Formula Example
Cost Price (CP)	The price at which an article is purchased, plus any expenses incurred to make it ready for sale (like repairs, transport).	Total CP = Purchase Price + Expenses
Selling Price (SP)	The price at which an article is sold.	-
Gain / Profit	When $SP > CP$. The excess amount is gain.	Gain = $SP - CP$
Loss	When $CP > SP$. The deficit amount is loss.	Loss = $CP - SP$
Gain Percentage	Gain expressed as a percentage of CP.	Gain % = $(\text{Gain} / \text{CP}) \times 100$
Loss Percentage	Loss expressed as a percentage of CP.	Loss % = $(\text{Loss} / \text{CP}) \times 100$

Additional Information on Cost Price and Selling Price

Understanding the difference between Cost Price and Selling Price is fundamental in calculating profit or loss. The Cost Price is what it costs the seller in total to acquire and prepare an item for sale. This includes the initial purchase price, transportation costs, repair costs, etc. The Selling Price is the amount the buyer pays for the item. The comparison between these two values tells us if there was a profit (gain) or a loss.

It's crucial to always calculate profit or loss percentage based on the **total cost price**, not just the initial purchase price, unless explicitly stated otherwise. In this case, the Rs. 6,000 spent on repairs is a part of the total cost for X.

69. Answer: c

Explanation:

Understanding the Analogy: Square to Cube Relation

This question asks us to find a word that relates to 'Rectangle' in the same way that 'Cube' relates to 'Square'. This involves identifying the specific relationship in the first pair and applying it to the second word.

Analyzing the Square and Cube Relationship

First, let's break down the connection between a **Square** and a **Cube**.

- A **Square** is a flat, two-dimensional (2D) geometric shape. It has four equal sides and four right angles (90°). If we denote the side length as s , its area is calculated using the formula: $A = s^2$.
- A **Cube** is a solid, three-dimensional (3D) object. It is defined by six equal square faces. Think of a cube as a square that has been extended into the third dimension. All edges of a cube have the same length, say s . The volume of a cube is given by: $V = s^3$.

The key relationship here is that a Cube is the 3D shape corresponding to the 2D shape Square. A cube is formed by squares, and specifically, all its faces are squares.

Applying the Analogy to Rectangle

Now, we need to find the 3D shape that corresponds to a **Rectangle** using the same logic.

- A **Rectangle** is also a 2D shape. It has four sides and four right angles (90°), but its adjacent sides can be of different lengths. Let's denote the length as l and the width as w . The area of a rectangle is: $A = l \times w$.
- We are looking for a 3D shape that is the equivalent of a rectangle, similar to how a cube is the equivalent of a square. This means we need a 3D shape whose faces are rectangles.
- The 3D shape that fits this description is called a **Cuboid** (or a rectangular prism). A cuboid is a solid figure bounded by six rectangular faces. If its

dimensions are length l , width w , and height h , its volume is calculated as: $V = l \times w \times h$.

Evaluating the Given Options

Let's look at the choices provided:

Option	Shape Description	Relevance to Analogy
Triangle	A 2D shape with 3 sides.	Incorrect. It's a 2D shape, but not the counterpart to a rectangle.
Cone	A 3D shape with a circular base and a vertex.	Incorrect. Related to circles, not rectangles.
Cuboid	A 3D shape bounded by six rectangular faces.	Correct. This is the 3D shape corresponding to a rectangle, just as a cube corresponds to a square.
Cylinder	A 3D shape with two parallel circular bases.	Incorrect. Related to circles, not rectangles.

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Comparing the options with our analysis:

- **Triangle**, **Cone**, and **Cylinder** do not fit the established relationship (2D shape to its corresponding 3D shape with matching faces).
- **Cuboid** is the 3D shape formed by extending a rectangle, and its faces are rectangles, mirroring the relationship between a square (2D) and a cube (3D, with square faces).

Conclusion

The relationship "Square : Cube" signifies a progression from a 2D shape to its analogous 3D form. Applying this pattern, a Rectangle (2D) corresponds to a Cuboid (3D).

70. Answer: c

Explanation:

Understanding the Relationship: France : Paris

This question asks us to find a pair of words from the given options that has the same relationship as the pair **France : Paris**. To solve this, we first need to identify the specific connection between **France** and **Paris**.

France is a country located in Europe.

Paris is the capital city of **France**.

Therefore, the relationship in the given pair is **Country : Capital City**.

Evaluating Analogy Options

Now, let's examine each option to see which one matches the **Country : Capital City** relationship:

- **Option 1: Iran: Rial**
Iran is a country. The **Rial** is the currency of Iran. This represents a **Country : Currency** relationship.
- **Option 2: India : Mumbai**
India is a country. **Mumbai** is a major city in India, but it is not the capital city. The capital of India is New Delhi. This represents a **Country : Major City (Incorrect Capital)** relationship.
- **Option 3: Cuba : Havana**
Cuba is a country. **Havana** is the capital city of **Cuba**. This represents a **Country : Capital City** relationship.
- **Option 4: China : Yuan**
China is a country. The **Yuan** is the currency of China. This represents a **Country : Currency** relationship.

Identifying the Correct Analogy Match

Comparing the relationships:

- Option 1 (Iran: Rial) is Country : Currency.
- Option 2 (India : Mumbai) is Country : Major City (Incorrect Capital).
- Option 3 (Cuba : Havana) is Country : Capital City.
- Option 4 (China : Yuan) is Country : Currency.

The relationship in the original pair (France : Paris) is **Country : Capital City**. Option 3 (Cuba : Havana) is the only option that shares this exact relationship, making it the correct answer.

71. Answer: c

Explanation:

Inductance Unit Identification

This question asks us to identify the unit of a physical quantity, 'Inductance', based on a given analogy relating 'Work' to its unit, 'Joule'. It's a typical question testing knowledge of fundamental units in physics.

Understanding the Work-Joule Relationship

The question starts with the statement "Work : Joule". This signifies that the unit of measurement for the physical quantity 'Work' is the 'Joule' (J). Work is defined as the energy transferred when a force causes an object to move over a distance. Its SI unit, the Joule, is a derived unit, often expressed in terms of base SI units as $kg \cdot m^2 \cdot s^{-2}$.

Physical Quantities and Their Units

In physics, precise measurement is crucial. Every physical quantity, whether it's energy, force, magnetic field, or inductance, has a specific unit assigned to it within a

given system of measurement (like the SI system). The question uses an analogy to link one quantity (Work) to its unit (Joule) and asks for the corresponding unit for another quantity (Inductance).

Exploring the Concept of Inductance

Inductance is a fundamental property of electrical circuits and components. It describes the ability of a conductor or circuit to oppose changes in the electric current flowing through it. This opposition arises because a changing current induces a voltage (electromotive force) in the conductor itself (self-inductance) or in nearby conductors (mutual inductance). The SI unit for inductance quantifies this property.

Analysis of Measurement Units Provided

To solve the question, we need to know the SI units for the given options and relate them to the concept of inductance:

- **Tesla (T):** This unit measures magnetic flux density, also known as magnetic field strength. It is not the unit of inductance.
- **Weber (Wb):** This is the SI unit for magnetic flux, representing the total magnetic field lines passing through a surface. It is related to inductance but is not its direct unit.
- **Henry (H):** This is the SI derived unit specifically defined for **inductance**. It is named after Joseph Henry, a pioneering American scientist. One Henry is equivalent to one volt-second per ampere ($1 \text{ H} = 1 \frac{\text{V} \cdot \text{s}}{\text{A}}$).
- **Coulomb (C):** This is the SI unit of electric charge. It measures the quantity of electric charge. It is unrelated to inductance.

Determining the Unit for Inductance

Given the analogy "Work : Joule", we are looking for the unit of "Inductance". Based on the definitions:

- Work is measured in Joules.
- Inductance is measured in Henrys.

Therefore, the relationship is Inductance : Henry.

Conclusion on Units

By understanding the definitions of the physical quantities and their corresponding SI units, we can establish the correct relationship. Just as the Joule is the standard unit for Work, the Henry is the standard unit for Inductance.

72. Answer: d

Explanation:

Understanding the Word Analogy: Lauded and Acclaimed

The question presents a word analogy problem. We first need to identify the relationship between the first pair of words: "Lauded" and "Acclaimed".

- **Lauded** means to praise highly, often formally.
- **Acclaimed** means to praise enthusiastically and publicly.
- The relationship between "Lauded" and "Acclaimed" is that they are synonyms, both indicating praise. "Acclaimed" often implies a stronger, more public, or more enthusiastic form of praise than "Lauded".

Identifying the Relationship for Deliberate

Next, we apply this identified relationship to the second word, "Deliberate". We are looking for a word from the options that is synonymous with or closely related in meaning to "Deliberate", similar to how "Acclaimed" relates to "Lauded".

Deliberate means done consciously, intentionally, and often after careful consideration or planning.

Analyzing Options in Relation to Deliberate

Let's evaluate each option to see which one best matches "Deliberate":

- **1. Harsh:** This term refers to something rough, severe, or cruel. It does not share a similar meaning with "deliberate".
- **2. Smooth:** This term describes something free from roughness or bumps, or something done easily. It is unrelated to the meaning of "deliberate".
- **3. Forceful:** While a deliberate action might be forceful, "forceful" itself describes the manner of action (using force or energy) rather than the intentionality or careful thought behind it.
- **4. Calculated:** This term means planned or intended, often involving careful thought about the results or consequences. A calculated action is done on purpose and with forethought, making it a very close synonym for "deliberate".

Conclusion: Finding the Correct Analogy

Comparing the options, "Calculated" is the word that shares the closest meaning with "Deliberate", mirroring the synonymous relationship seen between "Lauded" and "Acclaimed". Both deliberate and calculated actions are intentional and involve conscious thought.

Thus, the analogy is completed as: **Lauded : Acclaimed :: Deliberate : Calculated.**

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73. Answer: c

Explanation:

Identifying the Odd Word Out

This question asks us to find the animal that does not belong with the others in the list. We are given four words: Lizard, Snake, Toad, and Chameleon. Three of these words share a common characteristic that the fourth one lacks. Our task is to identify this unique word.

Analyzing the Animal Classifications

Let's examine each animal listed to understand their biological classifications and characteristics:

- **Lizard:** Lizards are classified as **reptiles**. They are cold-blooded, typically have scales, and breathe air using lungs. Most lizards lay eggs.
- **Snake:** Snakes are also **reptiles**. Like lizards, they are cold-blooded, covered in scales, and breathe air. Snakes are known for their elongated bodies and lack of limbs.
- **Toad:** Toads belong to the class **Amphibia**. Amphibians are cold-blooded vertebrates that typically start their lives in water (breathing with gills) and later move to land (breathing with lungs and through their skin). They have smooth or bumpy skin, which is permeable, and usually lay eggs in water.
- **Chameleon:** Chameleons are a specific type of **lizard**, and therefore also belong to the class **Reptilia**. They are known for their ability to change colour and their independently moving eyes.

Determining the Commonality and Difference

By looking at the classifications, we can see a clear pattern:

- Lizard is a Reptile.
- Snake is a Reptile.
- Chameleon is a Reptile.
- Toad is an Amphibian.

The words Lizard, Snake, and Chameleon all refer to types of **reptiles**. They share characteristics typical of reptiles, such as having scales and breathing air throughout their lives. The word **Toad**, however, refers to an **amphibian**. Amphibians have distinct life cycle stages and skin characteristics that differentiate them from reptiles.

Conclusion: The Odd Word Out

Based on the biological classification, the **Toad** is the odd word out because it is an amphibian, while the Lizard, Snake, and Chameleon are all reptiles.

74. Answer: a

Explanation:

The goal is to identify the country that stands out from the rest based on its geographical location or economic characteristics among the given options: France, China, Bangladesh, and Nepal.

Finding the Odd One Out: Geographical Context

Let's examine the location of each country:

- **France** is a country located in Western Europe.
- **China** is a large country located in East Asia.
- **Bangladesh** is situated in South Asia.
- **Nepal** is also located in South Asia, bordered by China and India.

From a purely geographical perspective, France belongs to the continent of Europe, while China, Bangladesh, and Nepal are all situated in Asia. This makes France geographically distinct from the other three.

Assessing Economic Development Status

Another way to differentiate is by looking at the economic status of these nations:

- **France** is classified as a highly developed country with a strong, advanced economy.
- **China** is considered a major global economic power, often described as an upper-middle-income economy or an emerging market.
- **Bangladesh** is classified as a developing country and is often listed among the Least Developed Countries (LDCs).
- **Nepal** is also a developing country, facing significant economic challenges and typically categorized as an LDC.

In terms of development, France is clearly a developed nation, while the other three countries are in various stages of development, with Bangladesh and Nepal being

less developed compared to China.

Comparison Table of Alternatives

The key differences can be summarized in the following table:

Country	Continent	Economic Status
France	Europe	Developed
China	Asia	Emerging / Developing
Bangladesh	Asia	Developing (LDC)
Nepal	Asia	Developing (LDC)

Conclusion: Identifying the Distinct Alternative

Considering both geographical location and economic development, France stands out:

- It is the only country in Europe; the others are in Asia.
- It is the only developed country; the others are developing or emerging economies.

Therefore, France is the odd one out among the given alternatives.

75. Answer: c

Explanation:

Odd Word Out Analysis

The task is to identify the word that is different from the others in the list ('Frivolous', 'Negligible', 'Significant', 'Trivial') based on a shared characteristic or meaning.

Meaning Exploration of Given Words

Let's examine the meaning of each word to understand how they relate:

- **Frivolous:** This term suggests something is not serious, sensible, or important. It often implies a lack of gravity or purpose.
- **Negligible:** This word describes something that is so small or unimportant that it can be safely ignored or disregarded. It means insignificant.
- **Significant:** This word means something is important, meaningful, or large enough to be worthy of attention or notice. It implies consequence.
- **Trivial:** This term refers to something that is of little value, importance, or seriousness. It means minor or inconsequential.

Identifying the Common Characteristic

When we look at the definitions, we can see a pattern:

- 'Frivolous' relates to a lack of seriousness or importance.
- 'Negligible' means unimportant.
- 'Trivial' means unimportant.

The words 'Frivolous', 'Negligible', and 'Trivial' all share the common idea of lacking importance or seriousness.

Comparison and Determining the Odd Word

The word 'Significant' contrasts with this group. While the others describe things that are unimportant or trivial, 'Significant' describes something that *is* important and noteworthy.

Here's a simple comparison:

Word	Core Meaning Relation
Frivolous	Not serious, unimportant
Negligible	Unimportant, insignificant
Significant	Important , noteworthy
Trivial	Unimportant, insignificant

Therefore, 'Significant' is the odd word out because it denotes importance, whereas the other three words ('Frivolous', 'Negligible', 'Trivial') all relate to a lack of importance or seriousness.

76. Answer: a

Explanation:

We have to check the each Figure:

Image A:



In this i mage polygon have a smiling emoji i nside it.

Image B:



In this i mage polygon have a smiling emoji i nside it.

Image C:



In this image polygon have a smiling emoji inside it.

Image D:



In this image polygon have a **sad emoji** inside it.

So, the Image D is different from all.

Hence, the correct answer is "D".

77. Answer: b

Explanation:

We have check all the Options:

Option (1):



Here, the figure has small circle filled with white color.

Option (2):



Here, the figure has small circle filled with dark color.

Option (3):



Here, the figure has small circle filled with white color.

Option (4):



Here, the figure has small circle filled with white color.

Hence, the correct answer is "Option (2)".

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78. Answer: c

Explanation:

The logic followed here is:

(1):



- Four parts of the figures are filled with black colour such that the filled parts are opposite to each other.

(2):



- Four parts of the figures are filled with black colour such that the filled parts are opposite to each other.

(3):



- Only one face is opposite to each other.

(4):



- Four parts of the figures are filled with black colour such that the filled parts are opposite to each other.

As option (3) is different from other figures.

Hence, 'option 3' is the odd one out.

79. Answer: c

Explanation:

Unscrambling Letters to Find Meaningful Words

The task requires us to first **arrange letters** from each group to form a **meaningful word**. After identifying these words, we need to find the one that doesn't fit with the others, identifying the **odd one out**.

Step 1: Unscrambling Option 1 (RDQAUSNO)

- The given letters are: R, D, Q, A, U, S, N, O.
- Rearranging these letters, we can form the meaningful word: **SQUADRON**.
- A squadron is a unit, typically of air force, army, or naval forces.

Step 2: Unscrambling Option 2 (EMOMCOROD)

- The given letters are: E, M, O, M, C, O, R, O, D.
- Rearranging these letters, we can form the meaningful word: **COMMODORE**.
- Commodore is a naval rank, senior to captain and junior to rear admiral. It can also refer to a brand name.

Step 3: Unscrambling Option 3 (ANCEDOG)

- The given letters are: A, N, C, E, D, O, G.
- Rearranging these letters, we can form the meaningful word: **DOGCAGE**.
- A dogcage is an enclosure designed to house a dog.

Step 4: Unscrambling Option 4 (LARHSAM)

- The given letters are: L, A, R, H, S, A, M.
- Rearranging these letters, we can form the meaningful word: **MARSHAL**.
- Marshal is a high rank in the army, air force, or police forces.

Identifying the Odd One Out

We have successfully rearranged the letters to form the words: SQUADRON, COMMODORE, DOGCAGE, and MARSHAL. The next crucial step is to determine the common category for three of these words.

Analyzing the Words for a Common Theme

Let's look at the words we formed:

- **SQUADRON:** This word refers to a military unit or organizational group, often associated with ranks.
- **COMMODORE:** This is a rank, specifically a naval rank.
- **DOGCAGE:** This refers to a physical object, an enclosure for a dog.
- **MARSHAL:** This is also a high rank, typically in military or police contexts.

Observing these words, we can see a connection between SQUADRON, COMMODORE, and MARSHAL. They all relate to military or organizational ranks and structures.

- COMMODORE and MARSHAL are specific high ranks.
- SQUADRON denotes a unit within such military organizations.

On the other hand, DOGCAGE is simply an object or a structure. It does not align with the theme of ranks or military organizational units.

Conclusion: Determining the Odd Word

Based on the common theme identified (military ranks and organizational units), DOGCAGE stands out as the odd one.

Therefore, the group of letters 'ANCEDOG', which unscrambles to DOGCAGE, is the correct choice for the odd one out.

80. Answer: a

Explanation:

Understanding the Letter Coding Pattern

This question requires us to identify a specific pattern used in letter coding. We need to determine how the word 'BROUGHT' is transformed into 'CSPVHIU' and then apply

the same transformation rule to the word 'FARMER'. This type of problem is common in reasoning and aptitude tests.

Analyzing the Code: BROUGHT to CSPVHIU

Let's break down the transformation by comparing each letter of 'BROUGHT' with its corresponding letter in 'CSPVHIU'. We will look at their positions in the English alphabet:

- B is the 2nd letter. Its coded letter is C, the 3rd letter.
- R is the 18th letter. Its coded letter is S, the 19th letter.
- O is the 15th letter. Its coded letter is P, the 16th letter.
- U is the 21st letter. Its coded letter is V, the 22nd letter.
- G is the 7th letter. Its coded letter is H, the 8th letter.
- H is the 8th letter. Its coded letter is I, the 9th letter.
- T is the 20th letter. Its coded letter is U, the 21st letter.

We can represent this relationship numerically. Let the position of a letter in the alphabet be denoted by P . The transformation rule appears to be:

$$\text{Coded Letter Position} = \text{Original Letter Position} + 1$$

This means each letter is shifted one position forward in the alphabet.

Original Letter	Coded Letter	Shift (Position Change)
B	C	+1
R	S	+1
O	P	+1
U	V	+1
G	H	+1
H	I	+1
T	U	+1

The pattern is consistently a '+1' shift for each letter.

Applying the Coding Pattern to FARMER

Now we apply the same '+1' shift rule to encode the word 'FARMER'. We find the letter that comes one position after each letter in 'FARMER':

- F (6th letter) + 1 position = G (7th letter)
- A (1st letter) + 1 position = B (2nd letter)
- R (18th letter) + 1 position = S (19th letter)
- M (13th letter) + 1 position = N (14th letter)
- E (5th letter) + 1 position = F (6th letter)
- R (18th letter) + 1 position = S (19th letter)

By applying the '+1' shift to each letter of 'FARMER', we obtain the sequence of letters: G, B, S, N, F, S.

Final Coded Word for FARMER

Combining these letters gives us the coded word 'GBSNFS'. This sequence represents the application of the identified letter coding pattern.

81. Answer: c

Explanation:

Spring and Autumn are types of seasons.

The correct Venn diagram representation is,



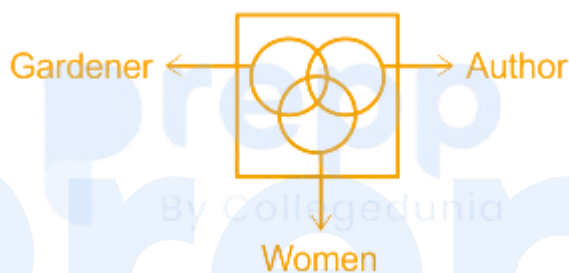
Hence, the correct answer is "option (3)".

82. Answer: d

Explanation:

Some women can be a gardener and an author at the same time.

The correct Venn diagram representation is,

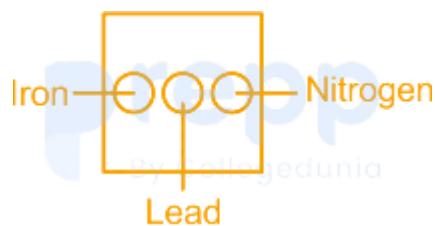


Hence, the correct answer is "option (4)".

83. Answer: b

Explanation:

Iron, Lead and Nitrogen are entirely different from each other.



1. Nitrogen is a gas.
2. Iron is a solid metal.
3. Lead is present as solid and also in liquid form.

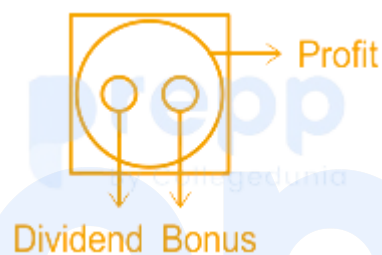
Hence, the correct answer is "Option (2)"

84. Answer: b

Explanation:

Bonus and Dividend are different from each other. But both these are parts of profit.

The correct Venn diagram is,



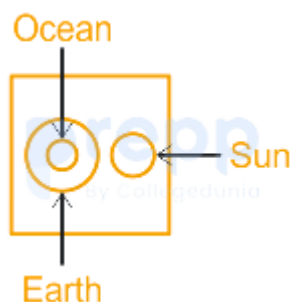
Hence, the correct answer is "option (2)".

85. Answer: c

Explanation:

Ocean is a water-form on earth whereas sun is a star away from the earth.

Therefore, the Venn diagram that best represents the relationship between sun, earth, and ocean is



Hence, the correct answer is "option (3)".

86. Answer: b

Explanation:

The embedded part of this image is:

No.	Option	Question	Answer
1.			Not Embedded
2.			Embedded
3.			Not Embedded
4.			Not Embedded

Hence, the correct answer is "Option (2)".

87. Answer: b

Explanation:

The embedded part of this image is:



No.	Option	Question	Answer
1.			Not Embedded
2.			Embedded
3.			Not Embedded
4.			Not Embedded

Hence, the correct answer is "Option (2)".

88. Answer: d

Explanation:

The figure which will complete the pattern of the question figure is given below:



Hence, the correct answer is "Option (4)".

89. Answer: b

Explanation:

The figure which will complete the pattern of the question figure is given below:



Hence, the correct answer is "Option (2)".

90. Answer: c

Explanation:

As we can see that below image represent Completion of incomplete pattern.

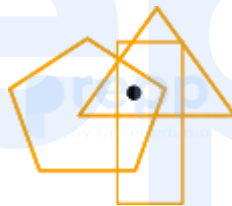


Hence, the correct answer is "Option (3)".

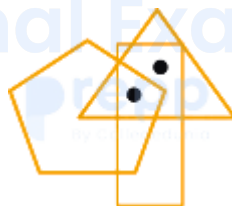
91. Answer: c

Explanation:

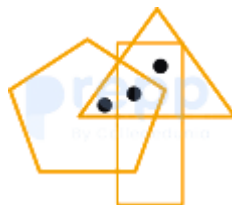
In question figure, one of the dots lies in the common region of Pentagon, Triangle and Rectangle.



The second dot lie in the common region of Triangle and Rectangle.



The third dot lie in the common region of Triangle and Pentagon.



Only figure (B) consists of these types of regions.

Hence, the correct answer is "Option 3".

92. Answer: b

Explanation:

In the question figure, one dot lies in the region of which is common to all circle, triangle and arrow.



One dot lies in the region common to arrow and triangle only.



One dot lies in the arrow only.



Only **Figure (C)** consist of these types of region.

Figure (A) does not have a common region of circle, triangle and arrow.

Figure (B) & (D) does not have dot for arrow only.

Hence, the correct answer is "Option C".

93. Answer: b

Explanation:

In figure (X), one of the dots lies in the region which is common to all the three figures and the other dot lies in the region common to the square and arrow only.

(A):



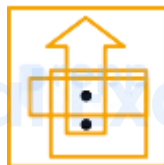
The dot lies in the region common to the square and arrow only.

(B):



The dot lies in the region common to the square and arrow only.

(C):



The dots consist of all two types of regions.

(D):



The dot lies in the region which is common to all the three figures



Only figure (C) consists of these types of regions.

Hence, 'figure (C)' is the correct answer.

94. Answer: a

Explanation:

In figure (X), one of the dots lies in the region common to the circle and hexagon only and the other dot lies in the region common to the hexagon and square only.

(A):



(A)

The dot lies in the region common to the circle and hexagon only.

(B):



(B)

This figure consists of all two types of regions.

(C):



(C)

The dot lies in the region common to the hexagon and square only.

(D):



(D)

The dot lies in the region common to the circle and hexagon only.



Only figure (B) consists of these types of regions.

Hence, 'figure (B)' is the correct answer.

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95. Answer: a

Explanation:

Here, in the question figure,

1. One dot is in the common region of only triangle and square.

Figure (a) → All the requirements are fulfill in this figure are shown below:



Figure (b) → Common region of only triangle and square is not present.

Figure (c) → Common region of only triangle and square is not present.

Figure (d) → Common region of only triangle and square is not present.

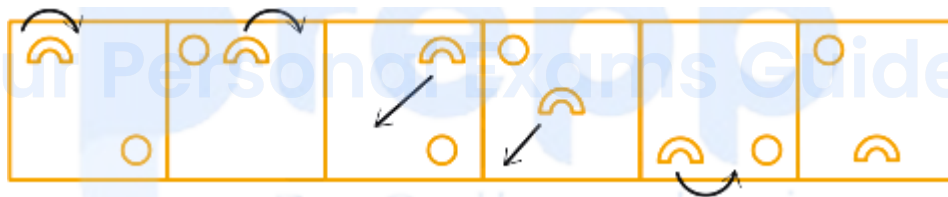
Hence, the correct answer is "Figure (a)".

96. Answer: b

Explanation:

The pattern followed here is as follows:

1) The arc is shifting in such a way that it is forming a Z.



2) The circle is changing its position alternatively between the bottom right corner and the top left corner.



The image which will come next in the series is:



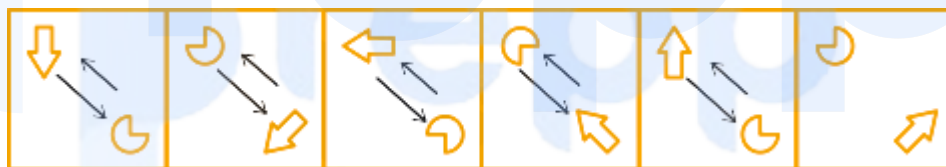
Hence, option 2 is the correct answer.

97. Answer: b

Explanation:

The pattern followed here is as follows:

- 1) The partial circle is rotating by 90° in the anti-clockwise direction in every step.
- 2) The arrow is rotating by 45° in the clockwise direction in every step.
- 3) The arrow and the partial circle are interchanging their positions in every step.



- 4) The image which will come next in the series is:



Hence, the correct answer is "Option 2"

98. Answer: d

Explanation:

Given,



The pattern followed here is:

The pair of square brackets is moving clockwise/anticlockwise.

In each step, a new small diagram is added alternately at the ends of the brackets and at the middle of the brackets

According to this, only one satisfies the solution.

Here, we see the most suitable option is



Hence, the correct answer is



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99. Answer: a

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The pattern followed here is as follows:

The moon and the triangle are shifting their positions in **anti-clockwise direction** in every step.



The letter in the middle is decreasing by the place value of 1.

$$X - 1 = W$$

$$W - 1 = V$$

$$V - 1 = U$$

$$U - 1 = T$$

$$T - 1 = S$$

The image which will come next in the series is:



Hence, **option 1** is the correct answer.

100. Answer: b

Explanation:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The pattern followed here is as follows:

The letter "M" at the top left corner is rotating by 90° in the clockwise direction in every step.

A new letter is added to the series in every step according to alphabetical order and there is no rotation taking place in them.

The image which will come next in the series is:

M	Σ	W B	Σ B	M D B	Σ D B
		A	A C	A C	A E C

Hence, **option 2** is the correct answer.

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