

Answers

1. Answer: c

Explanation:

- The question asks to identify the grammatical error in the sentence: "David thinks himself as a great scholar". We need to examine each segment for correctness.

Grammatical Error Analysis: "David thinks himself as a great scholar"

The sentence intends to convey that David considers himself to be a great scholar. To determine the error, we must look at the specific verb usage and sentence structure.

Identifying the Error in "as a great scholar"

- The segment in question is "as a great scholar".
- The verb used is "thinks", and it is followed by the reflexive pronoun "himself".
- In standard English grammar, when the verb "think" is used reflexively (meaning to consider or regard oneself in a certain way), it typically follows one of two correct structures:
 - Verb + Reflexive Pronoun + Complement (e.g., 'thinks himself a great scholar'). Here, the complement directly follows the reflexive pronoun without needing 'as'.
 - Verb + 'of' + Reflexive Pronoun + 'as' + Complement (e.g., 'thinks of himself as a great scholar'). This structure explicitly uses 'as'.
- The given sentence uses the structure "thinks himself as a great scholar". This structure, which includes "as" after the reflexive pronoun when the complement directly follows, is considered grammatically incorrect or non-standard. The word "as" is redundant and incorrectly placed in this specific construction.
- Therefore, the error lies within the segment "as a great scholar" because the word "as" should not be present in this context.

Correct Usage of the Verb "Think" with Reflexive Pronouns

Let's look at the correct ways to express this idea:

- **Structure 1: Using a direct complement**
 - Example: "David thinks himself a great scholar."
 - Explanation: Here, "a great scholar" acts as an objective complement, directly describing "himself" without needing "as".
- **Structure 2: Using "of ... as"**
 - Example: "David thinks of himself as a great scholar."
 - Explanation: This structure uses the preposition "of" after "thinks" and then uses "as" to introduce the description. This is a very common and correct construction.

Sentence Breakdown and Correction

Let's analyze the original sentence parts:

- **(A) David thinks:** This part is grammatically sound. "David" is the subject, and "thinks" is the verb.
- **(B) himself:** This reflexive pronoun correctly refers back to the subject "David".
- **(C) as a great scholar:** This is the problematic segment. The presence of "as" makes the sentence structure incorrect, as explained above. The correct complement should either directly follow "himself" or be introduced using the "thinks of himself as" pattern.
- **(D) No error:** Since there is a grammatical error, this option is incorrect.

The corrected sentence would be either:

- "David thinks himself a great scholar."
- "David thinks of himself as a great scholar."

The error identified is in segment (C) due to the incorrect use of "as".

2. Answer: b

Explanation:

Grammatical Error Identification in Sentence Construction

The question asks us to identify the segment containing a grammatical error in the given sentence. Let's analyze each part:

Analyzing Sentence Segments

- **Segment (A) "I have":** This part correctly sets up the present perfect tense. The auxiliary verb "have" is appropriate for the first-person subject "I".
- **Segment (B) "never cheat":** This segment contains the grammatical error. The present perfect tense is formed using "have/has" + past participle of the main verb. The verb here is "cheat". The base form "cheat" is used instead of its past participle form.
- **Segment (C) "and will never cheat you":** This part uses the future simple tense ("will cheat") correctly. It follows logically after the first part of the sentence.
- **Segment (D) "no error":** This option is considered if all other segments are grammatically correct.

Explanation of the Grammatical Rule

The core issue lies in the verb form used with the auxiliary verb "have". When forming the present perfect tense (e.g., "I have..."), the main verb must be in its **past participle** form.

The verb "cheat" has the following forms:

- Base form: cheat
- Past tense: cheated
- Past participle: cheated

Therefore, the correct construction for the present perfect tense is "have cheated". The sentence should correctly read "I have **never cheated**...". Segment (B) incorrectly uses the base form "cheat" instead of the past participle "cheated".

Conclusion on the Error

The error is found in segment (B) because the verb "cheat" should be in the past participle form "cheated" to correctly form the present perfect tense with the auxiliary verb "have".

3. Answer: b

Explanation:

Identifying Grammatical Errors in Sentence Structure

The question asks us to identify the segment of the given sentence that contains a grammatical error. Let's analyze each segment:

Segment A Analysis: "The capital of Vietnam"

This segment correctly identifies the subject of the sentence. There are no grammatical errors in this part.

Segment B Analysis: "is situating"

This segment contains the verb phrase. The verb "situate" means to place or establish in a particular position or location. When describing the location or position of a place, like the capital of Vietnam, we typically use the passive voice or a simple state of being. The present continuous tense ("is situating") suggests an ongoing action of locating, which is not appropriate for describing a geographical position.

The correct and standard grammatical form to use here is the simple present passive voice: "is situated". This indicates the state of being located.

Correct Usage Example: Hanoi **is situated** near the Red River.

The phrase "is situating" is grammatically incorrect in this context.

Segment C Analysis: "2300 metres above the sea level."

This segment describes the altitude of the capital city. The wording and units are grammatically correct for providing geographical information.

Conclusion on Grammatical Error

Based on the analysis, the grammatical error is found in segment B, "is situating". The correct verb form should be "is situated" to accurately describe the location of the capital city.

4. Answer: a

Explanation:

Selecting the Correct Phrasal Verb for Rahul

This question requires us to choose the most suitable phrasal verb to complete the sentence: "Rahul has always _____ me." We need to understand the meaning and grammatical correctness of each option to fill the blank appropriately, describing Rahul's attitude or behaviour towards the speaker.

Analyzing Rahul's Attitude Options

Let's examine the common phrasal verbs involving "look" and see how they fit the sentence:

Understanding the Idiom 'looked down on'

The phrasal verb **look down on** means to think someone or something is inferior, less important, or worse than yourself. It expresses a feeling or attitude of superiority.

Example: *She tends to look down on people who haven't been to college.*

In the sentence "Rahul has always looked down on me," it suggests Rahul feels superior to the speaker.

Examining 'looked up on'

The phrase **looked up on** is not a standard or grammatically correct English idiom in this context. The common idiom is "look up to," which means to admire or respect someone.

Example of correct usage: *Many young players look up to him.*

Therefore, "looked up on" is incorrect.

Assessing 'looked right on' and 'looked left on'

Phrases like **looked right on** or **looked left on** typically refer to physical direction or continuing a process.

- *Looked right on* could mean looking straight ahead or continuing in a direction.
- *Looked left on* would similarly refer to a direction.

Neither phrase describes a personal attitude or relationship, making them unsuitable for the sentence.

Comparison of Phrasal Verb Meanings

Here's a summary to clarify the meanings:

Phrasal Verb	Meaning	Suitability for Sentence
looked down on	To feel superior; to condescend.	Describes an attitude towards someone.
looked up on	Not a standard idiom; incorrect.	Grammatically incorrect.
looked right on	To proceed; to look ahead.	Refers to direction, not attitude.
looked left on	Refers to direction.	Refers to direction, not attitude.

Finalizing the Choice for Rahul

Based on the analysis, the phrasal verb "looked down on" correctly conveys an attitude of perceived superiority, fitting the grammatical structure and common usage in English. The other options are either grammatically incorrect or contextually inappropriate for describing Rahul's consistent behaviour towards the speaker.

Therefore, the most appropriate completion for the sentence is: "Rahul has always **looked down on** me."

5. Answer: b

Explanation:

Understanding Phrasal Verbs for Sentence Completion

This question requires selecting the most appropriate phrasal verb to accurately complete the given sentence about discussing a past issue, specifically a "prison record". We need to find the phrasal verb that means to mention or raise a topic.

Analyzing Phrasal Verb Options

Let's examine the meaning of each phrasal verb option in the context of the sentence: "My mother _____ that little matter of my prison record again."

- **Option 1: hold up**
 - Meaning: "Hold up" typically means to delay something or someone (e.g., "The traffic held us up"). It can also mean to rob a place (e.g., "They held up the bank").
 - Context Fit: Neither of these meanings fits the context of the sentence. A mother mentioning a prison record is not about delaying something or robbing a place.
- **Option 2: brought up**
 - Meaning: "Brought up" is a common phrasal verb that means to mention a subject or start talking about it (e.g., "He brought up his concerns during the meeting").

- Context Fit: This meaning fits the sentence perfectly. The mother is mentioning or initiating a conversation about the "prison record" again.
- **Option 3: looked over**
 - Meaning: "Looked over" means to examine something briefly or casually (e.g., "Can you look over my report?"). It can also mean to ignore something deliberately (e.g., "The teacher looked over the student's mistake").
 - Context Fit: While "looked over" could imply ignoring, the primary meaning relates to examination. In the context of mentioning a past issue like a prison record, "brought up" (meaning to mention) is a more direct and fitting phrasal verb.
- **Option 4: None of these**
 - Context Fit: Since "brought up" fits the context well, this option is incorrect.

Selecting the Best Phrasal Verb

Based on the analysis, the phrasal verb "brought up" accurately conveys the meaning of the mother mentioning the "prison record" again. It is the most suitable choice for completing the sentence grammatically and contextually.

Therefore, the completed sentence is: "My mother **brought up** that little matter of my prison record again."

6. Answer: c

Explanation:

Understanding Phrasal Verbs: Harsh and the Hot Weather

This question asks us to choose the best phrasal verb to fill in the blank in the sentence: "It was so hot that Harsh had to _____ my shirt." We need to understand the meaning of different phrasal verbs and how they apply to the context of feeling very **hot**.

Analyzing the Options for Harsh's Action

Let's look at the meaning of each phrasal verb provided:

- **take down:** This means to write something or remove something from a high place. For example, "Harsh had to *take down* the poster." This doesn't fit the context of dealing with heat or a shirt.
- **turn down:** This usually means to refuse something or to reduce the intensity of heat or sound. For example, "Harsh had to *turn down* the heater." This also doesn't fit the context of removing a shirt.
- **take off:** This means to remove clothing. For example, "When you come inside, please *take off* your jacket." Since it was very hot, Harsh needing to remove the speaker's shirt is a logical action.
- **turn up:** This means to increase the intensity of heat or sound, or to arrive. For example, "Harsh had to *turn up* the fan." This is the opposite of what someone would do if it was too hot.

Contextual Fit: Why 'take off' is Correct

The sentence describes a situation where the temperature is extremely high ("It was so hot"). The action Harsh takes involves the speaker's shirt. Among the given options, **take off** is the only phrasal verb that means to remove clothing. Therefore, it makes the most sense that because it was so hot, Harsh had to remove the shirt.

The completed sentence is: "It was so hot that Harsh had to **take off** my shirt." This clearly conveys that the heat necessitated the removal of the shirt.

7. Answer: c

Explanation:

Identifying the Correct Adjective from Noun 'Breeze'

This question asks us to find the correct adjective form derived from the noun **Breeze**. Understanding how nouns are converted into adjectives is key to answering this

correctly. Adjectives describe nouns, and sometimes we create adjectives from existing nouns, often by adding suffixes like '-y', '-ful', '-able', etc. Let's examine the given noun and the options provided.

Understanding the Noun 'Breeze'

The word **Breeze** is a noun. It refers to a gentle or light wind. For example, "A cool breeze blew through the trees."

Analyzing the Options for Adjective Formation

We need to determine which option correctly represents an adjective related to the noun **Breeze**. Let's look at each option:

- **Option 1: Breezed**

The word "Breezed" typically functions as the past tense or past participle of a verb. For instance, "He breezed into the room." It doesn't describe a quality related to a breeze itself.

- **Option 2: Sea breeze**

"Sea breeze" is a compound noun. It describes a specific type of breeze, one that comes from the sea. It is not an adjective modifying another noun.

- **Option 3: Breezy**

"Breezy" is formed by adding the suffix '-y' to the noun "Breeze". This suffix often creates adjectives. "Breezy" means having or relating to a breeze, or characterized by a lot of wind. It can also describe something as light, fresh, or cheerful. For example, "It was a bright, **breezy** day." This fits the definition of an adjective derived from **Breeze**.

- **Option 4: Breezes**

"Breezes" is simply the plural form of the noun **Breeze**. It refers to more than one gentle wind. It does not function as an adjective.

Conclusion: Selecting the Correct Adjective

Based on the analysis of word forms and grammatical functions, the word **Breezy** is the correct adjective derived from the noun **Breeze**. It effectively describes something characterized by or related to a gentle wind.

8. Answer: b

Explanation:

- The question asks for the **adjective form** of the word 'Stick'.
- We need to understand how words change from one form (like a noun or verb) to an adjective.
- An **adjective** describes a noun or pronoun, telling us more about its qualities.

Understanding the Word 'Stick'

The word 'Stick' can be used in a few ways:

- As a **noun**: A stick is typically a piece of wood (e.g., "He picked up a stick.").
- As a **verb**: To stick means to adhere, attach, or become fixed to something (e.g., "Glue will stick the paper together.").

The adjective form usually relates to the quality described by the verb.

Analyzing the Options for 'Stick'

Let's look at each option provided:

- **Option 1: Stiff**
'Stiff' is an adjective meaning rigid or firm. It does not describe the quality of adhering or sticking. For example, "The door is stiff". This is not related to the word 'stick'.
- **Option 2: Sticky**
'Sticky' is an adjective that means tending to stick or adhere to things. It often

describes a surface or substance that has the quality of sticking. For example, "Honey is sticky". This adjective is formed from the verb 'stick' by adding the common adjective-forming suffix '-y'. This aligns with the meaning of sticking.

- **Option 3: Sticking**

'Sticking' is the present participle of the verb 'stick'. It describes the action of sticking in progress. For example, "The *sticking* tape needs replacing". While it can sometimes act like an adjective, 'sticky' represents the inherent quality of being able to stick.

- **Option 4: Stuck**

'Stuck' is the past participle of the verb 'stick'. It describes the state of being fixed or unable to move, often as a result of sticking. For example, "The car is *stuck* in the mud". It describes a state, not the general quality of adhering.

Identifying the Correct Adjective

Based on the analysis, the word that correctly serves as the adjective describing the quality of adhering or tending to stick is 'Sticky'. It directly relates to the verb 'stick' and describes the characteristic property.

- 'Stiff' - unrelated adjective.
- 'Sticky' - adjective meaning prone to adhering.
- 'Sticking' - verb form (present participle).
- 'Stuck' - verb form (past participle).

Therefore, the adjective form related to the concept of 'sticking' is 'Sticky'.

9. Answer: b

Explanation:

Context for Blank (1) in India's History and Culture

The task is to accurately fill in the blank labelled (1) within the given passage. The sentence in focus is: "*India's history and culture are _____ (1) _____, spanning back to the beginning of human civilization.*" We must select the most suitable word

from the provided options to characterize the nature of India's extensive history and culture.

Evaluating Word Choices for Blank (1)

We will analyze each option to determine which best fits the description:

- **Option 1: 'lethargic'**

The term 'lethargic' implies slowness, inactivity, or a lack of energy. This word contradicts the idea of a history that originates from the very beginning of human civilization and encompasses significant developments and integrations over time.

- **Option 2: 'dynamic'**

'Dynamic' describes something characterized by continuous change, activity, and progress. This word aligns perfectly with the context, as India's history involves the integration of migrating populations and diverse cultures, indicating constant evolution and development throughout its long existence.

- **Option 3: 'inactive'**

The word 'inactive' means not active or without activity. This is unsuitable for describing a history that spans millennia and includes the rise and fall of civilizations, cultural exchanges, and societal changes.

- **Option 4: 'lazy'**

'Lazy' is a term related to unwillingness to exert effort. It is not appropriate for describing historical or cultural traits.

- **Option 5: (Empty)**

This option is empty and provides no word to evaluate.

Final Selection for Blank (1)

Based on the analysis, the description of India's history and culture spanning back to the beginning of human civilization and involving constant integration strongly suggests a continuous process of change and development. The word 'dynamic' best captures this essence, highlighting the vibrant and evolving nature of India's past.

Therefore, 'dynamic' is the most appropriate choice for blank (1).

10. Answer: d

Explanation:

Analyzing the Beginning of Indian Civilization

This question requires us to fill in a blank in a passage describing the early history and culture of India. The focus is on identifying the most suitable word for the blank labelled (2), which describes an early aspect related to the Indus River and southern Indian communities.

Context of the Passage

The passage highlights that India's history and culture are ancient, dating back to the dawn of human civilization. It mentions the Indus River and southern farming communities as starting points. The text emphasizes the integration of migrating people and the prevalence of metal use, indicating significant early progress. It specifically points to the Indus Valley Civilization, also known as the Harappan Civilization, which flourished around 2,500 BC in regions that are now Pakistan and Western India.

Focus on Blank (2)

The sentence containing the blank is: "It begins with a mysterious _____ (2) _____ along the Indus River and in farming communities in the southern lands of India." We need to find a word that logically follows "mysterious" and fits the context of the birth of civilization.

Evaluating the Options for Blank (2)

Let's examine each option provided:

- **Option 1: fight** – The word 'fight' suggests conflict. While conflicts can be part of history, describing the very beginning of civilization along a major river as a "mysterious fight" does not align well with the concept of establishing communities and cultural development.
- **Option 2: inelegance** – 'Inelegance' refers to a lack of grace or style. This word is contextually inappropriate and does not fit the historical narrative of civilization's origins. A "mysterious inelegance" makes no sense here.
- **Option 3: family** – While families are fundamental units of society, describing the beginning of civilization as a "mysterious family" is too specific and limited. Civilizations involve much broader aspects than just a single family unit.
- **Option 4: culture** – 'Culture' encompasses the ideas, customs, social behaviour, and achievements of a particular society or group. Describing the early stages of civilization along the Indus River as a "mysterious culture" is fitting. Civilizations are defined by their unique cultures, and the origins of the Indus Valley Civilization are indeed considered ancient and somewhat mysterious due to the limited understanding we have of certain aspects. The passage later refers to the integration with "diverse cultures", reinforcing the relevance of this term.

Conclusion for Blank (2)

Based on the analysis, the word 'culture' best fits the blank (2). It accurately reflects the development of societal norms, practices, and ways of life that characterize the early stages of the Indus Valley Civilization. The adjective 'mysterious' appropriately describes the ancient and not fully understood nature of these origins.

Therefore, the most appropriate word to fill blank (2) is **culture**.

11. Answer: c

Explanation:

Indian History Passage: Filling the Blanks

This solution addresses a fill-in-the-blanks question from a passage about India's rich history and culture. We will focus on finding the most suitable word for blank number (3) to accurately describe the development of the Indus Valley Civilization.

Analyzing Blank (3) in the Passage

The specific sentence containing blank (3) is:

"It _____ (3) _____ around 2,500 BC, in the western part of South Asia, what today is Pakistan and Western India."

This sentence describes the timeline and location of the Indus Valley Civilization, also known as the Harappan Civilization. The word needed should reflect how a civilization develops or begins its existence at a particular time.

Evaluating the Options for Blank (3)

Let's examine each option provided to determine the best fit for blank (3):

- **halted:** This word means to stop. A civilization doesn't typically "stop" around a specific date; rather, it begins, develops, or declines. So, "halted" does not fit the context of the emergence of a civilization.
- **twirled:** This word means to spin or twist. It has no relevance to historical or cultural development, making it an unsuitable choice.
- **flourished:** This word means to grow, develop, or thrive vigorously. This accurately describes the emergence and growth of a significant civilization like the Indus Valley Civilization around 2,500 BC. It implies a period of prosperity and development.
- **withered:** This word means to become weak, dry, or diminish. It suggests decline or decay, which is contrary to the context of the beginning of a civilization.

Understanding the Context of the Indus Valley Civilization

The passage states that India's history begins with the Indus Valley Civilization around 2,500 BC. This period marks the development of one of the world's earliest urban civilizations. The term "flourished" best captures the sense of growth and development associated with the beginning of such a significant historical era.

Therefore, the sentence reads most appropriately as: "It **flourished** around 2,500 BC, in the western part of South Asia, what today is Pakistan and Western India." This correctly indicates that the Indus Valley Civilization was thriving and developing during that time period and in that geographical region.

12. Answer: b

Explanation:

Nurturing Children's Positive Self-Esteem

The passage discusses the crucial role parents and adults play in a child's development, particularly in fostering positive self-esteem. Positive self-esteem is built when children feel capable and good about themselves.

Key Strategies for Nurturing Self-Esteem

According to the passage, adults can actively help children develop positive self-esteem through several key actions:

- **Discovering Strengths:** Assisting children in identifying their talents and what they excel at is fundamental.
- **Fostering Competence:** Ensuring children feel skilled in activities they enjoy contributes significantly to their self-worth.
- **Encouraging Exploration:** Providing opportunities for children to explore various objects and activities helps them find interests.
- **Nurturing Interests:** Supporting and encouraging the interests children develop plays a big part in their success and positive feelings.
- **Considering Personality:** Planning activities that align with a child's unique personality style helps nurture positive self-feelings.

- **Appreciating Qualities:** Noticing and valuing a child's special, individual qualities is essential.

Analyzing the Options

Let's evaluate the given options based on the information provided in the passage:

- **Option 1:** "by not helping them discover what they are good at doing" – This contradicts the passage, which explicitly states that helping children discover their strengths is a way to nurture self-esteem.
- **Option 2:** "by helping them discover what they are good at doing" – This aligns directly with the passage's statement: "Adults can nurture children's positive self-esteem by helping them discover what they are good at doing."
- **Option 3:** "by avoiding their curiosities" – The passage encourages exploration and nurturing interests, making avoiding curiosity counterproductive to building self-esteem.
- **Option 4:** "by sending them to the schools" – While schooling is important for development, the passage focuses specifically on the direct actions adults can take to nurture self-esteem, such as helping them discover talents and interests. Sending children to school is a general action, not the specific method described in the passage for building self-esteem.
- **Option 5:** This option is empty and cannot be evaluated.

Conclusion on Nurturing Self-Esteem

The passage clearly indicates that actively supporting children in finding and developing their skills and interests is the primary way adults can nurture their positive self-esteem. This involves helping them understand their capabilities and encouraging them in activities they find enjoyable and aligned with their personality.

13. **Answer: a**

Explanation:

Helping Children Become Successful

The passage discusses how parental actions significantly influence a child's development, particularly their self-esteem and eventual success. It highlights the importance of nurturing a child's positive feelings about themselves by recognizing and supporting their unique qualities and interests.

Understanding Parental Roles in Child Success

The core message of the passage is that parents play a crucial role in a child's journey towards success and positive self-perception. It emphasizes a supportive and encouraging approach rather than criticism or neglect.

Analyzing Options for Helping Children

Let's examine how each option aligns with the advice given in the passage:

- **Option 1: by creating opportunities for children to explore different objects, activities, and nurturing those interests**

This option directly reflects the passage's statement: "By creating opportunities for children to explore different objects, activities, and nurturing those interests, you can play a big role in helping children to be successful and feel good about themselves." Encouraging exploration and supporting children's passions helps them develop skills and confidence, leading to success.

- **Option 2: by ignoring their talents**

The passage suggests parents help children discover what they are good at. Ignoring talents would prevent children from realizing their potential and building self-esteem, which is contrary to the passage's advice.

- **Option 3: by scolding and instructing them the ways you like**

While guidance is necessary, the passage focuses on nurturing positive feelings and appreciating children's unique qualities. Constant scolding and imposing

parental preferences can undermine a child's confidence and individuality, hindering their success and positive self-image.

- **Option 4: by getting furious if they do something wrong**

The passage advocates for appreciating children's qualities and nurturing positive feelings. Reacting with fury is a negative approach that can damage a child's self-esteem and willingness to try new things, which is counterproductive to helping them become successful.

- **Option 5:**

This option is incomplete and cannot be evaluated.

Conclusion on Fostering Success

Based on the passage, the most effective way parents can play a significant role in helping children achieve success is by actively providing them with chances to explore various activities and objects, and by supporting and nurturing the interests that arise from these explorations. This approach builds competence, confidence, and positive self-esteem, which are essential for success.

14. Answer: d

Explanation:

Understanding Essential Parental Qualities

This question requires us to identify the specific type of parents that are essential for every child, based on the provided passage. The passage discusses the crucial role of parents in a child's development, focusing on love, care, nurturing self-esteem, and appreciating individuality.

Passage Analysis: What Children Need

The passage emphasizes several key aspects of parenting:

- Parents' love and care significantly influence how a child grows and their future parenting style.
- Nurturing a child's positive self-esteem involves helping them discover their strengths and providing opportunities to explore activities they enjoy.
- Acknowledging a child's unique personality traits and preferences is important for their positive self-perception.
- The passage directly states: "Every child needs parents who can notice and appreciate their special qualities."
- It also highlights that treating siblings equally can be counterproductive, suggesting the importance of recognizing individuality.

Evaluating the Options

Let's examine each option in light of the passage:

- **Option 1:** "who can notice and ignore their special qualities" – This contradicts the passage's emphasis on appreciation. Ignoring qualities is not beneficial.
- **Option 2:** "who cannot notice and appreciate their special qualities" – This is the opposite of what the passage suggests is needed.
- **Option 3:** "who can afford to give them a luxurious life" – While financial stability can be helpful, the passage focuses on emotional and psychological support, not material wealth, as the essential need.
- **Option 4:** "who can notice and appreciate their special qualities" – This option directly aligns with the explicit statement in the passage about what every child needs. Recognizing and valuing a child's unique traits fosters positive self-esteem and individuality.
- **Option 5:** This option is incomplete.

Conclusion: The Needed Parental Approach

Based on the direct information provided in the text, the most critical requirement for every child is to have parents who actively observe and value their unique characteristics. This attentive and appreciative approach is fundamental for healthy emotional development and building positive self-esteem.

15. Answer: a

Explanation:

Defining Diseases That Spread Through Contact

The question asks for the most suitable word to describe a disease which spreads **with contact**. This means the illness is transmissible from one person or organism to another through direct physical contact or indirect contact via contaminated surfaces or objects.

Contagious: The Best Fit for Contact Spread

The term **Contagious** precisely defines a disease that can be communicated through contact. This transmission can occur in several ways:

- **Direct Contact:** This involves touching an infected person, such as through skin-to-skin contact or intimate contact.
- **Indirect Contact:** This happens when an infected person contaminates an object (like a doorknob, phone, or utensil), and another person touches that object, picking up the pathogen.

Therefore, **Contagious** directly matches the given description of a disease spreading through contact.

Understanding Other Disease-Related Terms

Let's examine why the other options are less appropriate:

- **Endemic:** A disease is called **endemic** when it is constantly present at some level within a specific population or geographical region. It refers to the habitual presence of a disease rather than the method of transmission. For example, chickenpox used to be endemic in many countries. While it spreads easily, "endemic" describes its prevalence, not the mechanism of spread via contact.

- **Poisonous:** This term describes an organism or substance that produces poison and is harmful if ingested, inhaled, or absorbed. It relates to toxicity. While exposure to something poisonous might happen via contact, the word "poisonous" itself doesn't describe the *spread* of a disease through contact; it describes the harmful nature of a substance or organism.
- **Contractual:** This word relates to contracts, which are formal agreements. It has no connection to diseases or how they are transmitted.

Summary of Disease Transmission Terms

To summarize:

- **Contagious:** Spreads via direct or indirect contact.
- **Endemic:** Constantly present in a region/population.
- **Poisonous:** Harmful due to containing poison (toxicity).
- **Contractual:** Related to agreements.

The word that most appropriately describes 'A disease which spreads with contact' is **Contagious**.

16. Answer: c

Explanation:

Birds of One Kind: Collective Nouns Explained

This question asks us to identify the correct collective noun for a specific group: **a group of birds of one kind**. Collective nouns are words used to represent a collection of people, animals, or things. Finding the right term helps us describe these groups accurately.

Understanding Collective Nouns for Groups

Collective nouns are a key part of vocabulary, especially when talking about animals. Different types of groups have unique names. For instance, a group of lions

is a 'pride', and a group of fish is a 'school'. This question focuses on birds.

Analyzing the Options Provided

Let's examine each option to see which term best fits a group of birds of the same type:

- **Band:** The word 'band' usually refers to a group of musicians playing together or sometimes a group of animals like whales or elephants. It is not the standard term used for birds.
- **Bevy:** 'Bevy' is typically used to describe a group of women or girls. It can also refer to a specific group of birds, like quail, but it's not the general term for any group of birds of one kind.
- **Flock:** This is the most common and appropriate collective noun for a group of birds. Whether it's pigeons, geese, or sparrows, a collection of them is called a 'flock'. This term accurately describes **a group of birds of one kind**. It can also be used for sheep or goats.
- **Crowd:** 'Crowd' generally refers to a large number of people gathered together. While it can sometimes describe a dense gathering of animals, it's not specific to birds and doesn't imply they are of the same kind. It usually suggests a mass rather than an organized or specific group.

Collective Noun Usage Comparison

To clarify, here is a table showing the typical uses of the given words:

Term	Commonly Refers To	Fits "Group of Birds of One Kind"?
Flock	Birds, Sheep, Goats	Yes
Band	Musicians, Whales, Elephants	No
Bevy	Women, Girls, Quail	No (generally)
Crowd	People, Large gathering of animals/things	No (not specific)

Therefore, the most suitable word for a group of birds of one kind is 'Flock'.

17. Answer: b

Explanation:

Understanding the Idiom 'Cool Your Heels'

Idioms are phrases where the words together have a meaning that is different from the literal meanings of the individual words. Understanding the specific meaning of an idiom is crucial for interpreting language correctly. The idiom in question is 'cool your heels'.

Exploring the Meaning of 'Cool Your Heels'

The phrase 'cool your heels' essentially means to wait, often for a considerable amount of time or when you are required to do so, perhaps impatiently or unwillingly. It suggests a period of forced inactivity or delay, where one has to bide their time.

Analyzing the Options Provided

Let's examine each option to determine the most appropriate meaning for the idiom 'cool your heels':

- **Option 1: Be told by someone to wash your feet**

This interpretation is literal and focuses on the words 'wash your feet'. It does not reflect the figurative meaning commonly associated with the idiom '**cool your heels**'.

- **Option 2: Unwillingly wait for something or someone**

This option accurately captures the essence of the idiom. When someone's **heels** are being **cooled**, it implies they are made to wait, and this waiting is often tedious or against their preference, hence, *unwillingly*.

- **Option 3: Do regular exercise to keep yourself fit**

This option relates to physical fitness and exercise. It has no connection to the meaning of the idiom '**cool your heels**'.

- **Option 4: Take off your footwear after a long day**

This is another literal interpretation of the words 'cool' and 'heels'. It describes a physical action of removing shoes, which is not the intended meaning of the idiom.

Conclusion on the Idiom's Meaning

Based on the analysis, the most fitting meaning for the idiom '**cool your heels**' is to wait, particularly when the waiting is done unwillingly or causes impatience. Option 2 aligns perfectly with this understanding.

Therefore, the correct meaning of '**cool your heels**' is **Unwillingly wait for something or someone**.

18. Answer: b

Explanation:

Understanding the Idiom 'Give Currency To'

This question requires identifying the most fitting meaning of the English idiom **give currency to** from the given options. Idioms often have meanings that differ from the literal interpretation of their words, so understanding their common usage is crucial.

Meaning of 'Give Currency To'

The phrase **give currency to** means to make an idea, rumour, or belief seem more acceptable, valid, or likely to be true. It involves spreading something or acting in a way that makes others believe it or accept it as plausible. Think of it as lending credibility or making something seem current and widely believed.

Analyzing the Options

Let's examine each option to see how it relates to the idiom:

- **Option 1: To provide someone with money**
This is the literal meaning of using the word 'currency' in a financial context. However, the idiom *give currency to* is not typically used in this financial sense.
- **Option 2: To make something seem more credible or probable**
This option aligns perfectly with the idiomatic meaning. When you *give currency to* a rumour, you help make it seem more believable or likely. Similarly, giving currency to an idea means making it seem more accepted or valid.
- **Option 3: To pay one's debts**
This option also relates to the financial meaning of currency and is incorrect in the context of the idiom.
- **Option 4: None of the above**
Since Option 2 accurately describes the meaning of the idiom, this option is not the best fit.

Final Explanation

The idiom **give currency to** is used when an idea, statement, or rumour gains acceptance or belief, often because someone influential supports it or spreads it. Therefore, making something seem more credible or probable is the most accurate interpretation.

19. Answer: a

Explanation:

Defining the Phrase: 'To Hold Something in Leash'

The question asks for the word that best defines the meaning of the idiom "To hold something in leash". This idiom refers to the act of keeping something or someone under control or limiting its actions or movement, much like a leash restricts a dog.

Analysis of Options for 'Hold Something in Leash'

Let's examine each option provided:

- **Option 1: To restrain**

This term means to keep someone or something under control or within limits. It accurately reflects the meaning of limiting freedom or action, which is the core idea of being "held in leash".

- **Option 2: To disappoint**

This means to fail to fulfill the hopes or expectations of someone. This definition is unrelated to the concept of control or limitation inherent in the phrase "to hold something in leash".

- **Option 3: To dismiss**

This action involves letting someone go, or deciding that something is unimportant. It does not align with the meaning of keeping something under control or restraint.

- **Option 4: To discourage**

This means to cause someone to lose confidence or enthusiasm. While it implies reducing activity or spirit, it is not as precise a match for the physical or metaphorical control implied by "holding in leash" as "to restrain" is.

Identifying the Best Definition

Comparing the options, "To restrain" is the most fitting definition for "To hold something in leash". It directly conveys the meaning of exerting control and limiting freedom or action, which is precisely what the idiom implies.

Therefore, the word that best defines the given phrase is **To restrain**.

20. Answer: a

Explanation:

Understanding the Core Meaning of OSTRACISE

The question asks us to find the word that best matches the meaning of **OSTRACISE**. To ostracise someone means to exclude them from a society, group, or community, often by deliberately ignoring them or preventing them from participating. It's like being socially cast out or shunned.

Analyzing the Meanings of Provided Options

Let's look at the meanings of the given choices:

- **banish**: This means to officially or forcibly force someone to leave a country or place, often as a punishment. It implies exile or deportation.
- **belittle**: This means to make someone or something seem unimportant or less valuable. It's about diminishing someone's worth.
- **beguile**: This means to charm, enchant, or trick someone, often in a deceptive way.
- **besiege**: This typically refers to military action, meaning to surround a place (like a castle or city) with armed forces intending to capture it.

Finding the Best Synonym for OSTRACISE

Now, let's compare these meanings with **OSTRACISE**:

OSTRACISE is about social exclusion and removal from a group.

- **Banish** also involves removal or exclusion, though often more formal or geographically defined (like exile). This is very similar to the concept of being cast out from a community.
- **Belittle** is about making someone feel small or unimportant, but not necessarily excluding them.
- **Beguide** is about charming or deceiving, which is unrelated to exclusion.
- **Besiege** is a military term about surrounding a location and has no direct relation to social exclusion.

Comparing the options, **banish** is the closest in meaning to **OSTRACISE** because both involve the act of excluding or sending someone away from a place or group.

Therefore, the word that best expresses the meaning of **OSTRACISE** is **banish**.

21. Answer: c

Explanation:

Understanding the FACADE SYNONYM: Frontage

The question asks us to identify the most appropriate synonym for the word **FACADE** from the given options. A synonym is a word that means exactly or nearly the same as another word.

Defining FACADE

The term **FACADE** primarily refers to the front or outward appearance of a building. It often describes the main face of a structure, which is typically designed with particular architectural importance.

Analyzing the Options for FACADE

Let's examine the meaning of each option provided:

- **Elevation:** While an elevation can represent a specific side (face) of a building in architectural contexts, it more broadly refers to height or a high position. It doesn't specifically capture the meaning of the *front* face as strongly as other terms might.
- **Interior:** This term refers to the inside part or aspect of something, such as a building. It is essentially the opposite of the outward appearance meant by **FACADE**.
- **Frontage:** This word signifies the front area or aspect of something, especially a property or a building, often referring to its boundary along a particular feature like a street. This meaning aligns closely with the common understanding of a **FACADE**.
- **Ceiling:** The ceiling is the upper surface that encloses the top of a room or building. It has no relation to the exterior face of a structure.

Selecting the Best SYNONYM

Comparing the definitions, we can see that:

- 'Interior' and 'Ceiling' are clearly incorrect as they relate to the inside or top of a building, not its exterior face.
- 'Elevation' can refer to a side of a building, but '**Frontage**' more specifically denotes the front aspect, which is the most common meaning of **FACADE**.

Therefore, '**Frontage**' is the most suitable synonym for **FACADE** among the choices provided because it specifically relates to the front part or aspect of a building.

22. Answer: a

Explanation:

The correct answer is 'Support'.

★ Key Points

- Let's see the meanings and usage of all the words given in the question-
 - patronage: the support given by a patron (एक संरक्षक द्वारा दिया गया समर्थन)

- Corporation Effort: efforts made by a group of people elected to govern a city, town, or borough.
- Collaboration: the action of working with someone to produce something (सहयोग)
- Business: a person's regular occupation, profession, or trade (व्यापार)
- From the above explanations, we clearly see that the most appropriate synonym of the word 'patronage' will be 'support'.

23. Answer: a

Explanation:

Understanding Antonyms: Finding the Opposite Meaning of MUSTY

This question requires us to identify the word that has the opposite meaning, also known as an antonym, to the given word "MUSTY". We need to carefully consider the definition of MUSTY and then evaluate each option to find the best fit.

Defining the Word MUSTY

"MUSTY" typically describes something, especially food or air, that smells or tastes stale, unpleasant, and often associated with mold or dampness. It suggests a lack of freshness and a potentially unpleasant sensory experience.

Analyzing the Options for the Opposite Meaning

Let's examine each option provided to see which one contrasts most effectively with the meaning of MUSTY:

- **Fresh:** This word means something is new, recently made or obtained, clean, and not stale or spoiled. It directly opposes the stale and unpleasant characteristics implied by "MUSTY".
- **Expensive:** This term relates to a high price or cost. It has no connection to the smell, taste, or condition described by "MUSTY".

- **Clean:** This refers to being free from dirt, marks, or stains. While something musty might often be considered unclean, "clean" is not the direct opposite of the specific stale, moldy quality of "MUSTY". For example, clean air can still be stale if not circulated, and something might be physically clean but still have a musty smell.
- **Fine:** This word can have several meanings, such as high quality, acceptable, or delicate. None of these directly counteract the meaning of "MUSTY".

Determining the Correct Antonym

Comparing the options with the definition of MUSTY (stale, moldy, unpleasant smell/taste), the word "Fresh" stands out as the most appropriate opposite. It signifies the absence of staleness and unpleasantness, directly contrasting with the core meaning of MUSTY.

Therefore, the word opposite in meaning to MUSTY is Fresh.

24. Answer: c

Explanation:

Understanding Antonyms: Finding the Opposite of "Vivid"

This explanation focuses on identifying the correct antonym for the word "vivid" by understanding the meaning of "vivid" and its potential opposites among the given choices.

Defining the Term "Vivid"

The word "vivid" typically describes something that is bright, intense, and produces clear, strong images or feelings in the mind. When we talk about "vivid" things, we often mean:

- **Clear and Strong Impressions:** Like "vivid colors" (very bright and distinct) or a "vivid memory" (very clear and detailed).

- **Lively and Energetic:** Sometimes used to describe something full of life or intensity.

Essentially, "vivid" relates to clarity, intensity, and distinctness.

What is an Antonym?

An antonym is a word that has the opposite meaning of another word. To find the antonym for "vivid," we need to look for a word that means unclear, faint, or lacking intensity.

Analyzing the Options for an Antonym of "Vivid"

Let's examine each option to see how it relates to the meaning of "vivid":

Option 1: Lively

Lively means full of life, energy, and enthusiasm. While something that is "vivid" can sometimes be described as lively (e.g., a lively discussion), "lively" is not the direct opposite of clarity or intensity. It shares a similar positive connotation of being strong or active.

Option 2: Evocative

Evocative means bringing strong images, memories, or feelings to mind. This word is actually quite similar in meaning to "vivid," as both relate to creating strong mental impressions. Therefore, "evocative" is not an antonym.

Option 3: Vague

Vague means not clearly expressed, understood, or defined; indistinct or hazy. This directly contrasts with the clarity and distinctness associated with the word "vivid." A "vague image" is the opposite of a "vivid image," and faint colors are the opposite of vivid colors.

Option 4: Dramatic

Dramatic means striking, sudden, or impressive. While a dramatic event or scene might be described as "vivid," the word "dramatic" itself doesn't mean the opposite of clear or intense. It describes a certain quality of being striking, which can overlap with "vivid" but isn't its opposite.

Conclusion: Identifying the Correct Antonym

Based on the definitions, the word that means the opposite of "vivid" (clear, bright, distinct) is the one that means unclear or indistinct. Among the choices provided, "vague" is the only word that serves as a direct antonym.

25. Answer: d

Explanation:

Understanding Antonyms: The Opposite of Austerity

This question asks us to find an **antonym** for the word "**austerity**". An antonym is a word that means the opposite of another word. We need to understand the core meaning of "austerity" to find its opposite.

Defining Austerity

"**Austerity**" generally refers to a state of severity, plainness, or strictness. It often implies a lack of luxury, comfort, or extravagance, sometimes due to economic hardship or a chosen simple lifestyle. Think of it as being very plain, simple, and perhaps strict.

Analyzing the Options

Let's look at the meaning of each option provided:

- **Sternness:** This means being serious, strict, or severe in manner or attitude. This aligns closely with one aspect of "austerity" and is therefore a synonym, not an antonym.

- **Mortification:** This refers to extreme embarrassment, humiliation, or shame, or the act of subduing one's desires through self-punishment or severe discipline. While it involves discipline, it's not the direct opposite of the overall meaning of "austerity".
- **Grimness:** This means the quality of being forbidding, gloomy, or uninviting. While "austerity" can sometimes be associated with a grim appearance, "grimness" itself isn't the opposite concept.
- **Superfluity:** This means an excess, abundance, or more than is needed. It suggests extravagance, luxury, and having more than enough, which is directly contrary to the plainness, simplicity, and lack of excess implied by "austerity".

Identifying the Correct Antonym

Comparing the meanings, "**superfluity**" stands out as the word that represents the opposite of "**austerity**". Where "austerity" implies plainness and lack of excess, "superfluity" implies abundance and excess.

Final Answer Summary

Therefore, the correct **antonym** for "**austerity**" among the given choices is "**Superfluity**".

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26. Answer: c

Explanation:

FIFA World Cup Inaugural Host Country Identified

The question asks to identify the very first country to host the FIFA World Cup, the most prestigious international association football competition organized by the Fédération Internationale de Football Association (FIFA).

History of the First FIFA World Cup

The FIFA World Cup was first held in 1930. This inaugural tournament marked the beginning of a global competition that continues to capture the world's attention every four years.

Details of the 1930 FIFA World Cup

- **Year:** 1930
- **Host Nation:** Uruguay
- **Winner:** Uruguay
- **Number of Participating Teams:** 13

Why Uruguay Hosted the First World Cup

Uruguay was selected as the host nation for several key reasons:

- **Centennial Celebration:** Uruguay was celebrating the 100th anniversary of its first constitution in 1930. Hosting the World Cup was seen as a fitting way to mark this significant national milestone.
- **Footballing Success:** The Uruguayan national team was a dominant force in international football during the late 1920s. They had won the gold medal at the 1924 Paris Olympics and the 1928 Amsterdam Olympics, showcasing their strength and making them a logical choice.
- **Financial Commitment:** Uruguay offered to cover the travel and accommodation expenses for all participating teams, which was a significant incentive, especially given the challenges of long-distance travel in that era.

Evaluating Other Host Options

Let's look at when the other countries listed in the options hosted the FIFA World Cup:

- **France:** France hosted the FIFA World Cup in 1938, the third edition of the tournament.
- **Brazil:** Brazil hosted the FIFA World Cup in 1950, following a hiatus due to World War II.
- **Italy:** Italy hosted the FIFA World Cup in 1934, the second tournament.

Therefore, based on the historical facts, Uruguay holds the distinction of being the **first host country** of the FIFA World Cup.

27. Answer: d

Explanation:

Deepa Malik: A Pioneering Para-Athlete

Deepa Malik is a distinguished Indian para-athlete, widely recognized for breaking barriers and achieving significant milestones in para-sports.

Paralympic Medal Milestone

Deepa Malik achieved a historic feat by becoming the **first Indian woman** to secure a medal at the **Paralympic Games**. This accomplishment came at the **2016 Rio Paralympics**, where she won a silver medal in the **Shot Put** event in the F53 classification.

Association with Key Para-Athletic Events

Deepa Malik's athletic career is marked by her participation and success in multiple disciplines within para-athletics. Her involvement extends beyond Shot Put to include:

- **Javelin Throw:** She has demonstrated considerable skill and competed effectively in the Javelin throw.
- **Discus Throw:** Deepa Malik has also actively participated in Discus throw events, further showcasing her athletic prowess.

Her versatile participation across these throwing events underscores her extensive contribution to para-athletics and her status as an inspirational figure in Indian sports.

28. Answer: c

Explanation:

IMO Headquarters: Overview

The International Maritime Organization (IMO) is a key agency under the United Nations umbrella. Its primary mission is to ensure the global maritime industry operates safely, securely, and efficiently while also preventing marine pollution from ships. Knowing where such important organizations are based is essential knowledge.

IMO Headquarters Location Analysis

The question asks for the specific city that hosts the headquarters of the International Maritime Organization (IMO). We can determine this by examining the provided choices:

- **Paris:** Known for hosting organizations like UNESCO, Paris is a major international hub but is not the location of the IMO headquarters.
- **Moscow:** As the capital city of Russia, Moscow serves important functions but does not host the IMO.
- **London:** The city of London, capital of the United Kingdom, is the established and correct location for the International Maritime Organization's headquarters. It has been the longstanding base for the organization's operations.
- **New York:** While New York City is globally significant and notably hosts the UN Headquarters, it is not the specific location for the IMO's main office.

IMO Headquarters: Final Determination

Based on the analysis of the options and general knowledge regarding international organizations, London is the city where the International Maritime Organization maintains its headquarters. This central location supports its global maritime responsibilities.

29. Answer: d

Explanation:

West-Flowing River Identification

This explanation focuses on identifying which of the listed Indian rivers flows towards the west. Most major peninsular rivers in India flow eastwards, draining into the Bay of Bengal. However, a few significant rivers carve their path westward, eventually emptying into the Arabian Sea.

Analyzing River Flow Directions

Let's examine the flow direction of each river mentioned in the options:

- **Mahanadi River:** This is a major east-flowing river located in Odisha. It originates in the highlands of Chhattisgarh and flows through Odisha before draining into the Bay of Bengal.
- **Godavari River:** Often referred to as the 'Dakshin Ganga' (Ganges of the South), the Godavari is India's second-longest river. It originates in the Western Ghats and flows eastward across central India, eventually joining the Bay of Bengal.
- **Krishna River:** Another major river of peninsular India, the Krishna originates in the Western Ghats near Mahabaleshwar and flows eastward through the states of Maharashtra, Karnataka, and Andhra Pradesh, emptying into the Bay of Bengal.
- **Narmada River:** The Narmada is one of the major west-flowing rivers of India. It originates in the Amarkantak Plateau in Madhya Pradesh and flows through a rift valley between the Vindhya and Satpura mountain ranges. It finally drains into the Arabian Sea near Bharuch in Gujarat.

Comparative Table of River Flows

River	Primary Flow Direction	Mouth
Mahanadi	East	Bay of Bengal
Godavari	East	Bay of Bengal
Krishna	East	Bay of Bengal
Narmada	West	Arabian Sea

Conclusion on West-Flowing Rivers

Based on the geographical flow patterns, the Narmada River is distinct among the options provided as it is a prominent west-flowing river. The Mahanadi, Godavari, and Krishna rivers all follow an eastward course towards the Bay of Bengal.

30. Answer: d

Explanation:

Identifying the Capital of Croatia

The question asks to identify the capital city of Croatia from a list of options. This involves recalling or determining the correct geographical and political designation for Croatia's capital.

What is Croatia's Capital City?

A capital city is the main center of a country's government and administration. It's important to know the capitals of different countries for general knowledge and geography.

Analyzing the Options for Croatia

We need to evaluate each option to see which one corresponds to the capital of Croatia:

- **Kiev:** This city is famously known as the capital of Ukraine.
- **Warsaw:** This city is the capital of Poland.
- **Dubrovnik:** While Dubrovnik is a major and historically significant city in Croatia, famous for its stunning coastline and old town, it is not the capital.
- **Zagreb:** This city is the largest in Croatia and serves as its political, economic, cultural, and transportation hub. Zagreb is indeed the official capital of **Croatia**.

Key Information about Croatia's Capital

Zagreb functions as the administrative center of Croatia. It hosts the Croatian Parliament (Sabor), the President's office, and key government institutions, solidifying its status as the nation's capital.

31. Answer: c

Explanation:

Iron Ore Types and Their Characteristics

Iron ore is a crucial raw material used primarily for the production of pig iron, which in turn is used to make steel. Different types of iron ore are distinguished by their mineral composition and physical characteristics, including their color. Understanding these types is important in geology and metallurgy.

Identifying the "Brown Ore"

The question asks to identify which type of iron ore is commonly referred to as the "brown ore". This nickname is directly related to the characteristic color of the ore.

Understanding Limonite: The "Brown Ore"

Limonite is the correct answer because it is a mixture of hydrated iron oxides and is typically recognized by its yellowish-brown to deep-brown color. Its chemical composition is not fixed but is generally represented as $FeO(OH) \cdot nH_2O$. The presence of water molecules (H_2O) within its structure contributes to its earthy texture and brown appearance.

Analysis of Other Iron Ore Types:

- **Haematite:** This is a primary iron ore with the chemical formula Fe_2O_3 . While it can sometimes have a reddish-brown streak or appearance, its primary color ranges from black to silver-grey or brownish-red. It is not typically nicknamed the "brown ore".
- **Magnetite:** Known for its magnetic properties, Magnetite has the formula Fe_3O_4 . It is usually black or steel-grey and is considered a high-grade iron ore.
- **Siderite:** This ore is an iron carbonate ($FeCO_3$). It often appears as clay-colored, tan, light brown, or greyish-brown and usually contains impurities. While it can be brownish, Limonite is more distinctively known as the "brown ore" due to its consistent coloration from hydrated oxides.

Comparison of Iron Ore Types

Ore Type	Chemical Formula	Common Color	Nickname
Haematite	Fe_2O_3	Reddish-brown, Black, Silver-grey	-
Magnetite	Fe_3O_4	Black	-
Limonite	$FeO(OH) \cdot nH_2O$ (Hydrated Iron Oxides)	Yellowish-brown to Brown	Brown Ore
Siderite	$FeCO_3$	Grayish-brown, Yellowish-brown, Tan	-

Conclusion on "Brown Ore"

Based on the characteristic coloration associated with hydrated iron oxides, Limonite is the specific type of iron ore commonly referred to as the "brown ore".

32. Answer: c

Explanation:

Understanding the Zabti or Dahshala System

The question asks about the individual credited with introducing the Zabti or Dahshala system of land revenue administration. This system was a significant development in the economic policies of the Mughal Empire.

What was the Zabti System?

The Zabti system, also known as the Dahshala system, was a method of land revenue assessment and collection prevalent during the Mughal era. Key features of this system include:

- **Land Measurement:** It mandated the measurement of land using a standardized unit (*bigha*).
- **Land Classification:** Lands were classified based on their continuity of cultivation and productivity into categories like Polaj (continuously cultivated), Parauti (fallow for one or two years), Such (fallow for three or more years), and Banjar (uncultivated wasteland).
- **Revenue Rates:** The revenue rates were determined based on the average yield of different crops over a period of ten years (hence, Dahshala). The state's share was generally fixed at one-third of the average produce.
- **Mode of Payment:** Revenue was typically collected in cash, although payment in kind was also accepted.

Key Figure: Raja Todar Mal

Raja Todar Mal was a prominent minister and finance expert who served in the courts of Sher Shah Suri and later, most significantly, under the Mughal Emperor

Akbar.

- He is renowned for his significant contributions to land revenue reforms.
- Under Emperor Akbar, Raja Todar Mal served as the Diwan-i-Ashraf (Minister-in-charge of Revenue).
- He systematized and implemented the Zabti system across many provinces of the Mughal Empire. This revenue settlement is often referred to as 'Todar Mal's Bandobast'.
- His reforms aimed at ensuring fair assessment, preventing corruption, and providing a stable revenue source for the empire.

Historical Context and Other Options

To understand why Raja Todar Mal is the correct answer, let's briefly consider the other options:

- **Ibrahim Lodi:** He was the last ruler of the Lodi dynasty (Delhi Sultanate), ruling before the Mughal era. His reign was primarily focused on military consolidation rather than significant land revenue reforms like the Zabti system.
- **Balban:** Another ruler of the Delhi Sultanate, Balban focused on strengthening the central administration and military power. While he did implement administrative measures, the Zabti system is not associated with his period.
- **Muhammad Shah:** He was one of the later Mughal emperors. While revenue administration continued, the foundational introduction and systematization of the Zabti/Dahshala system occurred much earlier, primarily under Akbar with Raja Todar Mal's expertise.

Therefore, the introduction and implementation of the Zabti or Dahshala system are most strongly associated with the administrative genius of **Raja Todar Mal** during the reign of Emperor Akbar.

33. Answer: a

Explanation:

Acting Prime Minister of India Post-Nehru's Demise

The question asks to identify the individual who assumed the role of **acting prime minister** of India immediately following the death of Jawaharlal Nehru in the year **1964**. This was a significant moment in Indian political history, requiring interim leadership.

Understanding the Interim Government Role

Upon the demise of a sitting Prime Minister, a mechanism is in place to ensure the government continues to function smoothly. An **acting prime minister** is appointed to handle the day-to-day administrative duties until a permanent successor is chosen by the ruling party and sworn in. This process prevents any vacuum in leadership.

Gulzarilal Nanda's Appointment

Gulzarilal Nanda was a prominent leader within the Indian National Congress party. Following the death of Jawaharlal Nehru on May 27, 1964, Nanda was appointed as the **acting prime minister**. He served in this interim capacity from May 27, 1964, until June 9, 1964. His role was crucial in maintaining governmental stability during the transition period.

It is noteworthy that Nanda had previously served as the acting Prime Minister briefly in January 1964 after the death of Prime Minister Lal Bahadur Shastri, although the question specifically refers to the period after Nehru's death.

Why Gulzarilal Nanda is the Correct Choice

Let's look at the options provided:

- **Gulzarilal Nanda**: Served as acting Prime Minister after Nehru's death in 1964.
- **Charan Singh**: Became Prime Minister much later, serving from 1979 to 1980.
- **V P Singh**: Held the office of Prime Minister from 1989 to 1990.
- **Morarji Desai**: Became Prime Minister in 1977.

Based on the historical timeline, **Gulzarilal Nanda** was the leader who fulfilled the role of **acting prime minister** after Jawaharlal Nehru's death in **1964**.

34. Answer: a

Explanation:

Identifying the 'Iron Man of India'

The question asks us to identify the historical figure known by the specific title "**Iron Man of India**". This title is often associated with individuals who displayed remarkable strength, resilience, and leadership, especially during critical periods in Indian history.

Examining Key Leaders of India

India has had many influential leaders. Let's look at the options provided and their historical significance:

- **Vallabhbhai Patel:** A senior leader in the Indian National Congress and a key figure in the independence movement.
- **M.K Gandhi:** Widely known as the "**Father of the Nation**", the primary leader of India's independence movement against British rule.
- **Bal Gangadhar Tilak:** An influential leader of the Indian independence movement and a proponent of "**Swaraj**" (self-rule).
- **Jawaharlal Nehru:** The first Prime Minister of India and a central figure in Indian politics for decades.

Understanding the Title 'Iron Man of India'

The title "**Iron Man of India**" specifically refers to **Sardar Vallabhbhai Patel**. This nickname highlights his strong personality and his crucial role in consolidating India after independence.

Here's why Vallabhbhai Patel earned this title:

- **Role in National Integration:** Sardar Patel played a pivotal role in the integration of the 565 princely states into the Indian Union. He used his political acumen, determination, and sometimes firm negotiation tactics to ensure that these states joined India, preventing fragmentation of the country. His resolute approach to this challenging task earned him the admiration and the title.
- **Unwavering Determination:** Patel was known for his strong will and unwavering commitment to his principles and the cause of a unified India. His firm stance on critical issues reflected an 'iron' character.
- **Leadership Qualities:** He served as the Deputy Prime Minister and Home Minister in the Indian government and effectively managed the administrative and political challenges of the time.

While Mahatma Gandhi is revered as the Father of the Nation, Bal Gangadhar Tilak advocated forcefully for self-rule, and Jawaharlal Nehru laid the foundation for modern India, the specific moniker "**Iron Man of India**" is distinctively attributed to Sardar Vallabhbhai Patel due to his significant contributions to India's unity and his resolute character.

35. Answer: d

Explanation:

2016 Summer Olympics Host City Identification

This question asks to identify the host city for the 2016 Summer Olympics. We need to evaluate the given options to find the correct location.

Analyzing the Options for the 2016 Summer Olympics

Let's examine each city mentioned in the options:

- **Sao Paulo:** While a major city in Brazil, Sao Paulo was not the host city for the 2016 Summer Olympics.
- **Buenos Aires:** This Argentinian capital has hosted major sporting events but was not the host of the 2016 Summer Games.

- **Los Angeles:** Los Angeles has a rich Olympic history, hosting the Summer Games in 1932 and 1984. It is also scheduled to host the 2028 Summer Olympics, but it did not host in 2016.
- **Rio de Janeiro:** This vibrant Brazilian city was indeed the host for the 2016 Summer Olympics. It marked the first time the Olympic Games were held in South America, Portugal, or a Portuguese-speaking country.

Conclusion on the 2016 Summer Olympics Location

Based on the historical facts about the Olympic Games, the correct city where the **2016 Summer Olympics** took place is **Rio de Janeiro**.

36. Answer: a

Explanation:

Understanding the Rovers Cup and Subroto Cup

This question asks us to identify the specific sport associated with two well-known tournaments: the Rovers Cup and the Subroto Cup. Understanding the nature of these cups is key to answering correctly.

Rovers Cup Details

The Rovers Cup is one of the oldest and most prestigious **football** tournaments in India. It has a rich history dating back to the colonial era and has been a significant platform for showcasing football talent in the country.

Subroto Cup Significance

Similarly, the Subroto Cup is a very popular inter-school sports tournament held in India. It is primarily known as a major national-level competition for **football**, focusing on promoting the sport among school students across the nation.

Connecting Cups to the Correct Sport

Based on the information about both tournaments, it's clear that they are both deeply associated with the sport of **Football**.

- Rovers Cup: Primarily a **football** competition.
- Subroto Cup: A significant inter-school **football** tournament.

Final Answer Determination

Considering the options provided:

- **Football**: Both cups are linked to this sport.
- Cricket: This is a different sport, not associated with these specific cups.
- Badminton: This is a racket sport, unrelated to the Rovers Cup or Subroto Cup.
- Hockey: While a popular sport in India, these cups are not primarily associated with it.

Therefore, the sport associated with both the Rovers Cup and the Subroto Cup is **Football**.

37. Answer: d

Explanation:

Bhagwat Dayal Sharma: Haryana's Inaugural Chief Minister

Bhagwat Dayal Sharma holds a significant place in Haryana's political history as the very first Chief Minister of the state after its formation. Understanding the constituency he represented during this pivotal time offers insight into the political landscape of early Haryana.

Historical Context of Haryana's Formation

The state of Haryana was formed on November 1, 1966. Prior to this, it was part of the Punjab province. Following the reorganization, a new administrative unit was created, and the selection of its first leader was a crucial step. Bhagwat Dayal Sharma was chosen to lead Haryana as its first Chief Minister.

Bhagwat Dayal Sharma's Representation during CM Tenure

When Bhagwat Dayal Sharma took office as the first Chief Minister of Haryana, he was representing a specific legislative assembly constituency. This constituency was the base from which he participated in the legislative assembly and subsequently led the state government.

The constituency represented by Bhagwat Dayal Sharma at the time he became Haryana's first CM was **Jhajjar**.

Analysis of Constituency Options

Let's look at the options provided:

- **Bhiwani:** While Bhiwani is a significant district in Haryana, it was not the constituency represented by Sharma when he first became CM.
- **Tosham:** Tosham is another constituency in Haryana, but it is not associated with Sharma's representation during his first term as Chief Minister.
- **Pataudi:** Pataudi is also a known constituency, however, Bhagwat Dayal Sharma did not represent this seat when he assumed the role of the first CM.
- **Jhajjar:** This constituency served as the electoral base for Bhagwat Dayal Sharma when he became the first Chief Minister of Haryana in 1966.

Therefore, Jhajjar is identified as the constituency Bhagwat Dayal Sharma represented during his tenure as Haryana's inaugural Chief Minister.

38. Answer: b

Explanation:

Understanding Earth's Day and Night Cycles

The length of daylight and darkness experienced across the Earth varies throughout the year. This variation is primarily caused by the Earth's revolution around the Sun and, crucially, the tilt of its axis relative to its orbital plane.

Earth's axis maintains a constant tilt of approximately 23.5° . As the planet orbits the Sun, this tilt causes different hemispheres to receive varying amounts of direct solar radiation. When a hemisphere is tilted towards the Sun, it experiences longer days and shorter nights (summer), and when tilted away, it experiences shorter days and longer nights (winter).

Equinoxes: Global Equal Day and Night

Twice a year, the Earth passes through positions known as **equinoxes**. On these specific dates, the Earth's axial tilt is oriented neither toward nor away from the Sun. The Sun's rays shine directly on the equator.

Consequently, during an equinox, daylight and darkness are almost exactly equal in duration (approximately 12 hours each) across almost all locations on Earth.

- The Vernal (Spring) Equinox typically occurs around **March 20th** or 21st.
- The Autumnal Equinox typically occurs around **September 22nd** or 23rd.

Solstices: Unequal Day and Night

Conversely, twice a year, the Earth reaches its **solstices**. These mark the points in the orbit where the tilt of the Earth's axis is most pronounced relative to the Sun. This results in the maximum difference in the length of day and night between the hemispheres.

- The June Solstice (around June 20th or 21st) brings the longest day and shortest night to the Northern Hemisphere and the shortest day and longest night to the Southern Hemisphere.
- The December Solstice (around December 21st or 22nd) brings the shortest day and longest night to the Northern Hemisphere and the longest day and

shortest night to the Southern Hemisphere.

Analyzing Options for Unequal Day/Night

The question asks for the date when the whole Earth does **not** experience equal days and equal nights. This condition is characteristic of a solstice, not an equinox.

- **21st March:** This date is very close to the Vernal Equinox. On this day, most locations on Earth experience roughly equal amounts of daylight and darkness.
- **22nd December:** This date is near the December Solstice. It marks the point where the Northern Hemisphere has its shortest day and the Southern Hemisphere has its longest day, meaning days and nights are significantly unequal across the globe.
- **23rd September:** This date is very close to the Autumnal Equinox, similar to March 21st, resulting in approximately equal day and night lengths worldwide.
- **Both 1 and 3:** Since both March 21st and September 23rd are associated with equinoxes, they are days of nearly equal day and night duration globally, contradicting the condition in the question.

Earth's Seasonal Events Summary

The following table summarizes the key dates and their effect on day and night length:

Date (Approx.)	Event	Global Day/Night Length Effect
March 20 th	Vernal Equinox	Nearly equal days and nights worldwide.
June 20 th	Summer Solstice	Longest day/shortest night in Northern Hemisphere; shortest day/longest night in Southern Hemisphere.
September 22 nd	Autumnal Equinox	Nearly equal days and nights worldwide.
December 21 st	Winter Solstice	Shortest day/longest night in Northern Hemisphere; longest day/shortest night in Southern Hemisphere.

Based on this, the date when the whole Earth does not experience equal days and equal nights is associated with a solstice, such as December 22nd.

39. Answer: b

Explanation:

- The question asks to identify the **oldest Veda** among the given options.
- The Vedas are ancient sacred texts of Hinduism, considered foundational scriptures.
- There are four primary Vedas: Rigveda, Yajurveda, Samaveda, and Atharvaveda.

Rigveda: Confirming the Oldest Veda

The **Rigveda** is widely recognized by scholars as the **oldest Veda**.

- **Composition Period:** It is estimated to have been composed between 1500 and 1200 BCE.
- **Content:** The Rigveda primarily consists of hymns (*suktas*) dedicated to various deities, offering insights into the early Vedic period's culture, society,

and religious beliefs.

- **Other Vedas:**

- The Yajurveda contains prose mantras and sacrificial formulas.
 - The Samaveda consists of melodies and chants derived largely from the Rigveda, meant for chanting during sacrifices.
 - The Atharvaveda includes spells, charms, and philosophical speculations, and is generally considered the latest of the four.
- Based on linguistic and textual analysis, the structure and language of the Rigveda point to its antiquity compared to the other Vedas.

Understanding the Vedic Structure

The four Vedas represent different layers of Vedic literature, with the Rigveda forming the earliest layer.

- **Keywords:** The core task involves identifying the **oldest** text in this collection.
- **Significance:** The Rigveda's hymns are the primary source for understanding the early Vedic religion and society.

Evaluating the Options

Let's look at the provided options:

1. Yajurveda
2. **Rigveda**
3. Samaveda
4. Atharvaveda

As established, the Rigveda is the earliest of these sacred texts.

Conclusion on Oldest Veda

Therefore, the **Rigveda** is the correct answer as the **oldest Veda**.

40. Answer: b

Explanation:

Defining the Role of a Punter in Sports

The term "**punter**" is specifically associated with the sport of **American Football**. A punter is a specialized player on the offensive team whose primary role is to kick the American football to the opposing team, usually on fourth down. This strategic kick, known as a "punt," is typically executed when the offensive team is too far from the opponent's goal line to attempt a field goal and does not want to risk turning the ball over on downs in their current field position. The goal is to maximize the distance the ball travels downfield, making it harder for the opposing team to score.

Why Punter Belongs to American Football

The act of punting and the specific position of a "punter" are defining elements of **American Football** strategy and gameplay. This role involves a unique skill set focused on kicking the ball accurately and for distance under specific game conditions.

Exploring Other Sports and Terminology

Let's look at why the term "**punter**" does not fit the other sports mentioned:

- **Cricket:** In Cricket, players have distinct roles like bowler, batsman, wicketkeeper, and fielder. While kicking is not involved, players primarily use bats to strike the ball. There is no position or action called "punting."
- **Golf:** Golf involves hitting a small ball into a series of holes using clubs. Key terms include golfer, caddy, putter (a type of club), driver, and tee. The action of punting is not part of golf.
- **Hockey:** Hockey involves using sticks to hit a puck (ice hockey) or ball (field hockey) into the opponent's goal. Players are typically referred to as forwards, defensemen, centers, or goalies. While players kick the puck/ball occasionally, there isn't a specialized player called a "punter."

Therefore, the term "**punter**" is exclusively and fundamentally linked to the strategy and player roles within **American Football**.

41. Answer: d

Explanation:

Agra City Foundation Linked to Sikandar Lodhi

This question asks about the historical figure credited with establishing the significant City of Agra.

Sikandar Lodhi's Role in Founding Agra

The historical records indicate that **Sikandar Lodhi** is the ruler credited with the **foundation of the City of Agra**. He was the Sultan of the Delhi Sultanate from 1489 to 1517.

Key points about Sikandar Lodhi and Agra:

- Sikandar Lodhi founded the city of Agra in the year 1504 AD.
- He chose Agra as his capital, moving the seat of power from Delhi.
- His decision to establish Agra marked a significant shift in the political landscape of Northern India during his reign.
- Agra flourished as a major administrative and cultural center under his rule and that of his successors.

Evaluating Other Options for Agra's Foundation

Let's look at why the other options are not associated with the **foundation of the City of Agra**:

- **Bahlol Lodhi**: He was the founder of the Lodhi dynasty, which ruled the Delhi Sultanate before Sikandar Lodhi. While important historically, he is not credited with founding Agra.
- **Ibrahim Lodhi**: He was the son of Sikandar Lodhi and the last ruler of the Lodhi dynasty. He succeeded his father but did not found the city itself.

- **Muhammad Shah:** This name typically refers to rulers from the Sayyid dynasty, which preceded the Lodhi dynasty. Therefore, Muhammad Shah would have ruled long before the establishment of Agra as a significant city by Sikandar Lodhi.

Conclusion on Agra's Founder

Based on historical evidence, **Sikandar Lodhi** initiated the establishment of Agra city in 1504 AD, making him the correct answer for who is credited with its foundation.

42. Answer: c

Explanation:

Exploring the Term "Stymie" in Sports

The question asks to identify the game associated with the term "Stymie". Understanding specific terminology is crucial when learning about different sports.

Understanding "Stymie" in Golf

The term "Stymie" is a specialized term originating from the sport of **Golf**. In golf, a stymie traditionally referred to a situation where an opponent's ball lay on the green directly in the path of another player's putt. This presented a significant challenge, as the player aiming to putt would have to navigate around the obstructing ball.

Historically, the rules allowed players to place their ball in a position that could create a stymie for their opponent. While the specific rules regarding stymies have evolved over time, with regulations now in place to limit or eliminate such obstructions (e.g., players can request the removal of obstructing balls), the term itself remains deeply embedded in golf terminology.

"Stymie" in Relation to Other Games

The term "Stymie" is unique to golf and does not have a recognized meaning or application in sports like Cricket, Football, or Hockey. These sports have their own distinct rules and terminology.

- **Cricket:** Involves batting, bowling, and fielding, with terms like "wicket", "LBW", and "catch".
- **Football:** Focuses on scoring goals, with terms like "goal", "penalty", "offside", and "tackle".
- **Hockey:** Similar to football in objective but played with sticks and a puck/ball, using terms like "goal", "penalty stroke", "body check", and "stick handling".

Therefore, the context clearly points to golf as the game associated with the term "Stymie".

43. Answer: c

Explanation:

This question requires matching geographical locations and zones from List-I with their corresponding latitudes or descriptions in List-II.

Matching Geographical Locations and Zones

Let's analyze each item in List-I and find its correct match in List-II:

- **1. Arctic Circle:** The Arctic Circle is a parallel of latitude that runs at approximately 66.5° North of the Earth's Equator. This corresponds to item **A** in List-II.
- **2. Dhubri:** Dhubri is a city located in the state of Assam, India. Its geographical position is approximately at 26° N latitude. This corresponds to item **D** in List-II.
- **3. Frigid Zone:** The term "Frigid Zone" refers to the polar regions of the Earth. These are the areas located north of the Arctic Circle (above 66.5° N latitude) and south of the Antarctic Circle (below 66.5° S latitude). Therefore, the description "Beyond 66.5° N & 66.5° S of the equator" accurately defines the Frigid Zones. This corresponds to item **B** in List-II.

- **4. Tonga Islands:** The Tonga Islands are an archipelago situated in the southern part of the Pacific Ocean. They are located approximately between 15° S and 23.5° S latitude. The latitude 20° S, given in item C, falls within this range and is the most appropriate match.

Summary of Matches

Based on the analysis, the correct matches are:

- Arctic Circle – 66.5° N of the equator (A)
- Dhubri – 26° N latitude (D)
- Frigid Zone – Beyond 66.5° N & 66.5° S of the equator (B)
- Tonga Islands – 20° S latitude (C)

This leads to the combination 1 – A, 2 – D, 3 – B, 4 – C.

Correct Option Selection

The correct option reflecting these matches is the one that pairs 1 with A, 2 with D, 3 with B, and 4 with C.

List-I Item	List-II Item	Match Explanation
1. Arctic Circle	A. 66.5° N of the equator	The Arctic Circle is the parallel of latitude at 66.5° N.
2. Dhubri	D. 26° N latitude	Dhubri is located near 26° N latitude.
3. Frigid Zone	B. Beyond 66.5° N & 66.5° S of the equator.	Frigid Zones lie north of the Arctic Circle and south of the Antarctic Circle.
4. Tonga Islands	C. 20° S latitude	Tonga Islands are situated around 20° S latitude.

44. Answer: a

Explanation:

Maharaja Ranjit Singh's Capital City: Lahore

This question asks to identify the city that served as the capital for Maharaja Ranjit Singh, a significant historical figure who established the Sikh Empire.

Understanding Maharaja Ranjit Singh's Rule

Maharaja Ranjit Singh was the founder and first Maharaja of the Sikh Empire. His reign, from 1801 to 1839, marked a period of consolidation and expansion for the Sikh confederacies in Punjab. A crucial aspect of establishing and managing an empire is designating a central seat of power, or capital city.

Lahore: The Seat of Power

Maharaja Ranjit Singh chose **Lahore** as his administrative and political capital. While he was crowned Maharaja in 1801 in Lahore, the city had already been under his control since 1799 when he captured it from the Bhangi Misl. Lahore held immense strategic and symbolic importance:

- **Administrative Hub:** It served as the center for governance, revenue collection, and military administration throughout the Sikh Empire.
- **Cultural Significance:** Lahore was a major cultural and economic center in the Punjab region, making it a natural choice for the capital.
- **Fortifications:** The Lahore Fort became the Maharaja's primary residence and administrative headquarters.

Significance of Other Cities

While Lahore was the primary capital, other cities played important roles during Maharaja Ranjit Singh's reign:

- **Amritsar:** Known as the spiritual center of Sikhism and home to the Harmandir Sahib (Golden Temple), Amritsar held great religious importance. Maharaja Ranjit Singh held it in high regard and contributed significantly to its beautification, but it was not the administrative capital.

- **Multan:** Multan was conquered by Ranjit Singh in 1818 and became an important province within the Sikh Empire, contributing significant revenue. However, it functioned as a key city within the empire, not its capital.
- **Kashmir:** Kashmir was also conquered and integrated into the Sikh Empire, but it was a region administered from the capital, not the capital itself.

Conclusion

Based on historical evidence, **Lahore** was the undisputed capital of Maharaja Ranjit Singh's powerful Sikh Empire, serving as the nerve center for his administration and military campaigns.

45. Answer: d

Explanation:

- **Instrument:** The question asks to identify the specific **instrument** used for **measuring ocean depth**.
- **Ocean Depth Measurement:** This refers to determining how deep the water is in oceans, seas, or other large bodies of water.
- **Options Analysis:** We need to evaluate the function of each listed instrument to find the one suitable for measuring **ocean depth**.

Instrument Functions Explained

Here's a breakdown of the instruments mentioned in the options:

- **Galvanometer:** This instrument is used in electricity. It detects and measures small electric currents. It is not related to measuring physical depth.
- **Barometer:** A barometer measures atmospheric pressure, which is the pressure exerted by the weight of the air in the atmosphere. This is used in meteorology for weather forecasting, not for measuring **ocean depth**.
- **Endoscope:** An endoscope is a medical instrument used by doctors to look inside the body. It often has a light and a camera or lens. It is entirely unrelated to measuring the **depth of the ocean**.

- **Fathometer:** A fathometer is a specialized instrument designed specifically to measure the depth of bodies of water, particularly oceans. It typically uses sonar technology (echo sounding) to determine the distance to the seabed. Sound waves are emitted, and the time it takes for the echo to return is measured to calculate the depth. The name 'fathom' itself refers to a unit of depth (6 feet or about 1.8 meters).

Identifying the Correct Instrument for Ocean Depth

Based on the analysis of the functions of each instrument:

- The **Fathometer** is the correct **instrument** designed for the task of **measuring ocean depth**.
- The other options (Galvanometer, Barometer, Endoscope) serve completely different purposes in the fields of electricity, meteorology, and medicine, respectively.

Therefore, the most appropriate instrument for measuring the **depth of the ocean** among the choices provided is the Fathometer.

46. Answer: a

Explanation:

Governor General Lord William Bentinck and the Sati Ban

The question asks to identify the **Governor General** of the **British Empire** in **India** who enacted the law banning the practice of **Sati**. The practice of Sati, also known as 'Suttee', was a historical custom where a widow immolated herself on her deceased husband's funeral pyre. This deeply concerning practice was prevalent in certain parts of India.

Lord William Bentinck, who served as the Governor-General of India from 1828 to 1835, is widely recognized for his significant social reforms. A key achievement

during his tenure was the suppression of the **Sati** custom.

- Bentinck, with the support of social reformers like Raja Ram Mohan Roy, took decisive action against the practice.
- He passed the **Bengal Sati Regulation Act** (Regulation XVII) in 1829.
- This legislation officially declared the practice of Sati illegal and punishable by law throughout the British territories in India.
- This marked a major milestone in the social reform movements in India.

Historical Context of Sati Prohibition

The abolition of Sati was a crucial step towards modernizing Indian society and protecting the rights and dignity of women. While the practice had some justifications within certain traditional interpretations, it was viewed by many as a cruel and inhumane act. Lord William Bentinck's administration prioritized the moral and social well-being of the Indian population, leading to the ban.

Evaluating Other Governor Generals

Let's briefly look at the other options to understand why they are not the correct answer:

- **Lord Wellesley**: Known for his military conquests and expansionist policies, including the Subsidiary Alliance system. He served much earlier (1798-1805) and did not ban Sati.
- **Lord Mountbatten**: Was the last Viceroy of India (1947-1948) and oversaw the Partition of India. His tenure was long after the Sati ban.
- **Lord Dalhousie**: Known for his 'Doctrine of Lapse' and significant administrative and railway reforms. He served from 1848 to 1856, well after Sati was abolished.

Therefore, **Lord William Bentinck** is the correct answer as the Governor General responsible for banning the practice of Sati through legislative action in 1829.

47. Answer: a

Explanation:

- **Key Terms:** National Aerospace Development Administration, NADA, space agency, North Korea.

NADA: North Korea's Aerospace Agency

This question focuses on identifying the country associated with the space agency known as the National Aerospace Development Administration (NADA). NADA is the primary governmental organization responsible for North Korea's space exploration initiatives and the development of its aerospace capabilities.

Examining the Options Provided

We need to determine which country's official space agency is NADA:

- **Option 1: North Korea** – This option posits that NADA represents North Korea's space program.
- **Option 2: South Korea** – South Korea's main space agency is the Korea Aerospace Research Institute (KARI).
- **Option 3: Indonesia** – Indonesia's space and aviation research was primarily handled by the National Institute of Aeronautics and Space (LAPAN), now part of the National Research and Innovation Agency (BRIN).
- **Option 4: USA** – The United States space agency is the National Aeronautics and Space Administration (NASA).

Confirming NADA's National Affiliation

Research confirms that the National Aerospace Development Administration (NADA) is indeed the official space agency of **North Korea**. This organization manages the country's satellite launches, space technology research, and oversees activities related to its space program.

Therefore, based on established information about national space agencies, NADA is linked to North Korea.

48. Answer: a

Explanation:

Gulf of Aden Location Explained

The **Gulf of Aden** is a significant gulf that plays a crucial role in maritime trade and regional geography. Understanding its location is key to grasping its importance.

Geographical Placement of the Gulf of Aden

The **Gulf of Aden** is situated within the **Indian Ocean**. It acts as a vital waterway connecting the Arabian Sea (which is part of the Indian Ocean) to the west through the Bab el-Mandeb strait, leading into the Red Sea.

Key Surrounding Features

The location of the **Gulf of Aden** is further defined by the landmasses surrounding it:

- To the north, it is bordered by Yemen and Oman (on the Arabian Peninsula).
- To the northeast, it is bordered by Somalia (on the Horn of Africa).
- To the west, it connects to the Red Sea via the Bab el-Mandeb strait.
- To the east, it opens into the Arabian Sea, which is part of the larger **Indian Ocean**.

Connecting Oceans and Seas

Essentially, the **Gulf of Aden** serves as a strategic maritime passage linking the Red Sea and the Suez Canal to the **Indian Ocean**. This connection makes it a critical chokepoint for global shipping, particularly for oil transport from the Persian Gulf.

Therefore, based on its geographical boundaries and connections, the **Gulf of Aden** is correctly identified as being located within the **Indian Ocean**.

49. Answer: c

Explanation:

Para Military Force and Mahila Battalions in India

India has a robust network of Para Military Forces, also known as Central Armed Police Forces (CAPFs). These forces are essential for maintaining internal security, guarding the country's borders, and providing support during various emergencies and law-and-order situations. Key forces include the BSF, CISF, CRPF, ITBP, SSB, etc.

The question highlights a specific characteristic: the presence of **06 Mahila (Ladies) Battalions** within a single Para Military Force. This signifies a significant commitment to gender inclusion and the operational deployment of women in challenging security roles. We need to identify which force possesses this specific organizational structure.

Understanding Mahila Battalions in Security Forces

Mahila Battalions are units composed entirely of women personnel. Their establishment is a strategic move towards:

- Enhancing women's participation in national security.
- Improving policing in situations involving women and children.
- Promoting gender sensitivity in security operations.

Analysis of Key Para Military Forces

Let's consider the options provided in the context of Mahila Battalions:

- **Central Reserve Police Force (CRPF):** The CRPF is distinguished as the *only* Para Military Force in India that operates **six dedicated Mahila Battalions**. These all-women units have been operational for some time, showcasing CRPF's lead in gender integration among the CAPFs.
- **Other Forces (ITBP, CISF, BSF):** While the Indo-Tibetan Border Police (ITBP), Central Industrial Security Force (CISF), and Border Security Force (BSF) do

recruit women personnel and have deployed them in various capacities, including operational roles, they do not maintain the specific structure of six full Mahila Battalions.

Identifying the Force with Six Mahila Battalions

The Central Reserve Police Force (CRPF) is the Para Military Force in India that uniquely features **06 Mahila Battalions**, making it the correct answer based on the specific criteria mentioned in the question.

50. Answer: c

Explanation:

Odyssey Author Identification

This question asks to identify the author of the famous ancient Greek epic poem, the **Odyssey**. The *Odyssey* is a cornerstone of Western literature, detailing the long journey home of the hero Odysseus after the Trojan War. Identifying the correct author is key to understanding its origins.

Analyzing Potential Authors of the Odyssey

We need to examine each option to determine who wrote the *Odyssey*.

Hammurabi: A Law Giver, Not a Poet

Hammurabi was the sixth king of the First Babylonian dynasty. He is primarily famous for the Code of Hammurabi, one of the earliest and most complete written legal codes. His contributions are in the realm of law and governance, not ancient Greek epic poetry. Therefore, Hammurabi did not write the *Odyssey*.

Hippocrates: The Father of Medicine

Hippocrates was an ancient Greek physician who is regarded as the "Father of Medicine". He revolutionized medical practice in ancient Greece and is credited with establishing medicine as a distinct discipline. His work is focused on health and healing, not epic poetry. Thus, Hippocrates is not the author of the *Odyssey*.

Homer: The Celebrated Poet

Homer is the legendary ancient Greek epic poet traditionally credited with composing the great epics the *Iliad* and the *Odyssey*. While there is some debate among scholars about whether Homer was a single individual or a collection of poets, his name is inextricably linked to these foundational works of Greek literature. The style, themes, and characters within the *Odyssey* are attributed to him.

Herodotus: The Father of History

Herodotus was an ancient Greek historian who lived in the 5th century BC. He is known for his work *The Histories*, which describes the origins and events of the Greco-Persian Wars. While Herodotus documented historical events, he was a historian, not the author of the epic poem *Odyssey*.

Summary of Authorship

Based on the analysis of the individuals provided:

- Hammurabi is known for law.
- Hippocrates is known for medicine.
- Homer is credited with writing the *Odyssey*.
- Herodotus is known for history.

Therefore, the individual credited with writing the epic poem *Odyssey* is Homer.

51. Answer: c

Explanation:

Given:

Sum of money = Rs 24,000

A gain twice of B and B gains thrice of C

Calculation:

Let the amount obtained by C be x .

Then, the amount obtained by B = $3 \times x$

Amount obtained by A = $2 \times B = 2 \times (3 \times x)$

Total amount = amount obtained by A and B and C together.

$$24000 = 2 \times (3 \times x) + (3 \times x) + x$$

$$\Rightarrow 10x = 24,000$$

$$\Rightarrow x = 2,400$$

Amount obtained by B = $3x = 3 \times 2400$

Amount obtained by B = 7,200

$\therefore$ B gets Rs7200.

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52. Answer: c

Explanation:

Investment Scenario Analysis

This problem involves calculating the initial amount invested at a specific simple interest rate (4%) when a total sum is divided into two parts with different interest rates (4% and 6%) over a fixed period (3 years). We are given the total profit earned, which allows us to determine the specific amounts invested in each part.

Key Details of the Investment

The important information provided in the question is:

- Total Investment: Rs. 3500
- Time Period: 3 years
- Interest Rate on First Part (R_1): 4% per annum
- Interest Rate on Second Part (R_2): 6% per annum
- Total Profit (Simple Interest Earned): Rs. 498

The objective is to find the amount invested at the 4% rate.

Calculating Investment at 4%

To solve this, we will use the concept of simple interest and set up equations based on the given information.

Step 1: Define Variables and Relationships

Let the amount invested at 4% be P_1 .

Let the amount invested at 6% be P_2 .

We know the total investment is Rs. 3500, so:

$$P_1 + P_2 = 3500 \quad (1)$$

The formula for Simple Interest (SI) is given by:

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

Where P is the Principal, R is the Rate of Interest per annum, and T is the Time period in years.

Step 2: Formulate Interest Equations

Calculate the simple interest earned from each part:

Interest from the first part (SI_1) at 4% for 3 years:

$$SI_1 = \frac{P_1 \times 4 \times 3}{100} = \frac{12P_1}{100}$$

Interest from the second part (SI_2) at 6% for 3 years:

$$SI_2 = \frac{P_2 \times 6 \times 3}{100} = \frac{18P_2}{100}$$

The total interest earned is Rs. 498. Therefore:

$$SI_1 + SI_2 = 498$$

$$\frac{12P_1}{100} + \frac{18P_2}{100} = 498$$

Step 3: Solve the System of Equations

Multiply the total interest equation by 100 to simplify:

$$12P_1 + 18P_2 = 49800 \quad (2)$$

Now we have a system of two linear equations:

1. $P_1 + P_2 = 3500$
2. $12P_1 + 18P_2 = 49800$

From equation (1), we can express P_2 in terms of P_1 :

$$P_2 = 3500 - P_1$$

Substitute this expression for P_2 into equation (2):

$$12P_1 + 18(3500 - P_1) = 49800$$

Expand the expression:

$$12P_1 + (18 \times 3500) - 18P_1 = 49800$$

Calculate 18×3500 :

$$18 \times 3500 = 63000$$

Substitute the result back into the equation:

$$12P_1 + 63000 - 18P_1 = 49800$$

Combine the terms with P_1 :

$$(12 - 18)P_1 + 63000 = 49800$$

$$-6P_1 + 63000 = 49800$$

Rearrange the equation to solve for P_1 :

$$6P_1 = 63000 - 49800$$

$$6P_1 = 13200$$

Find the value of P_1 by dividing 13200 by 6:

$$P_1 = \frac{13200}{6}$$

$$P_1 = 2200$$

Step 4: Verifying the Investment Calculation

Let's check if investing Rs. 2200 at 4% yields the correct total profit.

- Amount invested at 4% (P_1): Rs. 2200
- Amount invested at 6% (P_2): $3500 - 2200 = 1300$
- Simple Interest from P_1 (SI_1): $\frac{2200 \times 4 \times 3}{100} = 22 \times 12 = 264$
- Simple Interest from P_2 (SI_2): $\frac{1300 \times 6 \times 3}{100} = 13 \times 18 = 234$
- Total Simple Interest = $SI_1 + SI_2 = 264 + 234 = 498$

The calculated total interest (Rs. 498) matches the total profit stated in the problem, confirming our calculation.

Finding the Money Invested on 4%

Based on the calculations, the amount invested at the 4% simple interest rate is Rs. 2200.

53. Answer: a

Explanation:

Calculating Meeting Time on a Circular Ground for Opposite Directions

This problem asks us to determine the time it takes for two individuals, A and B, to meet while walking on a circular ground. They start at the same point and walk in opposite directions. We are given their speeds and the total length of the circular ground (circumference).

Understanding Relative Speed on a Circular Path

When objects move towards each other, their speeds combine. This is known as their relative speed. For objects moving in opposite directions on a circular track, their relative speed is the sum of their individual speeds. This combined speed determines how quickly they cover the distance between them until they meet.

- **Relative Speed** = Speed of Person A + Speed of Person B

Step-by-Step Calculation for Meeting Time

To solve this, we need to perform the calculation in consistent units. The speeds are provided in kilometers per hour (km/h), while the distance is in meters (m). We will convert the speeds to meters per second (m/s).

Converting Speeds to Consistent Units (m/s)

The conversion factor from km/h to m/s is $\frac{1000 \text{ meters}}{3600 \text{ seconds}}$, which simplifies to $\frac{5}{18}$.

- **Speed of A:** 9 km/h
- Converting Speed of A: $9 \times \frac{5}{18} \text{ m/s} = \frac{45}{18} \text{ m/s} = \frac{5}{2} \text{ m/s} = 2.5 \text{ m/s}$
- **Speed of B:** 27 km/h
- Converting Speed of B: $27 \times \frac{5}{18} \text{ m/s} = \frac{135}{18} \text{ m/s} = \frac{15}{2} \text{ m/s} = 7.5 \text{ m/s}$

Calculating the Combined (Relative) Speed

Since A and B are walking in opposite directions, we add their speeds to find their relative speed.

- Relative Speed = Speed of A + Speed of B
- Relative Speed = $2.5 \text{ m/s} + 7.5 \text{ m/s}$
- Relative Speed = 10 m/s

Determining the Time to Meet

The time it takes for them to meet is calculated by dividing the total distance they need to cover (the length of the circular ground) by their relative speed.

- **Length of Circular Ground:** 2400 m
- Time = $\frac{\text{Length of Circular Ground}}{\text{Relative Speed}}$
- Time = $\frac{2400 \text{ m}}{10 \text{ m/s}}$
- Time = 240 seconds

Therefore, the two individuals, A and B, walking on the circular ground in opposite directions at the given speeds, will meet after 240 seconds.

54. Answer: b

Explanation:

Determining Article Cost Price from Selling Price and Profit

This problem requires us to calculate the **Cost Price** (CP) of an item given its **Selling Price** (SP) and the **Profit Percentage** earned. Understanding the relationship between these variables is key to solving this type of question.

Problem Breakdown: Selling Price and Profit Analysis

Here's a summary of the information provided:

- **Selling Price (SP):** The price at which the article was sold is Rs. 280.

- **Profit Percentage:** The profit made was 40%. This percentage is calculated based on the Cost Price.
- **Goal:** Find the **Cost Price (CP)** of the article.

Core Formula for Profit Calculation

The fundamental relationship between Selling Price (SP), Cost Price (CP), and Profit Percentage is expressed by the following formula:

$$SP = CP \times \left(1 + \frac{\text{Profit}\%}{100}\right)$$

This formula indicates that the Selling Price equals the Cost Price plus the profit earned, where the profit is calculated as a percentage of the Cost Price.

Step-by-Step Calculation of Cost Price

Let's use the given values and the formula to find the Cost Price:

1. Identify Given Values:

We have $SP = \text{Rs. } 280$ and $\text{Profit \%} = 40\%$.

2. Substitute into the formula:

Plug the known values into the formula $SP = CP \times \left(1 + \frac{\text{Profit}\%}{100}\right)$:

$$280 = CP \times \left(1 + \frac{40}{100}\right)$$

3. Simplify the expression:

First, simplify the term in the parenthesis: $1 + \frac{40}{100} = 1 + 0.40 = 1.40$. The equation becomes:

$$280 = CP \times 1.40$$

4. Isolate the Cost Price (CP):

To find the Cost Price, we need to rearrange the equation. Divide the Selling Price by 1.40:

$$CP = \frac{280}{1.40}$$

5. Perform the division:

Now, calculate the value of CP:

To make the division easier, we can multiply the numerator and denominator by 10: $\frac{280 \times 10}{1.40 \times 10} = \frac{2800}{14}$.

Performing the division gives: $\frac{2800}{14} = 200$.

Therefore, $CP = 200$.

Final Answer: Cost Price

The calculation shows that the **Cost Price** of the article is **Rs. 200**.

Verification of the Result

We can check if this Cost Price yields the given Selling Price and profit percentage:

- **Calculate Profit Amount:** 40% of the Cost Price (Rs. 200).

$$\text{Profit} = \frac{40}{100} \times 200 = 0.40 \times 200 = 80. \text{ The profit is Rs. 80.}$$

- **Calculate Selling Price:** Add the profit to the Cost Price.

$$SP = \text{Cost Price} + \text{Profit} = \text{Rs. 200} + \text{Rs. 80} = \text{Rs. 280}.$$

The calculated Selling Price (Rs. 280) matches the Selling Price given in the question. This confirms our calculated Cost Price of Rs. 200 is correct.

55. Answer: a

Explanation:

Understanding the Perfect Square Equation

The question asks us to find a specific number to replace the **question mark** ('?') in the given equation so that the left side forms a **perfect square**. The equation provided is:

$$(10.99)^2 + 10.99 \times ? + (0.03)^2 = (11.02)^2$$

Our main task is to determine the value of '?' that makes this statement true by fitting the structure of a perfect square trinomial.

Applying the Algebraic Identity for Perfect Squares

To solve this, we can use the algebraic identity for the square of a sum, which is:

$$(a + b)^2 = a^2 + 2ab + b^2$$

Let's compare the terms in the given **equation** with this standard formula:

- The first term, $(10.99)^2$, matches the a^2 part of the formula. So, we can set $a = 10.99$.
- The last term, $(0.03)^2$, matches the b^2 part of the formula. So, we can set $b = 0.03$.

Now, let's verify if the base of the term on the right side of the equation, $(11.02)^2$, corresponds to $(a + b)^2$:

$$a + b = 10.99 + 0.03$$

$$a + b = 11.02$$

Squaring this sum:

$$(a + b)^2 = (11.02)^2$$

This matches the right side of the given equation. The middle term in the perfect square formula is $2ab$. We need to find the value for '?' such that the middle term in the equation, $10.99 \times ?$, is equal to $2ab$.

Let's calculate the value of $2ab$ using our identified values of a and b :

$$2ab = 2 \times 10.99 \times 0.03$$

Step-by-Step Calculation to Find the Question Mark

We equate the middle term of the given equation with the calculated $2ab$ value:

$$10.99 \times ? = 2 \times 10.99 \times 0.03$$

To find the value of the **question mark** ('?'), we can isolate it by dividing both sides of the equation by 10.99:

$$? = \frac{2 \times 10.99 \times 0.03}{10.99}$$

Notice that 10.99 appears in both the numerator and the denominator, so we can cancel it out:

$$? = 2 \times 0.03$$

Performing the multiplication:

$$? = 0.06$$

Final Answer Determination

The calculation confirms that the value needed to complete the **perfect square** is 0.06.

We can substitute 0.06 back into the original equation to check:

$$(10.99)^2 + 10.99 \times 0.06 + (0.03)^2$$

Let's calculate the middle term with this value:

$$10.99 \times 0.06 = 0.6594$$

Now, let's calculate $2ab$:

$$2ab = 2 \times 10.99 \times 0.03 = 2 \times (10.99 \times 0.03) = 2 \times 0.3297 = 0.6594$$

Since 10.99×0.06 is indeed equal to $2 \times 10.99 \times 0.03$, the value 0.06 correctly fits the pattern of $a^2 + 2ab + b^2$.

Thus, the number that should come in the place of the **question mark** to make the expression a **perfect square** is 0.06.

56. Answer: d

Explanation:

Solving Work and Time: Finding the Completion Time for A and C

This problem involves calculating the time it takes for two individuals, A and C, to complete a piece of work together, given information about the time taken by different combinations of workers (A and B, B and C, A, B, and C).

Understanding Work Rates

In work and time problems, we often think about the 'rate' at which work is done. If someone can complete a job in N days, their work rate is $\frac{1}{N}$ of the job per day.

- Let r_A be the work rate of A per day.
- Let r_B be the work rate of B per day.
- Let r_C be the work rate of C per day.

Translating Given Information into Equations

We are given the following information:

- A and B can do the work in 8 days. This means their combined rate is $r_A + r_B = \frac{1}{8}$ job per day.
- B and C can do the work in 12 days. This means their combined rate is $r_B + r_C = \frac{1}{12}$ job per day.
- A, B, and C together can complete the work in 6 days. This means their combined rate is $r_A + r_B + r_C = \frac{1}{6}$ job per day.

Calculating Individual Work Rates

Our goal is to find the time A and C need together. To do this, we first need to find their individual rates (r_A and r_C). We can use the given equations.

Finding A's Work Rate (r_A)

We know:

1. $r_A + r_B + r_C = \frac{1}{6}$
2. $r_B + r_C = \frac{1}{12}$

Substitute the value from equation (2) into equation (1):

$$r_A + \left(\frac{1}{12}\right) = \frac{1}{6}$$

Now, solve for r_A :

$$r_A = \frac{1}{6} - \frac{1}{12}$$

To subtract these fractions, find a common denominator, which is 12:

$$r_A = \frac{2}{12} - \frac{1}{12} = \frac{1}{12}$$

So, A's work rate is $\frac{1}{12}$ of the job per day.

Finding C's Work Rate (r_C)

We know:

1. $r_A + r_B + r_C = \frac{1}{6}$
2. $r_A + r_B = \frac{1}{8}$

Substitute the value from equation (2) into equation (1):

$$\left(\frac{1}{8}\right) + r_C = \frac{1}{6}$$

Now, solve for r_C :

$$r_C = \frac{1}{6} - \frac{1}{8}$$

To subtract these fractions, find a common denominator, which is 24:

$$r_C = \frac{4}{24} - \frac{3}{24} = \frac{1}{24}$$

So, C's work rate is $\frac{1}{24}$ of the job per day.

Calculating the Combined Work Rate of A and C

Now that we have the individual rates for A and C, we can find their combined rate:

$$r_A + r_C = \frac{1}{12} + \frac{1}{24}$$

Find a common denominator, which is 24:

$$r_A + r_C = \frac{2}{24} + \frac{1}{24} = \frac{3}{24}$$

Simplify the fraction:

$$r_A + r_C = \frac{1}{8}$$

The combined work rate of A and C is $\frac{1}{8}$ of the job per day.

Determining the Time for A and C to Complete the Work

The time it takes for A and C to complete the work together is the reciprocal of their combined work rate.

$$\text{Time} = \frac{1}{\text{Combined Rate}}$$

$$\text{Time for A and C} = \frac{1}{r_A + r_C} = \frac{1}{(1/8)}$$

$$\text{Time for A and C} = 8 \text{ days}$$

Conclusion

Therefore, A and C can complete the work together in **8 days**.

57. Answer: b

Explanation:

Finding the Man's Age After 25 Years

This problem involves setting up and solving an algebraic equation to find a person's age.

Defining the Man's Present Age

Let's represent the man's **present age** with the variable ' x '.

Calculating Past Age

The question refers to the man's age 5 years ago. His age at that time can be represented as:

Age 5 years ago = $x - 5$

Setting Up the Equation

The problem states: "When 5 is added to 6 times a man's age 5 years ago, it will be equal to 5 times of present age." Let's translate this into an equation:

- 6 times the age 5 years ago: $6 \times (x - 5)$
- Add 5 to that amount: $6(x - 5) + 5$
- This equals 5 times the present age: $5x$

So, the equation is:

$$6(x - 5) + 5 = 5x$$

Solving for the Present Age

Now, we solve the equation step-by-step:

1. Distribute the 6 on the left side:

$$6x - 30 + 5 = 5x$$

2. Combine the constant terms on the left side:

$$6x - 25 = 5x$$

3. To isolate the variable ' x ', subtract $5x$ from both sides of the equation:

$$6x - 5x - 25 = 5x - 5x$$

$$x - 25 = 0$$

4. Add 25 to both sides to find the value of ' x ':

$$x - 25 + 25 = 0 + 25$$

$$x = 25$$

This means the man's **present age** is 25 years.

Calculating the Age After 25 Years

The question asks for the man's age after 25 years. We calculate this by adding 25 to his present age:

$$\text{Age after 25 years} = \text{Present Age} + 25$$

$$\text{Age after 25 years} = x + 25$$

$$\text{Age after 25 years} = 25 + 25$$

$$\text{Age after 25 years} = 50 \text{ years}$$

Conclusion

The man's age after 25 years will be 50 years.

58. Answer: a

Explanation:

Calculating the Original Deposit Using Simple Interest

This solution explains how to find the initial amount (the **original deposit**) a person put into a bank, given the total amount after certain periods with **simple interest**.

Understanding the Simple Interest Problem

We are given that a certain amount of money, referred to as the **deposit capital** or principal, was invested. We know the total amount the investment grew to after 3 years and after 4 years. The interest earned is calculated using the **simple interest** method.

- Amount after 3 years = Rs. 1355
- Amount after 4 years = Rs. 1545
- Interest type = Simple Interest

Our goal is to determine the **original deposit**, which is the initial principal amount.

Step-by-Step Calculation for Simple Interest

In simple interest, the interest earned each year remains constant. The difference between the amounts at different times helps us find this annual interest.

Step 1: Find the Simple Interest earned in one year

The increase in the total amount from year 3 to year 4 is solely due to the simple interest earned in that one year.

Simple Interest (SI) for 1 year = Amount after 4 years - Amount after 3 years

Using LaTeX notation:

$$SI_{1\text{ year}} = \text{Amount}_4 - \text{Amount}_3$$

Plugging in the values:

$$SI_{1\text{ year}} = \text{Rs. } 1545 - \text{Rs. } 1355$$

$$SI_{1 \text{ year}} = \text{Rs. } 190$$

So, the simple interest earned each year is Rs. 190.

Step 2: Calculate the Total Simple Interest for 3 years

Since the simple interest is the same each year, we can calculate the total interest earned over the first 3 years.

$$\text{Total Simple Interest for 3 years} = \text{SI for 1 year} \times 3$$

Using LaTeX notation:

$$SI_{3 \text{ years}} = SI_{1 \text{ year}} \times 3$$

Plugging in the value of SI for 1 year:

$$SI_{3 \text{ years}} = \text{Rs. } 190 \times 3$$

$$SI_{3 \text{ years}} = \text{Rs. } 570$$

Determining the Original Deposit (Principal)

The amount an investment grows to is the sum of the original principal and the accumulated interest. We can use the information from the first 3 years.

$$\text{Amount after 3 years} = \text{Original Deposit (Principal)} + \text{Simple Interest for 3 years}$$

Let 'P' represent the Original Deposit.

Using LaTeX notation:

$$\text{Amount}_3 = P + SI_{3 \text{ years}}$$

Substituting the known values:

$$\text{Rs. } 1355 = P + \text{Rs. } 570$$

To find the Principal (P), we rearrange the equation:

$$P = \text{Rs. } 1355 - \text{Rs. } 570$$

$$P = \text{Rs. } 785$$

Conclusion on Original Deposit

Therefore, the original amount that the man initially invested, his **original deposit**, was Rs. 785.

59. Answer: c

Explanation:

Understanding the Student Age Replacement Problem

This problem involves calculating the new average age of a group of students after one student is replaced by another with a different age. We need to carefully determine the ages involved and apply the average formula correctly.

Initial Student Ages and Scenario

We start with two male students having the following ages:

- Student 1: 20 years
- Student 2: 24 years

The younger student is 20 years old, and the elder student is 24 years old.

Determining the Replacement Student's Age

The problem states that the elder student (24 years old) is replaced by a new female student. The age of this new student is determined based on the age of the younger student (the one who is not replaced).

The rule for the new student's age is: half the age of the younger student.

Calculation:

- Younger student's age = 20 years
- New female student's age = $\frac{1}{2} \times 20$ years
- New female student's age = 10 years

Calculating the New Sum of Ages

After the replacement, the group consists of the original younger student and the new female student.

The ages making up the new group are:

- Original younger student's age: 20 years
- New female student's age: 10 years

To find the new average, we first need the sum of these ages:

New Sum of Ages = (Age of original younger student) + (Age of new female student)

New Sum of Ages = 20 years + 10 years

New Sum of Ages = 30 years

Finding the New Average Age

The average age is calculated by dividing the sum of ages by the number of students.

In this case, there are still 2 students in the group (the original younger one and the new female student).

New Average Age = $\frac{\text{New Sum of Ages}}{\text{Number of Students}}$

New Average Age = $\frac{30 \text{ years}}{2}$

New Average Age = 15 years

Conclusion

Therefore, the new average age of the two students after the replacement is 15 years.

60. Answer: d

Explanation:

Understanding Average Score Calculation

The problem asks us to find the average score after 12 innings, given the score in the 12th inning and how it affected the average. We need to determine the average score based on the runs scored and the number of innings played. Key terms here are **average score**, **innings**, and **runs**.

Average Score Calculation Strategy

To solve this, we can use algebraic methods. Let's represent the unknown quantities with variables:

- Let A_{11} be the average score after 11 innings.
- Let S_{11} be the total score after 11 innings.
- The score in the 12th inning is given as 80 runs.
- Let A_{12} be the average score after 12 innings.

We know the relationship between total score, average score, and the number of innings:

Total Score = Average Score $\times$ Number of Innings

So, $S_{11} = A_{11} \times 11$.

The problem states that the average increased by 5 after the 12th inning. Therefore:

$$A_{12} = A_{11} + 5.$$

The total score after 12 innings, S_{12} , can be calculated in two ways:

1. $S_{12} = S_{11} + (\text{Score in 12th inning}) = (A_{11} \times 11) + 80.$
2. $S_{12} = A_{12} \times 12 = (A_{11} + 5) \times 12.$

Step-by-Step Calculation for Average Score

We can set the two expressions for S_{12} equal to each other to solve for A_{11} :

$$(A_{11} \times 11) + 80 = (A_{11} + 5) \times 12$$

Now, let's simplify and solve the equation:

1. Distribute the 12 on the right side:

$$11A_{11} + 80 = 12A_{11} + (5 \times 12)$$

$$11A_{11} + 80 = 12A_{11} + 60$$

2. Rearrange the terms to isolate A_{11} :

Subtract $11A_{11}$ from both sides:

$$80 = (12A_{11} - 11A_{11}) + 60$$

$$80 = A_{11} + 60$$

3. Subtract 60 from both sides to find A_{11} :

$$80 - 60 = A_{11}$$

$$A_{11} = 20$$

This means the average score after 11 innings was 20.

Finding the Average After 12 Innings

The question asks for the average score after 12 innings (A_{12}). We know that the average increased by 5 from the 11th inning average to the 12th inning average.

Using the relationship $A_{12} = A_{11} + 5$:

$$A_{12} = 20 + 5$$

$$A_{12} = 25$$

Therefore, the average score after 12 innings is 25.

Final Answer Verification

Let's check our answer:

- Average after 11 innings = 20. Total score = $20 \times 11 = 220$.
- Score in 12th inning = 80.
- Total score after 12 innings = $220 + 80 = 300$.
- Average after 12 innings = Total Score / Number of Innings = $300/12 = 25$.
- The increase in average is $25 - 20 = 5$, which matches the information given in the question.

The calculated average score after 12 innings is 25, which corresponds to option 4.

61. Answer: c

Explanation:

Calculating the Train Speed When Crossing a Man

This problem involves finding the speed of a train based on its length, the time it takes to cross a moving person, and the person's speed. We need to use the concept of **relative speed**.

Understanding Relative Speed

When two objects move in the same direction, their relative speed is the difference between their individual speeds. If the train's speed is S_T and the man's speed is S_M , and both are moving in the same direction, the speed at which the train effectively passes the man (relative speed) is $S_{rel} = S_T - S_M$.

Given Information

- Length of the train (L): 125 meters
- Speed of the man (S_M): 5 km/h
- Direction: Man and train are moving in the **same direction**.
- Time taken to cross the man (t): 10 seconds

Step-by-Step Solution

1. Convert Units

To calculate accurately, we need consistent units. Let's convert all measurements to meters and seconds.

- Train Length (L): 125 m (already in meters)
- Time (t): 10 s (already in seconds)
- Man's Speed (S_M): Convert 5 km/h to m/s.

$$S_M = 5 \text{ km/h} = 5 \times \frac{5}{18} \text{ m/s} = \frac{25}{18} \text{ m/s}$$

2. Apply the Relative Speed Concept

Let the speed of the train be S_T (in m/s). Since the man and the train are moving in the same direction, the relative speed (S_{rel}) is:

$$S_{rel} = S_T - S_M$$

$$S_{rel} = S_T - \frac{25}{18} \text{ m/s}$$

3. Use the Distance Formula

The distance the train covers to cross the man is equal to the length of the train. The formula relating distance, speed, and time is:

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

In this case:

$$L = S_{rel} \times t$$

4. Calculate the Train's Speed (S_T)

Substitute the known values into the formula:

$$125 \text{ m} = \left(S_T - \frac{25}{18} \text{ m/s} \right) \times 10 \text{ s}$$

Now, solve for S_T :

$$\frac{125}{10} = S_T - \frac{25}{18}$$

$$12.5 = S_T - \frac{25}{18}$$

$$S_T = 12.5 + \frac{25}{18}$$

To add these, find a common denominator:

$$S_T = \frac{25}{2} + \frac{25}{18}$$

$$S_T = \frac{25 \times 9}{18} + \frac{25}{18}$$

$$S_T = \frac{225}{18} + \frac{25}{18}$$

$$S_T = \frac{250}{18} \text{ m/s}$$

$$S_T = \frac{125}{9} \text{ m/s}$$

5. Convert Speed back to km/h

The question asks for the speed in km/h. Convert S_T from m/s to km/h by multiplying by $\frac{18}{5}$:

$$S_T(\text{km/h}) = \frac{125}{9} \times \frac{18}{5}$$

$$S_T(\text{km/h}) = \frac{125}{5} \times \frac{18}{9}$$

$$S_T(\text{km/h}) = 25 \times 2$$

$$S_T(\text{km/h}) = 50 \text{ km/h}$$

Conclusion

The speed of the train is **50 km/h**.

62. Answer: d

Explanation:

Determining Boat and Stream Speed from Travel Times

This explanation breaks down how to find the speed of a boat in still water and the speed of the stream current, given information about its upstream and downstream journeys.

Understanding Upstream and Downstream Travel

When a boat travels, its speed relative to the land is affected by the water current.

- **Upstream Travel:** The boat moves against the direction of the stream. The effective speed is the boat's speed minus the stream's speed.
- **Downstream Travel:** The boat moves in the same direction as the stream. The effective speed is the boat's speed plus the stream's speed.

Calculating Speeds from Given Data

We are given:

- Distance travelled = 30 km
- Time taken for upstream travel = 4 hours
- Time taken for downstream travel = 2 hours

The fundamental formula relating speed, distance, and time is:

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

Calculating Upstream Speed

The speed of the boat when travelling upstream (against the current) is:

$$\text{Upstream Speed} = \frac{30 \text{ km}}{4 \text{ hours}} = 7.5 \text{ km/hr}$$

Calculating Downstream Speed

The speed of the boat when travelling downstream (with the current) is:

$$\text{Downstream Speed} = \frac{30 \text{ km}}{2 \text{ hours}} = 15 \text{ km/hr}$$

Setting Up Equations for Boat and Stream Speed

Let B be the speed of the boat in still water (in km/hr) and S be the speed of the stream (in km/hr).

- From the upstream travel, we know: $B - S = \text{Upstream Speed}$. So, $B - S = 7.5$ (Equation 1).
- From the downstream travel, we know: $B + S = \text{Downstream Speed}$. So, $B + S = 15$ (Equation 2).

Solving for Boat Speed and Stream Speed

We now have a system of two linear equations with two variables:

1. $B - S = 7.5$
2. $B + S = 15$

To find the speed of the boat (B), we can add the two equations:

$$(B - S) + (B + S) = 7.5 + 15$$

$$2B = 22.5$$

$$B = \frac{22.5}{2}$$

$$B = 11.25 \text{ km/hr}$$

Now, to find the speed of the stream (S), we can substitute the value of B back into Equation 2:

$$11.25 + S = 15$$

$$S = 15 - 11.25$$

$$S = 3.75 \text{ km/hr}$$

Final Result

Therefore, the speed of the boat is 11.25 km/hr and the speed of the stream is 3.75 km/hr.

63. Answer: b

Explanation:

Understanding the Wire Selling Problem

This question asks us to calculate the gain percentage made by a man selling wire. We are given that he sells 30 meters of wire and achieves a gain equivalent to the selling price of 10 meters of wire. We need to find this gain percentage.

Defining Key Terms and Variables

Let's define some terms to help solve this:

- **Cost Price (CP):** The price at which the man bought the wire.
- **Selling Price (SP):** The price at which the man sold the wire.
- **Gain:** The profit made, calculated as $SP - CP$.
- **Gain %:** The gain expressed as a percentage of the total cost price.

To solve this, let's assume:

- The cost price of 1 meter of wire is ' C '.
- The selling price of 1 meter of wire is ' S '.

Calculating Total Cost Price and Selling Price

The man sells 30 meters of wire. Based on our assumptions:

- The total Cost Price (CP) for 30 meters of wire is $30 \times C$.
- The total Selling Price (SP) for 30 meters of wire is $30 \times S$.

Determining the Gain

The problem states that the man's gain is equal to the selling price of 10 meters of wire.

- Gain = Selling Price of 10 meters = $10 \times S$.

We also know that Gain can be calculated as Total SP – Total CP:

- Gain = $(30 \times S) - (30 \times C)$.

Relating Selling Price (S) and Cost Price (C)

Since we have two expressions for the gain, we can set them equal to each other:

$$10 \times S = (30 \times S) - (30 \times C)$$

Now, we can rearrange this equation to find a relationship between S and C :

$$30 \times C = (30 \times S) - (10 \times S)$$

$$30C = 20S$$

To find how S relates to C , we can solve for S :

$$S = \frac{30}{20}C$$

$$S = \frac{3}{2}C$$

This means the selling price of 1 meter of wire is 1.5 times its cost price.

Calculating the Gain Percentage

The formula for gain percentage is:

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

From our calculations:

- $\text{Gain} = 10 \times S$. Substituting $S = \frac{3}{2}C$, we get $\text{Gain} = 10 \times \left(\frac{3}{2}C\right) = 15C$.
- $\text{Total CP for 30 meters} = 30C$.

Now, let's plug these values into the gain percentage formula:

$$\text{Gain \%} = \left(\frac{15C}{30C} \right) \times 100$$

The 'C' cancels out:

$$\text{Gain \%} = \left(\frac{15}{30} \right) \times 100 = \left(\frac{1}{2} \right) \times 100 = 50\%$$

Final Answer

The man makes a gain of 50%.

64. Answer: b

Explanation:

Percentage Error Calculation

This problem requires us to calculate the **percentage error** that occurs when a number is **multiplied** by $\frac{7}{6}$ instead of the correct fraction, $\frac{6}{7}$. We need to find the difference between the incorrect and correct results, expressed as a percentage of the correct result.

Understanding the Multiplication Mistake

Let the number be represented by the variable x .

- **Correct Operation:** The number x should have been multiplied by $\frac{6}{7}$. Correct
Result = $x \times \frac{6}{7} = \frac{6x}{7}$
- **Incorrect Operation:** By **mistake**, the number x was multiplied by $\frac{7}{6}$. Incorrect
Result = $x \times \frac{7}{6} = \frac{7x}{6}$

Error Amount Calculation

The absolute error is the difference between the result obtained and the correct result.

$$\text{Error} = | \text{Incorrect Result} - \text{Correct Result} |$$

$$\text{Error} = \left| \frac{7x}{6} - \frac{6x}{7} \right|$$

To subtract these fractions, we find a common denominator, which is $6 \times 7 = 42$.

$$\text{Error} = \left| \frac{7x \times 7}{42} - \frac{6x \times 6}{42} \right|$$

$$\text{Error} = \left| \frac{49x}{42} - \frac{36x}{42} \right|$$

$$\text{Error} = \left| \frac{49x - 36x}{42} \right|$$

$$\text{Error} = \left| \frac{13x}{42} \right|$$

Assuming x is a positive number, the error is $\frac{13x}{42}$.

Percentage Error Calculation Steps

The formula for **percentage error** is:

$$\text{Percentage Error} = \frac{\text{Absolute Error}}{\text{Correct Value}} \times 100\%$$

Plugging in our values:

$$\text{Percentage Error} = \frac{\frac{13x}{42}}{\frac{6x}{7}} \times 100\%$$

To divide by a fraction, we multiply by its reciprocal:

$$\text{Percentage Error} = \frac{13x}{42} \times \frac{7}{6x} \times 100\%$$

The variable x cancels out:

$$\text{Percentage Error} = \frac{13}{42} \times \frac{7}{6} \times 100\%$$

We can simplify $\frac{7}{42}$ to $\frac{1}{6}$:

$$\text{Percentage Error} = \frac{13}{6 \times 7} \times \frac{7}{6} \times 100\%$$

Cancel out the 7s:

$$\text{Percentage Error} = \frac{13}{6} \times \frac{1}{6} \times 100\%$$

$$\text{Percentage Error} = \frac{13}{36} \times 100\%$$

Multiply to get the percentage value:

$$\text{Percentage Error} = \frac{1300}{36} \%$$

Simplify the fraction $\frac{1300}{36}$ by dividing both the numerator and denominator by 4:

$$\text{Percentage Error} = \frac{1300 \div 4}{36 \div 4} \%$$

$$\text{Percentage Error} = \frac{325}{9} \%$$

Final Percentage Error

The calculated **percentage error** is $\frac{325}{9} \%$.

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65. Answer: a

Explanation:

This question involves calculating the combined time taken by two individuals, X and Y, to complete a piece of work, based on their relative efficiency and the time taken by one of them.

Understanding Efficiency Relation

The problem states that "X is thrice efficient than Y". This means that for the same amount of time, X can do three times the work that Y can do. We can express this

relationship using efficiencies:

- Let the efficiency of Y be denoted by E_Y .
- According to the question, the efficiency of X (E_X) is three times the efficiency of Y. So, $E_X = 3 \times E_Y$.

Calculating Total Work

The total amount of work to be done is constant. We know that X can complete this work in 50 days. The formula relating work, efficiency, and time is: Work = Efficiency $\times$ Time.

- We know X's time, $T_X = 50$ days.
- Let's assume the efficiency of Y is $E_Y = k$ units per day.
- Then, the efficiency of X is $E_X = 3k$ units per day.
- Total Work (W) can be calculated using X's data: $W = E_X \times T_X$.
- Substituting the values: $W = (3k) \times 50 = 150k$ units of work.

Determining Combined Efficiency

To find the time taken by X and Y working together, we first need to find their combined efficiency. This is simply the sum of their individual efficiencies.

- Combined Efficiency (E_{XY}) = Efficiency of X + Efficiency of Y
- $E_{XY} = E_X + E_Y$
- $E_{XY} = 3k + k = 4k$ units per day.

Calculating Time Taken Together

Now we can calculate the time it would take for both X and Y to complete the work together using their combined efficiency and the total work calculated earlier.

- The formula for time is: Time = Total Work / Combined Efficiency.
- Time taken by X and Y together (T_{XY}) = W / E_{XY} .
- Substituting the values: $T_{XY} = (150k) / (4k)$.
- The variable k cancels out, leaving: $T_{XY} = 150/4$.
- $T_{XY} = 37.5$ days.

Conclusion

Therefore, the time taken by X and Y together to complete the same work is 37.5 days.

66. Answer: b

Explanation:

Calculating Total Amount with Half-Yearly Compound Interest

This solution explains how to calculate the total amount when a sum is invested at compound interest, compounded half-yearly. We will break down the calculation step-by-step.

Understanding the Given Information

First, let's identify the key details provided in the question:

- **Principal Amount (P):** Rs 20,000
- **Annual Interest Rate (R):** 20% per annum
- **Time Period (T):** 1 year
- **Compounding Frequency:** Half-yearly

Adjusting Rate and Time for Half-Yearly Compounding

When interest is compounded half-yearly, we need to adjust the interest rate and the number of periods:

- **Interest Rate per Period (r):** The annual rate is divided by 2.

$$r = \frac{R}{2} = \frac{20\%}{2} = 10\%$$

Converting this percentage to a decimal:

$$r = 0.10$$

- **Number of Compounding Periods (n):** The total time period is multiplied by 2 because interest is calculated twice a year.

$$n = T \times 2 = 1 \text{ year} \times 2 = 2$$

So, there are 2 compounding periods in one year.

Compound Interest Formula

The formula to calculate the total amount (A) when interest is compounded is:

$$A = P(1 + r)^n$$

Where:

- A = Total Amount
- P = Principal Amount
- r = Interest rate per compounding period
- n = Number of compounding periods

Step-by-Step Calculation

Now, let's substitute the values into the formula:

1. Plug in the values for P, r, and n:

$$A = 20000(1 + 0.10)^2$$

2. Simplify the expression inside the parentheses:

$$A = 20000(1.10)^2$$

3. Calculate the value of $(1.10)^2$:

$$(1.10)^2 = 1.10 \times 1.10 = 1.21$$

4. Multiply the principal amount by the result:

$$A = 20000 \times 1.21$$

5. Calculate the final amount:

$$A = 24200$$

Final Amount

Therefore, the total amount after one year, with interest compounded half-yearly, is Rs 24,200.

Matching with Options

Comparing our calculated amount with the given options:

- Option 1: Rs. 22,100
- **Option 2: Rs. 24,200**
- Option 3: Rs. 22,800
- Option 4: Rs. 23,600
- Option 5: (Not specified)

Our calculated total amount, Rs 24,200, matches Option 2.

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67. **Answer: c**

Explanation:

Calculating the Required Selling Price for 30% Profit

This explanation will guide you through finding the new selling price of a product when you know the initial selling price, the loss percentage incurred, and the desired profit percentage.

We need to determine the **selling price** required to achieve a **30% profit**, given that the product was initially sold for **Rs. 360** resulting in a **10% loss**.

Step 1: Determining the Cost Price (CP)

The first step is to find the original **cost price** of the product. The cost price is the amount the seller originally paid for the product.

We know the initial **selling price** (SP) was Rs. 360, and there was a **10% loss**. The formula relating selling price, cost price, and loss percentage is:

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

Here, the Loss Percentage is 10% or 0.10.

Substituting the known values:

$$\text{Rs. } 360 = CP \times (1 - 0.10)$$

$$\text{Rs. } 360 = CP \times (0.90)$$

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

$$CP = \frac{\text{Rs. } 360}{0.90}$$

$$CP = \frac{3600}{9}$$

$$CP = \text{Rs. } 400$$

So, the **cost price** of the product is Rs. 400.

Step 2: Calculating the New Selling Price for 30% Profit

Now that we know the cost price (CP), we can calculate the new selling price (New SP) required to make a **30% profit**.

The formula for calculating the selling price with a desired profit percentage is:

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

Here, the desired Profit Percentage is 30% or 0.30, and the CP is Rs. 400.

Substituting the values:

$$\text{New SP} = \text{Rs. } 400 \times (1 + 0.30)$$

$$\text{New SP} = \text{Rs. } 400 \times (1.30)$$

$$\text{New SP} = \text{Rs. } 520$$

Therefore, to make a **30% profit**, the product must be sold for Rs. 520.

Conclusion

The required **selling price** to achieve a **30% profit**, starting from an initial sale price that incurred a 10% loss, is Rs. 520.

68. Answer: a

Explanation:

Understanding the Age Calculation Problem

This problem involves calculating the average age of a family after a certain period, considering the birth of a child. We are given the average age of a husband and wife at the time of their marriage and need to find the family's average age 5 years after the marriage, knowing a child was born 4 years into the marriage.

Calculating Initial Ages

We are told that the average age of the husband and his wife at the time of their marriage was 23 years.

- Let the husband's age at marriage be H .
- Let the wife's age at marriage be W .
- The average age is given by the formula: $\text{Average} = \frac{(\text{Sum of Ages})}{(\text{Number of People})}$
- So, $23 = \frac{H+W}{2}$.
- Multiplying both sides by 2, we find the sum of their ages at marriage: $H + W = 23 \times 2 = 46$ years.

Calculating Ages After 5 Years of Marriage

We need to determine the ages of the husband and wife 5 years after their marriage.

- In 5 years, the husband's age will be $H + 5$.
- In 5 years, the wife's age will be $W + 5$.
- The sum of their ages after 5 years will be $(H + 5) + (W + 5) = H + W + 10$.
- Substituting the sum of their ages at marriage ($H + W = 46$), the sum becomes $46 + 10 = 56$ years.

Determining the Child's Age

The problem states that a child is born 4 years after their marriage. We are calculating the average age 5 years after the marriage.

- The child was born 4 years after marriage.
- The current time is 5 years after marriage.
- Therefore, the child's age is $5 - 4 = 1$ year.

Calculating the Family's Average Age After 5 Years

Now we can calculate the average age of the family (husband, wife, and child) 5 years after the marriage.

- The family now consists of 3 members: Husband, Wife, and Child.
- The sum of the ages of the husband and wife after 5 years is 56 years.
- The age of the child after 5 years is 1 year.
- The total sum of the ages of the family members after 5 years is $56 + 1 = 57$ years.
- The average age of the family is calculated as: $\text{Average} = \frac{\text{Total Sum of Ages}}{\text{Number of Family Members}}$
- $\text{Average Age} = \frac{57}{3}$
- $\text{Average Age} = 19$ years.

Final Answer Summary

The average age of the family (husband, wife, and child) 5 years after the marriage is 19 years.

69. Answer: b

Explanation:

Rearranging Jumbled Letters to Find the Different Word

The task is to unscramble the letters in each option to form meaningful words and then identify which word is different from the rest based on its category. Let's analyze each jumbled word.

Step 1: Decoding the Jumbled Letters

We will rearrange the letters provided for each option to discover the intended word:

- **Option 1: BEASETID**

The available letters are A, B, D, E, E, I, S, T. These letters can be rearranged to spell **DIABETES**, which is a well-known medical condition.

- **Option 2: IGHTH**

The letters provided are G, H, H, I, T. Rearranging these unscrambles to the word **THIGH**, which refers to a specific part of the body.

- **Option 3: NCACER**

With the letters A, C, C, E, N, R, we can form the word **CANCER**, another significant medical condition.

- **Option 4: MAASHT**

The letters here are A, A, H, M, S, T. These can be rearranged to form the word **MATHS**, which represents an academic subject. (Alternatively, SHAMAT, relating to calmness, could be formed, but MATHS provides a clearer distinction).

Step 2: Categorizing the Formed Words

After unscrambling the letters, we have the following words and their categories:

- **DIABETES:** This is a *disease* or a chronic medical condition affecting blood sugar levels.
- **THIGH:** This is a *body part*, specifically the upper part of the leg.
- **CANCER:** This is also a *disease*, characterized by abnormal cell growth.
- **MATHS:** This is an *academic subject* focused on numbers, logic, and structure.

Step 3: Identifying the Different Word

Let's compare the categories we identified:

- DIABETES (Disease)
- THIGH (Body Part)
- CANCER (Disease)
- MATHS (Academic Subject)

We can see that DIABETES and CANCER both fall under the category of diseases or medical conditions. MATHS represents an academic field. THIGH is the only word that refers to a physical part of the human anatomy. Therefore, THIGH is the outlier among the group.

Conclusion: The Different Word

The unscrambled words are DIABETES, THIGH, CANCER, and MATHS. The word **THIGH**, derived from IGHTH, is different because it is the only word representing a physical *body part*, while the others represent diseases (DIABETES, CANCER) or an academic subject (MATHS).

70. **Answer: b**

Explanation:

Understanding the Analogy: Hockey : Game

The question presents an analogy problem: **Hockey** is related to **Game** in a specific way, and we need to find another pair of words from the options that shares the

same relationship. The core task is to identify the relationship between 'Hockey' and 'Game' and then apply it to the given choices.

Analogy Relationship: Hockey to Game

Let's break down the relationship in the first pair:

- **Hockey** is a specific instance or type.
- **Game** is the general category or classification.

So, the relationship is: **Specific Type : General Category**.

Analyzing the Options for the Correct Analogy

We will now examine each option to see which one best fits the **Specific Type : General Category** relationship:

Option 1: Rome : Italy

- **Rome** is a specific city.
- **Italy** is a country.
- The relationship is City : Country. This is not the same as Specific Type : General Category.

Option 2: Latin : Language

- **Latin** is a specific type of **Language**.
- **Language** is the general category.
- This relationship (Specific Type : General Category) matches the relationship between Hockey and Game.

Option 3: India : Hindi

- **India** is a country.
- **Hindi** is a language primarily spoken in India.
- The relationship is Country : Language. This does not match the required relationship.

Option 4: Pink : Jaipur

- **Pink** is a color.
- **Jaipur** is a city known for its pink buildings.
- The relationship is Color : Associated City. This does not match the required relationship.

Final Determination

By comparing the relationship in the initial pair (Hockey : Game) with the relationships in the options, we find that 'Latin : Language' is the only pair that mirrors the structure. Both 'Hockey' and 'Latin' are specific examples belonging to the broader categories of 'Game' and 'Language', respectively.

71. Answer: b

Explanation:

Analogy Explanation: Hemoglobin to Red

This question asks us to identify a relationship between two pairs of words. The first pair is "Hemoglobin : Red". We need to find how Hemoglobin is related to the color Red. Hemoglobin is a crucial protein found in red blood cells. Its main function is to transport oxygen throughout the body. A key characteristic of hemoglobin is that it contains iron, and when this iron binds with oxygen, it gives blood its distinct **red** color. Therefore, the relationship is that Hemoglobin is the substance responsible for the color Red in blood.

Chlorophyll and its Characteristic Color

The second part of the analogy is "Chlorophyll : ?". We need to find the color associated with Chlorophyll in the same way Red is associated with Hemoglobin.

- **What is Chlorophyll?** Chlorophyll is a pigment found in plants, algae, and cyanobacteria.

- **Function:** Its primary role is to absorb sunlight during photosynthesis, which is the process plants use to convert light energy into chemical energy (food).
- **Associated Color:** Chlorophyll is best known for giving plants their characteristic **green** color. This happens because chlorophyll absorbs light most strongly in the blue and red portions of the electromagnetic spectrum, while reflecting green light. This reflected green light is what we perceive with our eyes.

Identifying the Correct Color for Chlorophyll

Following the pattern from the first pair (Hemoglobin : Red), we need to find the primary color associated with Chlorophyll. Based on its role in plants and how light interacts with it:

- Chlorophyll's primary function involves absorbing light energy.
- The color reflected by chlorophyll is green, making plants appear green.

Comparing this with the given options:

- **White:** Not associated with chlorophyll.
- **Green:** Directly related to chlorophyll's reflective property and its role in plant coloration.
- **Yellow:** Associated with other plant pigments (like carotenoids) or the degradation of chlorophyll, but not chlorophyll itself in its active state.
- **Blue:** Not the primary color associated with chlorophyll.

Thus, just as Hemoglobin is intrinsically linked to the color Red, Chlorophyll is intrinsically linked to the color **Green**.

72. **Answer: d**

Explanation:

Understanding the Analogy Question

This question asks us to identify a word that relates to 'Influenza' in the same way that 'Sleeping Sickness' relates to 'Insomnia'. This type of question is called an

analogy, and it requires us to understand the relationship between the first pair of words and apply that same relationship to find the missing word in the second pair.

Analyzing the Relationship: Insomnia to Sleeping Sickness

Let's first look at the relationship between 'Insomnia' and 'Sleeping Sickness':

- **Insomnia** is a condition primarily characterized by persistent difficulties with falling asleep or staying asleep. It's a disorder directly related to the function of sleep.
- **Sleeping Sickness** (also known as African Trypanosomiasis) is a serious disease caused by parasites. A prominent symptom of this disease, particularly in its later stages affecting the nervous system, is severe disruption of the sleep-wake cycle, often manifesting as excessive sleepiness during the day and inability to sleep properly at night.

The connection between Insomnia and Sleeping Sickness is their shared link to disturbances in **sleep**. Insomnia is a sleep disorder itself, while Sleeping Sickness is a disease that significantly impacts sleep patterns.

Analyzing Influenza and the Options

Now let's consider 'Influenza' and the given options:

- **Influenza** is a common infectious respiratory illness caused by influenza viruses. It is widely known as the flu.

Let's examine how each option relates to Influenza:

- **Eye Disease:** This is unrelated to Influenza, which primarily affects the respiratory system.
- **Blood Pressure:** While severe illness can affect blood pressure, it is not the primary characteristic or a defining relationship for Influenza.
- **Common cold:** Both Influenza and the common cold are respiratory illnesses, often caused by viruses. However, they are distinct diseases, with Influenza typically being more severe and caused by influenza viruses, whereas the

common cold can be caused by many different types of viruses. This option represents a similar, but not analogous, condition.

- **Viral Infection:** Influenza is specifically caused by viruses. Therefore, 'Viral Infection' describes the fundamental nature or category of the disease Influenza.

Connecting the Pairs to Find the Analogy

We established that Insomnia and Sleeping Sickness are linked through the theme of sleep disruption. We need to find a similar logical link for Influenza.

If we consider the relationship as [Condition related to Function X] : [Disease related to Function X] :: [Specific Disease Y] : [Category/Cause of Disease Y], the analogy works:

- Insomnia relates to sleep problems. Sleeping Sickness is a disease whose symptoms involve sleep problems.
- Influenza is a specific disease. Viral Infection is the category or cause of Influenza.

The strongest relationship is identifying Influenza as a type of **Viral Infection**. This mirrors how Sleeping Sickness is a disease strongly associated with sleep issues, similar to how Insomnia is directly a sleep issue.

Conclusion: The Correct Answer

Based on the analysis, the most fitting relationship is identifying the cause or category of the illness. Influenza is a classic example of a **viral infection**. Therefore, the word related to Influenza in the context of this analogy is 'Viral Infection'.

73. Answer: c

Explanation:

Understanding the Letter Analogy

This question involves a letter analogy, asking us to identify a pattern between the first pair of words ('FAMILY' and 'IDPLOB') and apply the same pattern to find the missing word related to 'ACCENT'. We need to find the logical connection between the letters.

Decoding the FAMILY to IDPLOB Relationship

Let's examine the relationship between 'FAMILY' and 'IDPLOB' by looking at the alphabetical positions of each letter:

Letter in FAMILY	Alphabetical Position	Letter in IDPLOB	Alphabetical Position	Observed Shift
F	6	I	9	+3
A	1	D	4	+3
M	13	P	16	+3
I	9	L	12	+3
L	12	O	15	+3
Y	25	B	2	+3 (with wrap-around)

The pattern established is a consistent shift of +3 positions forward in the alphabet for each letter. For 'Y', adding 3 ($25 + 3 = 28$) moves beyond the 26 letters of the alphabet. Wrapping around ($28 - 26 = 2$), we land on the 2nd letter, 'B'.

Applying the Alphabetical Shift to ACCENT

Now, we apply the same '+3' shift rule to the letters in 'ACCENT':

- The first letter 'A' (position 1) shifts to $1 + 3 = 4$, which is the letter 'D'.
- The second letter 'C' (position 3) shifts to $3 + 3 = 6$, which is the letter 'F'.
- The third letter 'C' (position 3) shifts to $3 + 3 = 6$, which is the letter 'F'.
- The fourth letter 'E' (position 5) shifts to $5 + 3 = 8$, which is the letter 'H'.

- The fifth letter 'N' (position 14) shifts to $14 + 3 = 17$, which is the letter 'Q'.
- The sixth letter 'T' (position 20) shifts to $20 + 3 = 23$, which is the letter 'W'.

Following this pattern, 'ACCENT' transforms into 'DFFHQW'.

Selecting the Correct Option for ACCENT

We compare the derived word 'DFFHQW' with the provided options:

1. DFFHQX
2. DFFHQY
3. DFFHQW
4. DFEHQW
5. (Option 5 was not specified)

The word 'DFFHQW' perfectly matches the third option.

74. Answer: d

Explanation:

Understanding the Analogy: Admire and Detest

The question asks us to identify a word related to "Gather" based on the relationship established between "Admire" and "Detest". Our first step is to figure out the connection between "Admire" and "Detest".

Admire means to regard with approval, respect, or warm liking. In contrast, **Detest** means to dislike intensely; to loathe or hate.

The relationship between "Admire" and "Detest" is that they are exact opposites. They are known as **antonyms**. One word expresses a positive feeling, while the other expresses a strong negative feeling.

Applying the Antonym Rule to 'Gather'

Now, we need to apply the same relationship – that of antonyms – to the word "Gather". The word **Gather** means to bring together or accumulate people or things from different places.

Our goal is to find the word among the options that means the opposite of bringing things together or accumulating them.

Analyzing the Word Options

Let's examine each alternative to see which one fits as the opposite of "Gather":

- **Accord:** This term refers to agreement or harmony between people or things. It is not the opposite of gathering.
- **Absolve:** This means to free someone from blame, guilt, or responsibility. This meaning is unrelated to the concept of gathering or scattering.
- **Blunt:** This word can describe something that is not sharp, or it can mean to make something less sharp or intense. It does not relate to the act of bringing together or spreading apart.
- **Disperse:** This word means to distribute or spread over a wide area; to scatter. This is the direct opposite of "Gather".

Identifying the Correct Antonym

Based on the definitions, "Disperse" is the antonym of "Gather".

The analogy can be seen as:

Admire (Positive Sentiment) : **Detest** (Negative Sentiment)

Gather (Bring Together) : **Disperse** (Spread Apart)

For example, a crowd might **gather** in a park, and later, the crowd will **disperse**.

Final Conclusion on the Related Word

Since the relationship in the first pair ("Admire" and "Detest") is one of antonyms, we must find the antonym for "Gather" among the options. "Disperse" is the word that means to scatter or spread out, making it the opposite of "Gather".

Thus, the related word is **Disperse**.

75. Answer: a

Explanation:

Identifying the Odd Word Out: Time, Kelvin, Second, Ampere

This question asks us to find the word that is different from the others among 'Time', 'Kelvin', 'Second', and 'Ampere'. We need to figure out the common characteristic shared by three of the words and identify the one that doesn't fit this pattern.

Understanding the Measurement Concepts

Let's examine each word to understand its meaning and category:

- **Time**: This refers to the ongoing sequence of existence and events that occurs in an irreversible succession from the past, through the present, into the future. It's a fundamental quantity or concept that we measure.
- **Kelvin**: This is the base unit of thermodynamic temperature measurement in the International System of Units (SI). Its symbol is ' K '.
- **Second**: This is the base unit of time measurement in the SI system. It's a unit used to quantify duration. Its symbol is ' s '.
- **Ampere**: This is the SI base unit of electric current. Its symbol is ' A '.

Analyzing the Words Based on Units and Quantities

We can group the words based on whether they represent a fundamental quantity or a unit of measurement:

- **Kelvin** is a unit (of temperature).
- **Second** is a unit (of time).
- **Ampere** is a unit (of electric current).

All three – Kelvin, Second, and Ampere – are specific units used to measure physical quantities (temperature, time, and current, respectively). They are all SI base units.

Time, on the other hand, is the fundamental quantity that the 'Second' unit measures. While 'Second' is a unit, 'Time' is the concept itself.

Determining the Different Word

The common characteristic among 'Kelvin', 'Second', and 'Ampere' is that they are all **units of measurement** within the SI system.

'**Time**' is the odd one out because it is a fundamental **quantity** or concept, not a unit used for measurement.

Therefore, 'Time' is the word that does not belong with the others.

76. Answer: d

Explanation:

The logic followed here is:

All options except "**Salmon**" are amphibians, while "**Salmon**" is a fish.

Animal	Class
Frog	Amphibians
Salamander	Amphibians
Toad	Amphibians
Salmon	It is a type of Fish. Class – Salmonidae

Hence, the correct answer is "**Salmon**".

77. Answer: a

Explanation:

We have to check each figure.

Figure A:



Here, the number of sides is equal to the number of lines present outside the figure, only two lines are inside the figure.

Figure B:



Here, the number of sides is equal to the number of lines present outside the figure, only two lines are inside the figure.

Figure C:



Here, the number of sides is equal to the number of lines present outside the figure and **three lines are inside the figure.**

Figure D:



Here, the number of sides is equal to the number of lines present outside the figure, only two lines are inside the figure.

Hence, the correct answer is "Figure (C)".

78. Answer: b

Explanation:

On observing the given figure carefully, we get:

Figure A:



Here, the number of arrows is equal to the number of sides of the figure.

Figure B:



Here, the number of arrows is not equal to the number of sides of the figure.

Figure C:



Here, the number of arrows is equal to the number of sides of the figure.

Figure D:



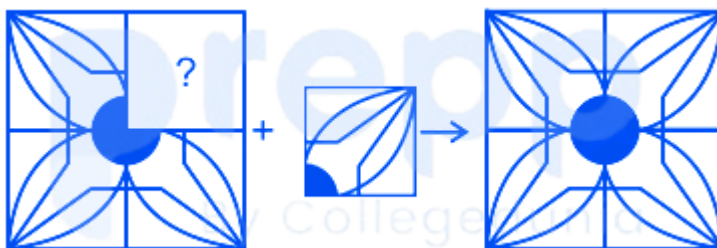
Here, the number of arrows is equal to the number of sides of the figure.

Hence, the correct answer is "Figure (B)".

79. Answer: a

Explanation:

The figure which will complete the pattern of question figure:

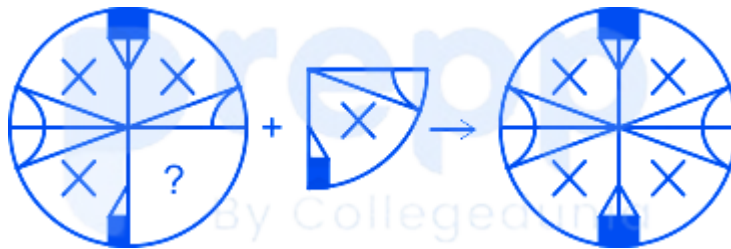


Hence, the correct answer is "option (1)".

80. Answer: b

Explanation:

The figure which will complete the pattern of question figure is given below:

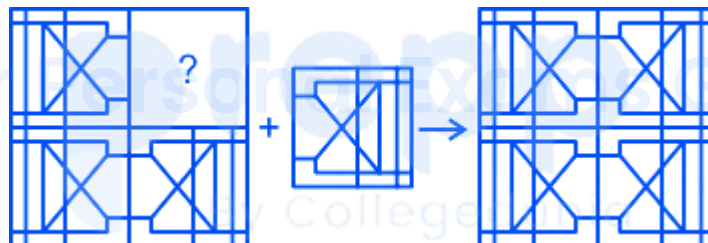


Hence, the correct answer is "Option (2)".

81. Answer: b

Explanation:

The figure which will complete the pattern of the question figure is given below:

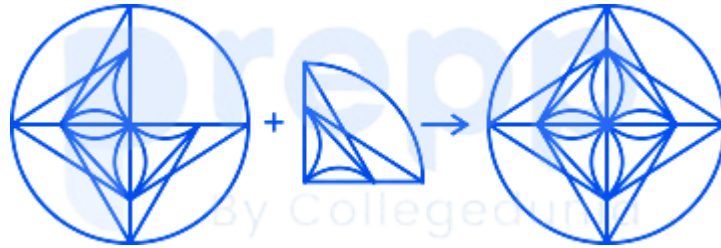


Hence, the correct answer is "Option (2)".

82. Answer: a

Explanation:

The figure which will complete the pattern of the question figure is given below:

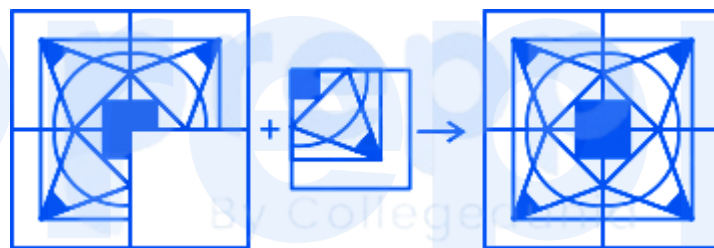


Hence, the correct answer is "Option (1)".

83. Answer: d

Explanation:

The figure which will complete the pattern in the question figure is given below:

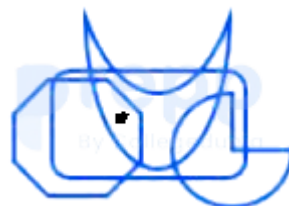


Hence, the correct answer is "Option (4)".

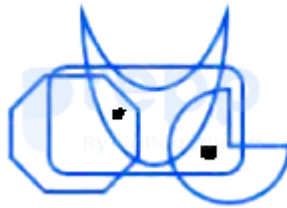
84. Answer: d

Explanation:

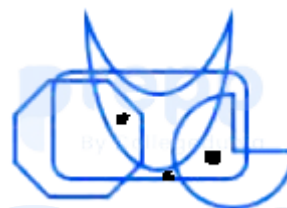
In the question figure, one of the dot lies in the common region of octagon, moon and curved rectangle.



The second dot lies in the common region of partial circle and curved rectangle only.



The third dot lies in the region of curved rectangle only.



Only **Figure (D)** of these types of region.

In **Figure (A) and (B)** the common region of circle and curved rectangle only is not available.

In **Figure (C)** the common region of octagon, moon and curved rectangle only is not available.

Hence, the correct answer is "Option 4".

85. Answer: c

Explanation:

In question figure, one of the dots lies in the common region of parallelogram, heart and arrow only



The second dot lies in the common region of star and arrow only.



The third dot lies in the region of heart only.



Only figure (C) consists of these types of regions.

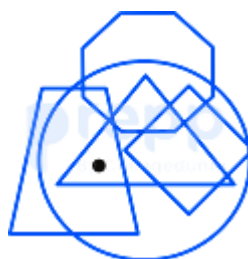


Hence, "C" is the correct answer.

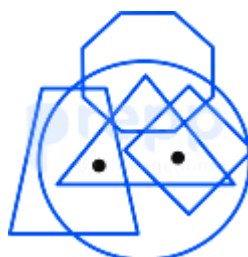
86. Answer: b

Explanation:

In the question figure, one dot lies in the common region of Diamond, Circle and Triangle



The second dot lies in the common region of Trapezium, Circle and Triangle.



The third dot lies in the region of Octagon only.



Only Figure (B) consist of these types of regions.

In figure (A) and (D), the region of octagon only is not available.

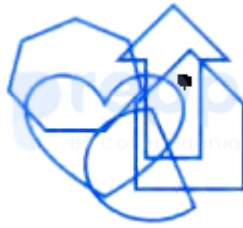
In figure (C), a common region of diamond, circle and triangle only is not available.

Hence, the correct answer is "Option B".

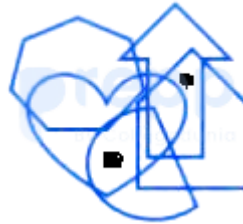
87. Answer: a

Explanation:

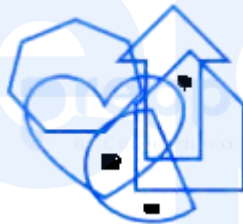
In the question figure, one of the dot lies in the region of arrow and pentagon only.



The second dot lies in the region of semicircle and heart only.



The Third dot lies in the region of semicircle.



Only **Figure (A)** consists of these types of region:

In **Figure (B)**, the region of semicircle only is not available.

In **Figure (C)**, the common region of arrow and pentagon is not available.

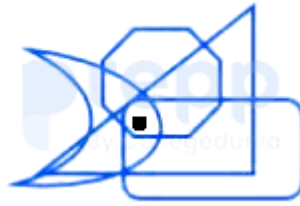
In **Figure (D)**, the common region of semicircle and heart only is not available.

Hence, the correct answer is "**Option 1**".

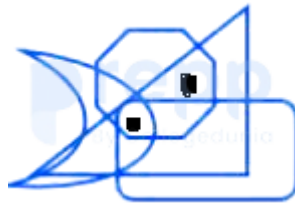
88. Answer: d

Explanation:

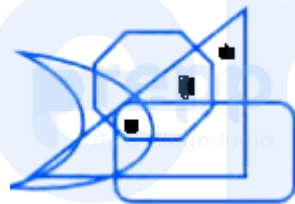
In the question figure, one of dot lies in the common region of all figures.



The second dot lies in the common region of the octagon and triangle only.



The third dot lies in the common region of the triangle only.



Only **Figure (D)** consists these types of region.



In Figure (A), the region of triangle only is not available.

In Figure (B), the common region of all the four figures is not available.

In Figure (C), the common region of octagon and triangle only is not available.

Hence, the correct answer is **"Option 4"**.

89. Answer: d

Explanation:

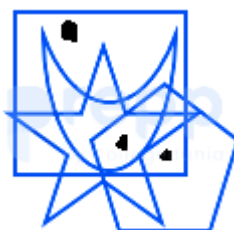
In question figure, one of the dots lies in the common region of pentagon and square only,



The second dot lies in the region of square only.



and the third dot lies in the common region of all the four figures.



Only figure (D) consists of these types of regions.



Hence, "D" is the correct answer.

90. Answer: a

Explanation:

The question figure is embedded in,

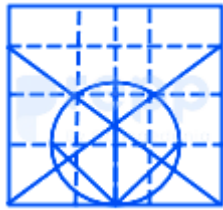
No.	Option	Question	Answer
1.			Embedded
2.			Not Embedded
3.			Not Embedded
4.			Not Embedded

Hence, the correct answer is "option (1)".

91. Answer: d

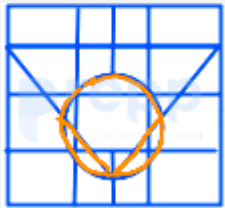
Explanation:

The embedded part of this image is:



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No.	Option	Question	Answer
1.			Not Embedded
2.			Not Embedded
3.			Not Embedded
4.			Embedded

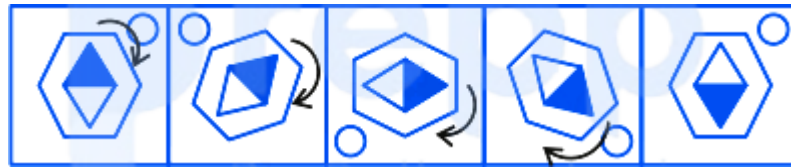
Hence, the correct answer is "Option (4)".

92. Answer: c

Explanation:

The pattern followed here is as follows:

1) The hexagon along with the figure inside is rotating by 45° in the clockwise direction in each step.



2) The circle outside is shifting its position in the anticlockwise direction in each step.



The image which will come next in the series is:



Hence, option 3 is the correct answer.

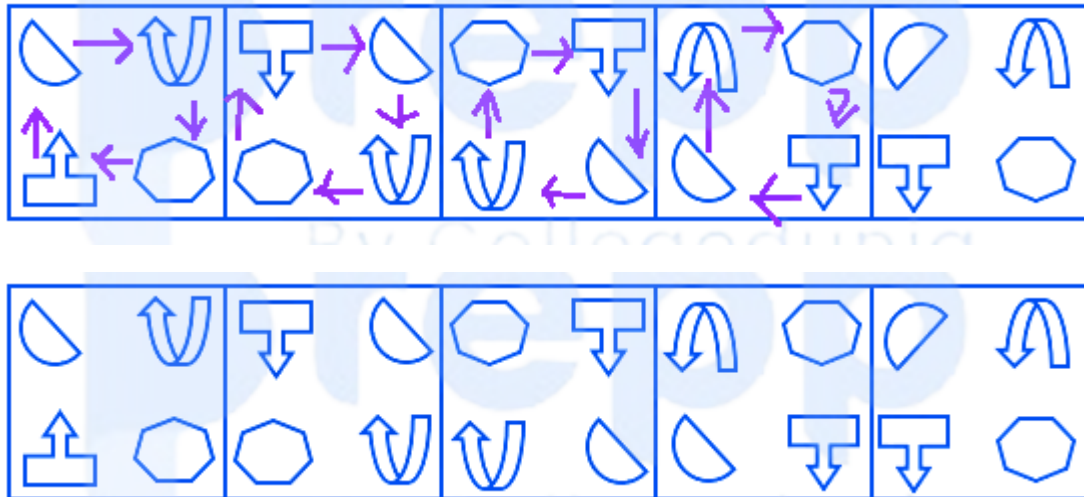
93. Answer: b

Explanation:

The pattern followed here is as follows:

In each step, all the elements move to the adjacent corners in a **clockwise direction** and the element that reaches the **top left corner** gets **vertically inverted**.

The image which will come next in the series is:



Hence, **option 2** is the correct answer.

94. **Answer: d**

Explanation:

The pattern followed here is as follows:

- 1) The number of arcs is increasing by 2, +3 in each row starting from the second row on the left side.
- 2) Once the left side is completed, the arc is added to the right side starting from the bottom.

The image which will come next in the series is:



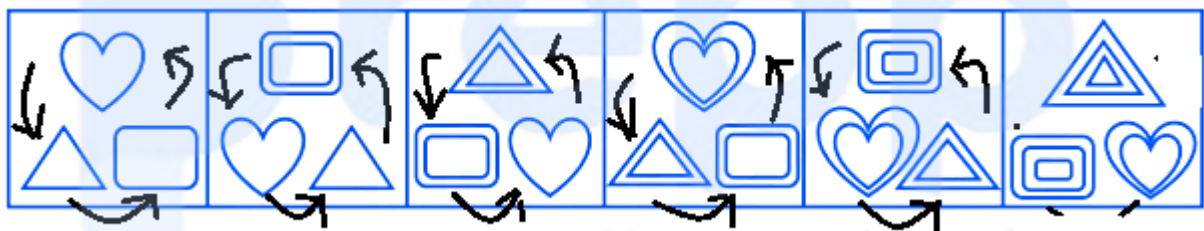
Hence, **option 4** is the correct answer.

95. Answer: c

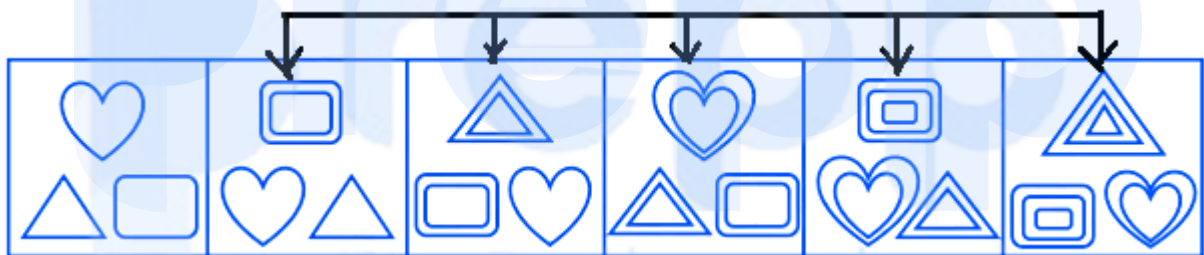
Explanation:

The pattern followed here is as follows:

1) All the elements are shifting their position in the **anticlockwise direction**.



2) In each step, the figure at the top is enclosed by another similar figure.



The image which will come next in the series is:



Hence, **option 3** is the correct answer.

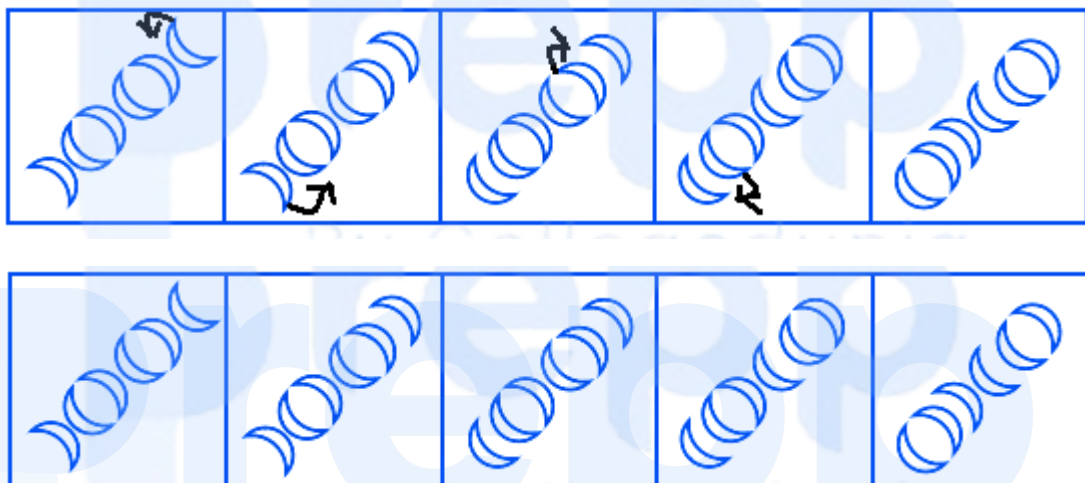
96. Answer: a

Explanation:

The pattern followed here is as follows:

The moon symbol at the upper right corner and the lower-left corner gets inverted one by one alternately starting from the top moving downward.

The image which will come next in the series is:



Hence, option 1 is the correct answer.

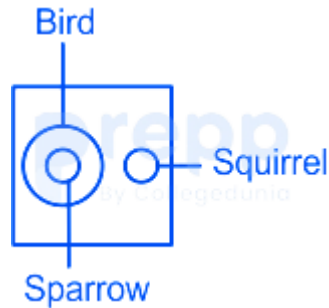
97. Answer: b

Explanation:

Relation:

- **Sparrow:** A sparrow is a small brown bird. So, All Sparrows are birds.
- **Squirrel:** an agile tree-dwelling rodent with a bushy tail, typically feeding on nuts and seeds. So, squirrel is not related to bird.

Therefore, the following Venn diagram describe the best relationship among the following:



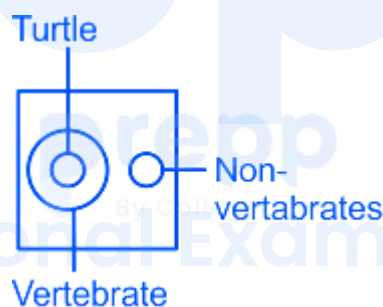
Hence, **option 2** is the correct answer.

98. Answer: b

Explanation:

Turtles are vertebrate and Non - vertebrates are not related to turtle and vertebrate.

Therefore, the following Venn diagram represent best relationship among the following:



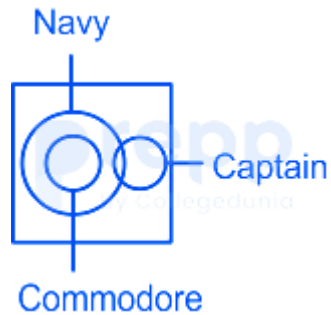
Hence, the **option 2** is the correct answer.

99. Answer: c

Explanation:

Commodore is a senior naval rank in navy and any naval officer who commands a ship is addressed by naval as captain.

Thus, the following Venn diagram best describe the relationship:



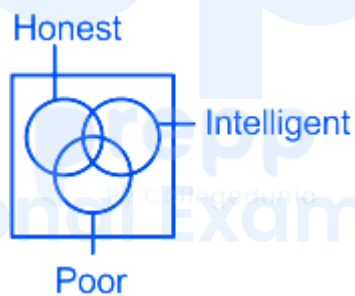
Hence, the **option 3** is the correct answer.

100. **Answer: a**

Explanation:

Some honest persons may be poor as well as intelligent and some poor may be intelligent.

Thus, the following Venn diagram best describe the following relationship:



Hence, **option 1** is the correct answer.