

Answers

1. Answer: c

Explanation:

Understanding Subject-Verb Agreement

This question tests the understanding of subject-verb agreement, a fundamental rule in English grammar. The verb in a sentence must agree in number (singular or plural) with its subject.

- **Subject:** The noun or pronoun that performs the action or is described.
- **Verb:** The word that expresses the action or state of being.
- **Agreement:** A singular subject requires a singular verb, and a plural subject requires a plural verb.

Analyzing the Sentence Structure

Let's break down the sentence provided:

"The pair of diamond earrings, which you bought me yesterday, are expensive."

We need to identify the main subject and ensure the verb agrees with it.

- **Part (A):** "The pair of diamond earrings" - This part introduces the subject phrase.
- **Part (B):** "which you bought me yesterday" - This is a relative clause providing extra information about the earrings. It does not affect the main subject-verb agreement.
- **Part (C):** "are expensive" - This contains the verb "are" and the complement "expensive".
- **Part (D):** "No error"

Identifying the Grammatical Error

The key is to find the true subject of the sentence. In the phrase "The pair of diamond earrings":

- The main noun is "pair".
- "pair" is a singular noun, even though it refers to something consisting of two items (earrings).
- The phrase "of diamond earrings" is a prepositional phrase that modifies "pair". It tells us what kind of pair it is.
- The verb must agree with the main subject, "pair".

In Part (C), the verb used is "are", which is a plural verb. Since the subject "pair" is singular, the verb should also be singular.

The correct singular verb form is "is".

Correcting the Sentence

To correct the error, we replace the plural verb "are" with the singular verb "is".

The corrected sentence is: *"The pair of diamond earrings, which you bought me yesterday, **is** expensive."*

Therefore, the error lies in Part (C) of the sentence because the verb does not agree with the singular subject "pair".

The incorrect verb "are" is found in Part (C).

2. Answer: b

Explanation:

Error Identification: Incorrect Use of 'Staffs'

This question requires identifying a grammatical error in the provided sentence. We need to examine each part (A, B, C) to find the mistake.

Part (A) Analysis

"The World Health Organization (WHO) declared"

This part of the sentence is grammatically correct. It correctly identifies the subject (The World Health Organization (WHO)) and the verb (declared).

Part (B) Analysis

"India officially polio-free in 2014 after some 2.3 million medical **staffs**"

This part contains the error. The word used is "**staffs**". In English, the word "**staff**" refers to a group of people who work for an organization. It functions as a collective noun.

- Generally, "**staff**" is used as an uncountable noun, and its plural form is also "**staff**".
- Example: "The company has a large **staff**." (referring to the employees collectively)
- Example: "All the **staff** were praised for their hard work." (Here, 'staff' is treated as plural)
- The form "**staffs**" is not standard in modern English and is considered incorrect. It might be seen in older texts or specific contexts referring to multiple distinct groups of staff, but typically "**staff**" is the correct form.

Therefore, the phrase should be "2.3 million medical **staff**", not "2.3 million medical **staffs**".

Part (C) Analysis

"and 155,000 supervisors treated 172 million children."

This part of the sentence is grammatically correct. It correctly states the number of supervisors and the action they performed.

Part (D) Analysis

"No error"

Since an error was identified in part (B), this option is incorrect.

Conclusion

The error in the sentence is the use of the word **"staffs"** in part (B). The correct term should be **"staff"**.

The corrected sentence would read: "The World Health Organization (WHO) declared India officially polio-free in 2014 after some 2.3 million medical **staff** and 155,000 supervisors treated 172 million children."

Therefore, the incorrect part is (B).

3. Answer: b

Explanation:

Identifying Grammatical Error in India's Vaccination Program Sentence

This question requires us to find the grammatical mistake in the provided sentence, which is divided into four parts. We need to check each part for correctness, focusing on grammar rules like subject-verb agreement.

The sentence is:

India's vast COVID-19 vaccination program offer an example to even the rich nations.

Let's break down the sentence into its labeled parts:

- (A) India's vast COVID-19 vaccination program
- (B) offer
- (C) an example to even the rich nations.
- (D) No error

Analyzing Subject-Verb Agreement in the Sentence

The most common type of error tested in such questions is subject-verb agreement. This rule states that a singular subject must take a singular verb, and a plural subject must take a plural verb.

First, let's identify the subject of the sentence.

- The subject is "India's vast COVID-19 vaccination program".
- The main noun, or the core subject, is "program".
- "program" is a singular noun.

Next, let's identify the verb used.

- The verb used is "offer".
- "offer" is a plural verb form in the present tense (e.g., "They offer help").

We need to see if the verb "offer" correctly matches the singular subject "program".

Determining the Correct Verb Form

Since the subject "program" is singular, it requires a singular verb form. In the simple present tense, the singular form of the verb "offer" is "offers".

For example:

- Correct: The program **offers** a solution.
- Incorrect: The program **offer** a solution.

Applying this to the sentence:

- The subject "India's vast COVID-19 vaccination program" is singular.
- The verb should be the singular form "offers".
- The sentence uses the plural form "offer".

Therefore, the verb "offer" in part (B) does not agree with the singular subject "program".

Locating the Error in Part B

Based on the analysis of subject-verb agreement:

- Part (A) correctly identifies the singular subject.
- Part (B) uses the incorrect plural verb "offer" instead of the required singular verb "offers".
- Part (C) correctly states the consequence or outcome.

The error lies in part (B) of the sentence due to incorrect subject-verb agreement.

4. Answer: a

Explanation:

Preposition Usage: Determining Milk's Location in the Fridge

This question asks us to select the most appropriate preposition to correctly complete the sentence: "There is some milk _____ the fridge." We need to understand how prepositions indicate location, especially concerning containers or enclosed spaces like a fridge.

Understanding Common Prepositions of Place

Prepositions help us understand the relationship between a noun (like 'milk') and other words in a sentence, often showing location or direction. Let's look at the meaning of the options provided:

- **'in':** This preposition is used to show that something is located within an enclosed space or a container. Think of things inside a box, a room, or, in this case, a fridge.
- **'on':** This is used when something is on a surface, like a book **on** the table or a picture **on** the wall.
- **'to':** This preposition usually indicates direction or movement towards a place or person. For example, "He went **to** the store."

- **'from'**: This preposition indicates the origin or starting point of something. For example, "The package came **from** London."

Analyzing the Sentence Context

The sentence "There is some milk _____ the fridge" describes the location of the milk. A **fridge** is a common household appliance that functions as an enclosed space designed to keep food items, like milk, cool inside it.

We need a preposition that fits the idea of the milk being contained **inside** the fridge.

Evaluating the Options for the Blank

Let's test each option:

- **'in'**: "There is some milk **in** the fridge." This fits perfectly, as milk is typically stored inside the enclosed space of the fridge.
- **'on'**: "There is some milk **on** the fridge." This would mean the milk is sitting on the outer surface of the fridge, which is not the usual way milk is kept.
- **'to'**: "There is some milk **to** the fridge." This doesn't make sense grammatically or contextually for describing where the milk currently is. It might imply movement, but the sentence is about location.
- **'from'**: "There is some milk **from** the fridge." This suggests the milk originated at the fridge, perhaps indicating it was just taken out, but the sentence structure implies it's currently located there. The most direct meaning is being inside.

Conclusion on the Correct Preposition

Based on the standard use of prepositions to describe location within enclosed spaces, the word **'in'** is the most suitable choice. It accurately conveys that the milk is situated inside the fridge.

5. Answer: b

Explanation:

Choosing the Correct Preposition for Instruments

The task is to find the most suitable word to fill in the blank in the sentence: "She drew the picture _____ a crayon." This requires understanding how prepositions connect actions with the tools used.

Understanding Preposition Usage: Linking Actions and Tools

Prepositions help establish relationships between words in a sentence. In this context, we need a preposition that specifies the tool or instrument employed for the action of drawing. Let's look at the role of prepositions when indicating the means or instrument:

- The sentence structure points to a relationship between the verb phrase "drew the picture" and the noun "a crayon".
- The noun "a crayon" represents the instrument used to perform the action.
- The word needed in the blank must signify the use of this instrument.

Step-by-Step Analysis of Options

We will evaluate each option to determine its grammatical correctness and suitability in the given sentence:

- **'to':** This preposition typically indicates direction, movement towards something, or purpose. Examples include "go *to* the park" or "useful *to* students". It is not used to denote the instrument of an action.
- **'with':** This preposition is frequently used to indicate the instrument, tool, or material used to perform an action. For instance, "He wrote *with* a pen," or "She painted the wall *with* blue paint." Since a crayon is the instrument used to draw the picture, 'with' fits perfectly here.
- **'From':** This preposition usually signifies origin, source, or separation. Examples are "a gift *from* Paris" or "take away *from* the total." It does not indicate the tool used.

- **'for':** This preposition commonly expresses purpose, benefit, or duration. Examples include "running *for* exercise" or "a present *for* Mom." It doesn't specify the instrument used in performing the action.

Based on the analysis, 'with' is the only preposition that correctly expresses the relationship between the action (drawing) and the instrument (crayon).

The completed sentence reads: "She drew the picture **with** a crayon."

6. Answer: a

Explanation:

Understanding Phrasal Verbs: Filling in the Blank

This question requires us to identify the correct prepositional phrase to complete the sentence: "She is looking _____ to visiting Paris." The task involves understanding common English phrasal verbs related to the verb 'look' and choosing the one that fits the context of eager anticipation.

Analyzing the Phrasal Verb 'Look'

The verb 'look' combined with different prepositions forms various phrasal verbs, each with a distinct meaning. We need the phrasal verb that expresses excitement or pleasure about a future event, such as visiting Paris.

Evaluating the Options

- **forward:** The phrasal verb *look forward to* means to anticipate an event with pleasure. It is commonly used to express excitement about something that is going to happen. The structure is typically 'look forward to + noun' or 'look forward to + gerund (verb-ing)'. In this sentence, "She is looking forward to visiting Paris," it correctly conveys her excitement about the trip.

- **after:** The phrasal verb *look after* means to take care of someone or something. For example, "Please look after my cat." This meaning does not fit the context of anticipating a visit.
- **over:** The phrasal verb *look over* means to examine something quickly or to review it. For example, "Could you look over this report?" This meaning is not relevant to anticipating a visit.
- **ahead:** The phrasal verb *look ahead* means to think about or plan for the future. While visiting Paris is in the future, "look ahead" doesn't specifically convey the sense of eager anticipation that the sentence implies. The idiom "look forward to" is the precise fit.

Conclusion on Correct Usage

Based on the meanings of the phrasal verbs, "looking forward to" is the correct choice. It accurately expresses the subject's positive anticipation and excitement about visiting Paris. The completed sentence is: "She is looking forward to visiting Paris."

7. Answer: b

Explanation:

Choosing the Correct Preposition for Describing Features

The task is to select the most appropriate preposition to complete the sentence describing Professor Ram. The sentence is: "Professor Ram is an old brown-haired man _____ a beard." We need a preposition that correctly shows the relationship between the man and his beard, specifically indicating possession of this feature.

Understanding Preposition Usage

Prepositions are words that link nouns, pronouns, and phrases to other words in a sentence, often indicating relationships like time, place, direction, or possession. In

this case, we need a preposition to show that the man has a beard as part of his description.

Evaluating the Preposition Options

Let's look at each option provided:

- **Option 1: on**

The preposition 'on' usually indicates a position upon a surface (e.g., "The cat is **on** the mat") or a state (e.g., "The light is **on**"). It does not fit the context of describing someone having a physical feature like a beard.

- **Option 2: with**

The preposition '**with**' is frequently used to denote possession, accompaniment, or the presence of a particular characteristic or attribute. Examples include "a man **with** a hat" or "a house **with** a garden". This preposition correctly conveys that Professor Ram possesses a beard.

- **Option 3: to**

The preposition 'to' typically indicates direction, destination, or purpose (e.g., "She went **to** the library"). It is not used to describe a characteristic or feature someone possesses.

- **Option 4: in**

The preposition 'in' generally refers to being inside something (e.g., "He is **in** the room") or a period of time (e.g., "**in** the summer"). It is not suitable for indicating that someone has a beard.

Finalizing the Sentence

Based on the analysis, the preposition '**with**' is the correct choice because it effectively communicates that the man has a beard as one of his distinguishing features. The completed sentence accurately describes Professor Ram:

Professor Ram is an old brown-haired man **with** a beard.

8. Answer: b

Explanation:

This question asks us to identify the correct verb form associated with the noun 'Song'. Let's break down the meaning of nouns and verbs and analyze the options provided.

Understanding Nouns and Verbs

In English grammar, a **noun** typically represents a person, place, thing, or idea. For example, 'house', 'teacher', and 'happiness' are nouns.

A **verb**, on the other hand, represents an action, occurrence, or state of being. Examples include 'run', 'think', and 'is'.

Sometimes, a word's primary form might be a noun, but it has a related verb form that describes the action associated with that noun.

Analyzing the Noun 'Song'

The word 'Song' is a **noun**. It refers to a short piece of music, typically with words, intended to be sung.

We need to find the word among the options that describes the action of performing or creating a song.

Evaluating the Options

Let's look at each option:

- **dance**: This is a verb, meaning to move rhythmically to music. While dancing often accompanies songs, it is not the action of performing the song itself.
- **sing**: This is a verb that means to make musical sounds with the voice, especially words with a set tune. This is the primary action associated with a song.
- **voice**: This is primarily a noun, referring to the sounds produced by the vocal cords, or the faculty of singing or speaking. It can sometimes be used as a verb, meaning to utter or give expression to, but 'sing' is more specific to songs.

- **vocalize:** This is a verb meaning to express in or convert into words, or to utter sounds. While related to using the voice, 'sing' is the specific term for performing a song.

Identifying the Correct Verb Form

Comparing the options, the action most directly related to the noun 'Song' is the act of performing it with the voice. The word that fits this description is 'sing'.

Therefore, the verb form of 'Song' is 'sing'.

9. Answer: a

Explanation:

This question asks to identify the correct adjective form of the noun 'Courage'. Let's break down the options.

Understanding 'Courage' and Adjectives

'Courage' is a noun, meaning the ability to do something that frightens one or to face danger, pain, or difficulty without fear.

An adjective is a word that describes or modifies a noun or pronoun. We are looking for a word that describes someone possessing the quality of 'Courage'.

Analyzing the Options for the Adjective of 'Courage'

- **Option 1: *Courageous***
'Courageous' is the adjective form derived directly from the noun 'Courage'. It means possessing or showing courage. For example: "The firefighter was **Courageous**." This correctly uses the adjective form.
- **Option 2: *Brave***
'Brave' is also an adjective and a very close synonym for 'courageous'. It means ready to face and confront danger or pain. However, 'Brave' is not the direct

grammatical derivative or form of the noun '**Courage**'. While it describes a similar quality, it's a different word stemming from a different root ('brave' itself can be a noun or adjective).

- **Option 3: *Fear***

'**Fear**' is a noun. It represents an unpleasant emotion caused by the belief that someone or something is dangerous, likely to cause pain, or a threat. It is the opposite of '**Courage**' and is not an adjective.

- **Option 4: *Both 1 and 2***

This option suggests that both '**Courageous**' and '**Brave**' are the correct adjective forms derived from '**Courage**'. While '**Brave**' is an adjective with a similar meaning, it is not the specific grammatical form derived from '**Courage**'. Therefore, this option is not the most appropriate choice when asked for the adjective *form* of '**Courage**'.

Conclusion on the Adjective Form

Based on the analysis, '**Courageous**' is the specific adjective form derived from the noun '**Courage**'. While '**Brave**' is a synonym and also an adjective, it doesn't fit the requirement of being the adjective *form* of '**Courage**'. Therefore, '**Courageous**' is the most accurate answer.

10. Answer: d

Explanation:

Identifying the Correct Word for Blank (3) in the Passage about Indira Gandhi

The question asks us to find the most appropriate word to fill in the blank labelled (3) in the provided passage about Indira Gandhi. The passage mentions her rise to power and her efforts to prove herself as a strong leader.

Context Analysis for Blank (3)

Let's examine the specific sentence containing the blank: "Thus, she overcame all the _____ (3) _____ and proved herself to be the strongest prime minister of India." The key phrase here is "overcame all the...". This implies that Indira Gandhi faced obstacles or difficulties that she successfully dealt with to establish her position as a strong prime minister.

Evaluating the Options for Blank (3)

We need to choose the word from the options that best fits this context of overcoming challenges:

- **peace:** The phrase "overcame peace" does not make logical sense in this context. Overcoming usually refers to defeating or getting past difficulties, not peace itself.
- **aid:** Similarly, "overcame aid" is not a standard or logical expression. Aid is help or assistance; one might receive or seek aid, but not overcome it in the sense of defeating an obstacle.
- **opportunities:** While leaders often leverage opportunities, the verb "overcame" does not typically apply to opportunities. One usually seizes or capitalizes on opportunities, rather than overcoming them.
- **hurdles:** "Hurdles" are obstacles, difficulties, or barriers. The phrase "overcame all the hurdles" means she successfully navigated and conquered all the challenges she faced. This aligns perfectly with the idea of proving herself as the strongest prime minister, suggesting she surmounted significant difficulties.

Conclusion for Blank (3)

Based on the analysis, the word **hurdles** is the most fitting choice for blank (3) because it accurately reflects the act of overcoming difficulties and challenges, which is essential for proving oneself as a strong leader, especially in the political arena described in the passage.

Therefore, the completed sentence reads: "Thus, she overcame all the **hurdles** and proved herself to be the strongest prime minister of India."

11. Answer: a

Explanation:

Understanding Indira Gandhi's Leadership Establishment

The question asks us to find the most appropriate word to fill in the blank labelled (2) in the provided passage about Indira Gandhi. The passage states: "Also, she established her _____ (2) _____ and became the strongest prime as well as president of the Congress party." We need to select the word that best fits this context, describing how she solidified her position and influence within the party.

Analyzing the Context for Blank (2)

The sentence describes Indira Gandhi's actions after becoming prime minister. It highlights that she not only assumed the role but also actively established something significant about herself, leading to her becoming the strongest figure and president of the Congress party. This implies she proved her capability, value, or strength.

Evaluating the Options for Blank (2)

Let's examine each option to see which one fits the context:

- **worth:** This word means the importance or usefulness of something, or the amount of money it can be sold for. In the context of leadership, "established her worth" means she proved her value and capability as a leader. This aligns well with becoming the strongest leader and president of the Congress party.
- **money:** This refers to currency or wealth. Establishing "money" in this context doesn't make sense. Leaders establish influence and power, not simply money, in this manner.
- **glimpse:** This means a momentary or partial view. "Established her glimpse" is grammatically incorrect and semantically meaningless in this political context.
- **defeat:** This means the failure to win or achieve success. Establishing "defeat" would mean she proved she was unsuccessful, which contradicts the statement

that she became the strongest leader.

Selecting the Most Appropriate Word

Based on the analysis, the phrase "established her **worth**" accurately conveys that Indira Gandhi proved her capabilities and value, thereby consolidating her position as the strongest leader and president of the Congress party. The other options do not fit the context or the intended meaning.

12. Answer: a

Explanation:

Understanding Indira Gandhi's Prime Ministership and Blank (1)

The question asks us to identify the most suitable word to fill in the first blank (labelled 1) in the provided passage about Indira Gandhi. The sentence in focus is: "After Lal Bahadur Shastri _____ (1) _____, Indira Gandhi became the prime minister of India." We need to consider the grammatical structure and the context provided by the passage.

Analyzing Sentence Structure for Blank (1)

The sentence structure "After [Subject] _____ (1) _____" requires a verb in the past tense to indicate the event that happened to Lal Bahadur Shastri, which then led to Indira Gandhi becoming the prime minister. Let's examine the options:

Evaluating Options for Blank (1)

Option	Word	Grammatical Role	Fit in Sentence
1	died	Past Tense Verb	"After Lal Bahadur Shastri died ..." – Grammatically correct and contextually fits the sequence of events. The passage mentions his "untimely death".
2	death	Noun	"After Lal Bahadur Shastri death ..." – Grammatically incorrect. Requires a possessive ('s) or a different structure like "After the death of Lal Bahadur Shastri".
3	dying	Present Participle (Verb ending in -ing)	"After Lal Bahadur Shastri dying ..." – Grammatically incorrect in this context. It implies an ongoing action, which doesn't fit the sequential event described.
4	born	Past Participle of 'bear' (used passively)	"After Lal Bahadur Shastri born ..." – Grammatically incorrect and contextually irrelevant.

Contextual Clues from the Passage

The passage provides a crucial clue later on: "After the untimely **death** of then prime minister Lal Bahadur Shastri, Indira Gandhi became the prime minister of India in 1966." This confirms that the event related to Lal Bahadur Shastri was his death, and the sentence requires the past tense verb form to describe this event happening to him.

Conclusion for Blank (1)

Based on the grammatical requirements of the sentence and the contextual information within the passage, the word 'died' is the most appropriate choice for blank (1). It correctly indicates the past event concerning Lal Bahadur Shastri that preceded Indira Gandhi's appointment as prime minister.

13. Answer: a

Explanation:

Defining 'Trilogy' for Three Connected Works of Art

The task is to find the best single word that describes "A set of three works of art that are connected and can be seen either as a single work or as three individual works." This involves understanding the meaning of the phrase and matching it to the correct vocabulary word.

Exploring Word Choices

Let's analyze the provided options to determine the most suitable one-word substitution:

- **Trilogy:** This word comes from Greek roots meaning 'three' (tri-) and 'work' (-logy). It specifically defines a group of three related pieces of work, such as books, films, or plays, that share a common element like plot or characters. They can be enjoyed separately or as a complete sequence, fitting the question's description precisely.
- **Analogy:** An analogy is a figure of speech involving the comparison of one thing with another thing, used to make a description more emphatic or clearer. It's about comparison, not a set of three works.
- **Chronology:** This term refers to the arrangement of events or dates in the order of their occurrence. It deals with time sequencing and has no connection to artistic works grouped in threes.
- **Anthropology:** This is the study of human societies and cultures and their development. It's an academic discipline and unrelated to the definition required.

Identifying the Correct Substitution

Comparing the definitions with the required phrase:

- The phrase describes a collection specifically of **three** related artistic items.
- **Trilogy** is the exact term used for such a grouping.
- The other options (analogy, chronology, anthropology) represent entirely different concepts.

Therefore, **trilogy** is the most accurate one-word substitution for the given description of a set of three connected works of art.

14. Answer: c

Explanation:

Understanding the Term for Limb Removal

The question asks for a single, precise word to describe a person whose limb has been surgically removed. We need to evaluate the given options to find the most accurate term for this specific situation.

Defining 'Amputee'

The word **Amputee** is defined as a person who has had a limb removed, either through surgery or trauma. This term directly and accurately describes someone who has had a limb removed surgically, fitting the definition provided in the question perfectly.

Analyzing Other Options

Let's look at why the other options are not the best fit:

- **Handicapped:** This word describes a person with a physical or mental condition that limits their activities or participation. While someone who has lost a limb might face challenges, 'handicapped' is a general term and often considered less sensitive. It does not specifically refer to the surgical removal of a limb.

- **Mutilator:** This term refers to a person who intentionally causes severe injury or disfigurement to another being. It describes the person *performing* the act of causing harm, not the person who has experienced the limb removal.
- **Differently-abled:** This is a more respectful and modern term used to describe people with disabilities. It focuses on abilities rather than limitations. While an **Amputee** could be considered differently-abled, this term is broader and doesn't specifically address the context of surgical limb removal.

Conclusion: Selecting the Correct Word

Based on the definitions, **Amputee** is the most specific and correct single word for someone who has had a limb removed surgically. It precisely captures the situation described in the sentence.

15. Answer: a

Explanation:

Understanding the Idiom: 'To Turn Over a New Leaf'

The phrase 'to turn over a new leaf' is an idiom used to describe a moment when someone decides to start behaving in a better or more positive way. It signifies a fresh start, moving away from past mistakes or bad habits and embracing a new, improved approach to life or conduct.

Analyzing the Options for Idiom Meaning

Let's examine each option to find the one that best matches the meaning of 'to turn over a new leaf':

- **Option 1: To change your behaviour in a positive way**

This option aligns perfectly with the idiom. Changing one's behavior for the better, like quitting a bad habit or adopting a more responsible attitude, is

precisely what 'turning over a new leaf' means.

- **Option 2: To become famous**

Becoming famous relates to gaining widespread recognition, which is entirely different from the personal behavioral change implied by the idiom.

- **Option 3: To buy new things**

This option refers to acquiring new possessions. It has no connection to the idiom's meaning of personal reform or behavioral adjustment.

- **Option 4: To understand others' problems**

While developing empathy and understanding others' issues is a positive action, the idiom 'turn over a new leaf' specifically focuses on changing one's **own** actions and behavior, not primarily on understanding others, though improved behavior might lead to better relationships.

Determining the Best Fit for the Idiom

The idiom 'to turn over a new leaf' centers on personal improvement and adopting a better way of living or acting. Option 1 clearly expresses this idea of a positive shift in behavior.

Therefore, the most fitting meaning for the idiom 'To turn over a new leaf' is **To change your behaviour in a positive way.**

16. **Answer: a**

Explanation:

Bury the Hatchet Idiom Meaning Explained

The phrase "To bury the hatchet" is an idiom used to describe the act of making peace or ending a quarrel or conflict.

Historically, this expression comes from the practice where Native American tribes would bury their weapons, like hatchets, in the ground as a sign that they were ending hostilities and seeking peace.

Analyzing the Options for 'Bury the Hatchet'

We need to find the option that best captures the meaning of this idiom:

- **Option 1: End hostility** – This means stopping fighting or disagreement. It perfectly matches the idiom's core meaning of making peace.
- **Option 2: To confess** – Confessing involves admitting guilt or wrongdoing, which is different from resolving a dispute.
- **Option 3: Hide stolen goods** – This involves concealing items that were unlawfully taken and has no relation to peace-making.
- **Option 4: To hide evidence** – This means covering up proof or information, which is unrelated to the concept of settling a conflict.

Final Meaning

Therefore, the alternative that best expresses the meaning of the idiom "To bury the hatchet" is **End hostility**.

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17. Answer: b

Explanation:

Understanding the Core Meaning of 'Entice'

This question requires us to **select** the word that best **expresses the meaning** of the given word, 'Entice'. We need to find the closest synonym among the provided **alternatives**.

The word '**Entice**' means to attract or tempt someone by offering them something pleasant, desirable, or advantageous. It suggests drawing someone in, often through persuasion or temptation.

Analyzing the Alternatives for 'Entice'

Let's examine the meaning of each option provided:

- **Beautiful:** This describes someone or something that possesses beauty, pleasing the senses or mind aesthetically. While beauty can sometimes be a factor in attraction, it doesn't fully capture the act of tempting or luring implied by 'entice'.
- **Allure:** This means to attract or charm someone powerfully; to be powerfully attractive or fascinating. This definition closely aligns with the meaning of 'entice', as both words involve attracting or tempting someone, often with a promise of pleasure or benefit.
- **Miracle:** A miracle is an exceptional event or phenomenon that is beyond scientific explanation, often attributed to divine intervention. This meaning is unrelated to attracting or tempting someone.
- **Repel:** This word means to force back, drive away, or cause feelings of disgust or aversion. It is essentially the opposite of 'entice'.

Selecting the Best Expression

Based on the analysis of the meanings:

- 'Beautiful' relates to appearance.
- 'Allure' relates to attracting or tempting powerfully.
- 'Miracle' relates to inexplicable events.
- 'Repel' means to drive away.

Comparing these, '**Allure**' is the word that most accurately and closely represents the meaning of '**Entice**'. Both words signify the act of attracting or tempting someone.

18. Answer: d

Explanation:

Subjugate: Understanding the Core Meaning

This question asks us to find the word that best represents the meaning of **Subjugate** from the given options. It's about finding the closest synonym.

Defining the Term Subjugate

Subjugate means to bring someone or something under control or domination, especially by using force or winning a war. It implies conquering and making others subject to your rule or authority.

Analyzing the Provided Alternatives

We need to look at each option to see which one matches the meaning of **Subjugate**:

- **Liberate**: This word means to set someone free or grant them liberty. It is the opposite of **Subjugate**.
- **Endow**: This term means to give a quality, ability, or property to someone. It has no relation to the meaning of **Subjugate**.
- **Emulate**: This means to try to equal or imitate someone or their achievements, often by copying them. This is different from controlling or conquering.
- **Hegemonize**: This word means to establish dominance or exert control or authority over others, essentially making them subject to one's influence or power. This meaning closely aligns with **Subjugate**.

Identifying the Best Expressing Word

Based on the definitions, **Hegemonize** is the word that most closely matches the meaning of **Subjugate**, as both relate to establishing dominance and control over others.

19. Answer: a

Explanation:

Enrage Synonyms Explained

The question asks us to find the most appropriate **synonym** for the word **Enrage**. A synonym is a word that has a similar meaning to another word. Let's understand the meaning of **Enrage** first.

Meaning of Enrage

To **enrage** someone means to make them extremely angry or furious. It describes a state of intense anger.

Analyzing the Options for a Synonym of Enrage

We need to examine each option to see which one best matches the meaning of **Enrage**:

- Option 1: Anger

Anger is a strong feeling of annoyance, displeasure, or hostility. This is very close to the meaning of **Enrage**, as to **enrage** someone is to cause them to feel **anger**, often intense anger.

- Option 2: Crowd

A **crowd** refers to a large group of people gathered together. This word has no relation to the meaning of feeling angry or making someone angry.

- Option 3: Answer

An **answer** is a reply to a question or statement. This word is unrelated to the concept of anger or enraging someone.

- Option 4: Anxiety

Anxiety is a feeling of worry, nervousness, or unease, typically about an imminent event or something with an uncertain outcome. While people can feel

multiple emotions, **anxiety** is distinct from the intense anger described by **Enrage**.

- Option 5:

This option appears to be empty and provides no word to evaluate.

Identifying the Correct Synonym

Comparing the options with the meaning of **Enrage** (to make extremely angry), **Anger** is the most fitting **synonym**. It directly relates to the emotion caused by being enraged.

Therefore, the most appropriate **synonym** for **Enrage** among the given choices is **Anger**.

20. Answer: a

Explanation:

CULPABLE Antonym: Finding the Opposite Meaning

This question requires identifying the word that means the opposite of **CULPABLE** from the given options.

Meaning of CULPABLE

The word **CULPABLE** means deserving blame or being guilty of doing something wrong. It signifies responsibility for a fault or wrongdoing. If a person or action is described as culpable, it implies they are at fault.

Analyzing the Given Options

We need to assess each option to find the best fit as an antonym:

- **innocent**: This term means free from guilt or wrongdoing. It signifies being not responsible for a crime or mistake. This is a direct opposite to being culpable.
- **offensive**: This word describes something that is unpleasant, insulting, or causes displeasure or anger. It relates to causing offense, not to guilt or blame.
- **disagreeable**: This means unpleasant, unlikeable, or unfriendly. It describes a personality trait or a situation, not the state of being guilty or blameless.
- **reserved**: This describes someone who is shy, restrained, or keeps their thoughts and feelings private. It has no relation to guilt or blame.

Identifying the Most Appropriate Antonym

By comparing the definitions, **innocent** stands out as the clear opposite of **CULPABLE**. **CULPABLE** relates to being guilty and deserving blame, whereas **innocent** relates to being free from guilt and blame.

The other options, **offensive**, **disagreeable**, and **reserved**, describe different characteristics and are not antonyms of **CULPABLE**.

21. Answer: a

Explanation:

Understanding the Meaning of 'Demure'

The question asks us to find the word that is opposite in meaning to the given word, 'Demure'. First, let's understand what 'Demure' means. A 'demure' person is typically described as quiet, modest, and reserved. It often implies a shy or bashful demeanor, sometimes in an attractive way. Someone described as demure tends to be reserved and avoids drawing attention to themselves.

Analyzing the Provided Options

We need to examine each option to see how its meaning relates to 'Demure':

- **Strong:** This word signifies having power, force, or resilience. It implies confidence, boldness, and assertiveness, contrasting with being quiet or reserved.
- **Shy:** This term describes someone who is timid, nervous, or uncomfortable in the company of others. It's very close in meaning to 'Demure', making it a synonym rather than an antonym.
- **Backward:** This word can mean hesitant, shy, or socially reserved. Like 'Shy', it aligns closely with the meaning of 'Demure', acting as a synonym or a related concept.
- **Afraid:** This means feeling fear or apprehension. While a shy or demure person might sometimes feel afraid, 'afraid' is not the direct opposite of being reserved or modest.

Identifying the Antonym for 'Demure'

To find the opposite meaning (antonym) of 'Demure', we compare the core concepts:

- 'Demure' = Quiet, Modest, Reserved, Shy.
- 'Shy' and 'Backward' are similar in meaning to 'Demure'.
- 'Afraid' relates to fear, which is not the direct opposite of being reserved.
- 'Strong' represents qualities like confidence, boldness, and outgoingness, which are contrary to the reserved and modest nature implied by 'Demure'. Therefore, 'Strong' stands as the most appropriate antonym among the choices.

Final Word Selection

Based on the analysis, the word 'Strong' is the most suitable choice as it represents qualities opposite to the reserved, modest, and shy characteristics associated with the word 'Demure'.

22. Answer: d

Explanation:

Opposite Word Identification for Amalgamate

The question asks us to find the word that is the exact **OPPOSITE** of the given word, "Amalgamate". We need to carefully consider the meaning of "Amalgamate" and compare it with the meanings of the provided options.

Meaning of Amalgamate

"Amalgamate" means to combine, unite, or merge different things into a single unit or organization. It signifies joining together or blending different elements.

Analysis of Given Options

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

- **Esoteric:** This word refers to something understood by or meant for only a small number of people with specialized knowledge. It does not relate to combining or separating.
- **Vague:** This term means unclear, indefinite, or not expressed precisely. It is unrelated to the concept of merging or dividing.
- **Alleviate:** This means to make a problem, suffering, or deficiency less severe. It is about reducing intensity, not about joining or separating things.
- **Separate:** This word means to divide, disconnect, or cause things to move or be apart. It represents the action of keeping things distinct or making them into distinct parts.

Determining the Opposite of Amalgamate

Since "Amalgamate" means to combine or unite, its direct opposite would be an action that divides or keeps things apart.

Comparing the options:

- "Esoteric", "Vague", and "Alleviate" do not represent the opposite action of combining.

- "Separate" means to divide or keep apart, which is the direct contrary action to combining or amalgamating.

Therefore, "Separate" is the exact opposite of "Amalgamate".

23. Answer: d

Explanation:

Understanding Widely Used Silkworm Species in Sericulture

The provided text discusses sericulture, which is the process of farming silkworms to produce silk. It highlights the importance of specific silkworm species in this industry. Understanding which silkworm is most common commercially is key to answering this question.

Key Information from the Passage

The passage explicitly states: "Although there are several commercial species of silkworms, *Bombyx mori* (the caterpillar of the domestic silkmoth) is the most widely used and intensively studied silkworm." This sentence directly addresses the question about the most common species used for commercial silk production.

Analyzing the Options

The question asks to identify the most widely used silkworm species for commercial purposes. Let's review the options provided in light of the passage:

- Muga silkworm
- Eri Silkworm
- Oak silkworm
- *Bombyx Mori*

Identifying the Correct Silkworm Species

Based on the passage, the species identified as "the most widely used and intensively studied" for commercial purposes is *Bombyx mori*. This matches the fourth option provided. The passage confirms that while other species exist, *Bombyx mori* holds the primary position in commercial sericulture.

Therefore, the most widely used silkworm species for commercial purposes, according to the text, is *Bombyx Mori*.

The correct option is 4, *Bombyx Mori*.

24. Answer: d

Explanation:

Understanding Sericulture as a Cottage Industry

This question focuses on identifying which country, among the given options, does not have sericulture established as a significant cottage industry, based on the provided text.

Analyzing the Passage on Sericulture

The passage provides information about sericulture, also known as silk farming. It highlights that sericulture involves the cultivation of silkworms to produce silk. The text explicitly mentions several countries where sericulture has developed into an important cottage industry. These countries include:

- Brazil
- China
- France
- India
- Italy

- Japan
- Korea
- Russia

The passage also states that China and India are currently the leading global producers of silk, accounting for over 60% of the world's annual production.

Identifying the Correct Country

To answer the question, we need to check which of the options is NOT listed in the passage as a country with an important sericulture cottage industry.

Let's examine each option:

- **France:** The passage explicitly lists France as a country where sericulture is an important cottage industry.
- **China:** The passage mentions China as a country with an important cottage industry and also as a major producer.
- **Korea:** The passage lists Korea among the countries where sericulture is an important cottage industry.
- **Armenia:** Armenia is not mentioned in the provided passage as a country where sericulture is an important cottage industry.

Based on the information given in the passage, Armenia is the country where sericulture is not identified as an important cottage industry.

Therefore, the correct option is Armenia.

25. Answer: c

Explanation:

Neolithic Period of First Silk Production

This question requires identifying the specific archaeological period associated with the initial production of silk, based on the provided text about sericulture.

Sericulture and Silk Origin

The passage defines sericulture as the cultivation of silkworms to produce silk. It highlights that **Bombyx mori**, the domestic silkmoth caterpillar, is the most commonly used species.

The text provides a direct answer regarding the historical origin of silk production: "Silk was believed to have first been produced in China as early as the **Neolithic Period**."

Analysis of Archaeological Periods

To answer the question correctly, we need to match the information from the passage with the given options:

- **Paleolithic Period:** This early period is characterized by the development of the first stone tools.
- **Mesolithic Period:** This is the period between the Paleolithic and Neolithic eras.
- **Neolithic Period:** This period is significant for advancements like farming, settled communities, and polished stone tools. The passage directly links the first silk production to this era.
- **Epipaleolithic Period:** This term is often related to the Mesolithic period.

Conclusion on Silk Production Timeline

The passage clearly states that silk production is believed to have begun in China during the **Neolithic Period**. This makes the Neolithic Period the correct answer according to the provided information.

26. Answer: c

Explanation:

Geographical Locations: Desert Matching Quiz

This solution explains the correct geographical locations for the deserts mentioned in the question: Atacama, Kalahari, and Patagonian, determining which pairs are correctly matched.

Atacama Desert: South America Match

The **Atacama Desert** is a desert plateau in the Andes Mountains on the western edge of South America. It is famously located primarily in northern **Chile**. Given that Chile is a country in South America, the match 'Atacama desert: South America' is **correct**.

Kalahari Desert: Africa Match

The **Kalahari Desert** is a large semi-arid sandy savanna in southern **Africa**. It covers much of Botswana and parts of Namibia and South Africa. Therefore, the match 'Kalahari desert: Africa' is also **correct**.

Patagonian Desert: Argentina Match

The **Patagonian Desert** is a cold winter desert and winter rain region located primarily in **Argentina**. It covers the eastern and central parts of Patagonia. Thus, the match 'Patagonian desert: Argentina' is **correct**.

Summary of Desert Locations

To summarize the findings:

Desert Name	Continent/Country	Correct Match?
Atacama Desert	South America	Yes
Kalahari Desert	Africa	Yes
Patagonian Desert	Argentina	Yes

Conclusion on Correctly Matched Pairs

Based on the geographical verification, all three pairs presented in the question are correctly matched:

- Atacama Desert is in South America.
- Kalahari Desert is in Africa.
- Patagonian Desert is in Argentina.

Therefore, the option that includes all three correct matches (1, 2, and 3) is the correct answer.

27. Answer: d

Explanation:

England Prime Minister during India's Independence

The question asks to identify the Prime Minister of England (United Kingdom) at the time India achieved independence. India's independence from British rule occurred on August 15, 1947. To answer correctly, we need to know who held the position of Prime Minister in the UK government during that specific year.

UK Leadership in 1947

The period surrounding India's independence involved significant political developments in both countries. The leader of the United Kingdom government during this transition was a key figure.

Researching historical records reveals that the Labour Party formed the government in the UK following the general election in 1945. Their leader was responsible for executing policies, including those related to the British Empire.

Analyzing the Provided Options

Let's look at each option provided to determine the correct leader:

- **William Bentinck:** Served as Governor-General of India much earlier, from 1828 to 1835. This was long before India's independence in 1947.
- **Warren Hastings:** Was the Governor-General of Bengal from 1772 to 1785. His role was in the early colonial administration, well before the time frame in question.
- **Margaret Thatcher:** A notable Prime Minister, but her premiership was much later, spanning from 1979 to 1990.
- **Clement Attlee:** Led the Labour Party to victory in the 1945 general election and served as Prime Minister of the United Kingdom from 1945 to 1951. His government was in power when India gained independence.

Identifying the Correct Prime Minister

Based on the historical timeline, Clement Attlee was the Prime Minister of England when India achieved its independence on August 15, 1947. His government was responsible for managing the transfer of power.

28. Answer: a

Explanation:

Understanding the 2017 Rajiv Gandhi Khel Ratna Awardee

This solution focuses on identifying the Indian para-athlete who was honored with the prestigious Rajiv Gandhi Khel Ratna award in the year 2017. The award is the highest sporting honor in India, recognizing exceptional performance in sports.

Devendra Jhajharia: A Leading Indian Para-Athlete

Devendra Jhajharia is a distinguished Indian Paralympic javelin thrower. He is renowned for his incredible achievements on the international stage, particularly in

the Paralympic Games.

- **Paralympic Success:** Jhajharia won a gold medal at the 2004 Athens Paralympics and another gold medal at the 2016 Rio Paralympics in the men's javelin throw (F46 category). He became the first Indian para-athlete to win two Paralympic gold medals.
- **Recognition in 2017:** In recognition of his outstanding achievements and contributions to sports, Devendra Jhajharia was awarded the Rajiv Gandhi Khel Ratna award in 2017. This award acknowledged his remarkable performance, especially his Paralympic gold medal wins.

Rajiv Gandhi Khel Ratna Award Details

The Rajiv Gandhi Khel Ratna Award, now known as the Major Dhyan Chand Khel Ratna Award, is presented annually by the Ministry of Youth Affairs and Sports to honor sportspersons for their outstanding achievement in the field of sports over a period of four years. Devendra Jhajharia was one of the recipients of this award in 2017, alongside other notable athletes.

Analysis of Other Para-Athletes Mentioned

Let's look at the achievements of the other para-athletes listed in the options to understand why Devendra Jhajharia is the correct answer for the 2017 award:

- **Mariyappan Thangavelu:** He is a prominent Indian Paralympic high jumper. He won a gold medal in the men's high jump T42 category at the 2016 Rio Paralympics. Mariyappan Thangavelu was awarded the Rajiv Gandhi Khel Ratna in 2020.
- **Deepa Malik:** She is a para-athlete who competes in shot put, swimming, and other events. Deepa Malik won a silver medal in the shot put F53 event at the 2016 Rio Paralympics, becoming the first Indian woman to win a medal in Paralympic Games. She received the Rajiv Gandhi Khel Ratna award in 2019.
- **Varun Bhati:** He is an Indian Paralympic high jumper who won a bronze medal in the men's high jump T42 category at the 2016 Rio Paralympics. Varun Bhati was awarded the Arjuna Award in 2018.

Based on the timeline of awards, Devendra Jhajharia is the para-athlete who received the Rajiv Gandhi Khel Ratna in 2017.

29. Answer: a

Explanation:

Oberon's Planetary Orbit

Oberon is known as a natural satellite, or moon, that revolves around a specific planet in our solar system. Understanding planetary systems involves knowing which moons belong to which planets.

Identifying Oberon's Parent Planet

The question asks us to identify the planet to which the moon Oberon belongs. We need to determine which of the given options is the correct parent planet for Oberon.

The options provided are:

- Uranus
- Jupiter
- Saturn
- Venus

Oberon is a celestial body that orbits the planet **Uranus**. It was discovered by astronomer William Herschel on January 11, 1787. Oberon is the second-largest of Uranus's moons, with the largest being Titania.

Facts About Oberon

Here are some key details about Oberon:

- **Parent Planet:** Oberon orbits **Uranus**.

- **Discovery Date:** 1787.
- **Discoverer:** William Herschel.
- **Rank:** It is the second-largest moon of Uranus.
- **Composition:** Oberon is likely composed of nearly equal amounts of rock and ice.
- **Surface Features:** Its surface is marked by numerous craters, indicating a history of impacts, and possibly vast canyons.

Based on astronomical observations and established data, Oberon is confirmed to be a moon of **Uranus**.

30. Answer: a

Explanation:

Sagarmatha: The Nepali Name for Mount Everest

This question pertains to the identification of mountains and their names in different languages. Understanding geographical terminology, especially the local names for prominent landmarks like the world's highest peaks, is key.

Understanding the Nepali Name 'Sagarmatha'

The term '**Sagarmatha**' is the specific name used in Nepal for a famous mountain.

- The name is derived from Nepali words.
- 'Sagar' translates to 'sky' or 'cosmos'.
- 'Matha' translates to 'forehead' or 'head'.
- Combining these, '**Sagarmatha**' means 'Forehead in the Sky' or 'Head of the Sky', reflecting the mountain's towering height.

Mount Everest: Highest Mountain and its Names

Mount Everest is globally recognized as the highest mountain on Earth above sea level. It is situated in the Himalayas, straddling the border between Nepal and the Tibet Autonomous Region of China.

- Its official elevation is 8,848.86 meters (29,031.7 feet).
- In Nepal, its local name is **Sagarmatha**.
- It is also known by the Tibetan name **Chomolungma**, which means 'Holy Mother' or 'Goddess Mother of the World'.

Examining the Options

To confirm the correct answer, let's review the other mountains listed:

- **Makalu**: This is the fifth highest mountain in the world, located in Nepal and China. It has its own distinct name and is not called Sagarmatha.
- **Kanchenjunga**: This is the third highest mountain globally, situated between Nepal and the Indian state of Sikkim. It is not known as Sagarmatha.
- **Lhotse**: This mountain is the fourth highest in the world and is located on the border of Nepal and China, adjacent to Mount Everest. It is referred to by its own name, Lhotse.

Final Identification of Sagarmatha

Therefore, the Nepali name 'Sagarmatha' refers specifically to **Mount Everest**, the highest peak on the planet.

31. Answer: d

Explanation:

Appointment Authority for Chief Justice of High Court in India

Understanding the appointment process for key judicial positions in India is crucial. This explanation focuses on who appoints the **Chief Justice of a High Court**.

Constitutional Provisions for High Court Appointments

The appointment of Judges to the High Courts in India is governed by the Constitution of India. Specifically, **Article 217** of the Constitution outlines the procedure.

- Article 217(1) states that every Judge of a High Court shall be appointed by the President.
- This appointment is made by a warrant under the President's hand and seal.
- The appointment process requires consultation with certain constitutional authorities.

Process of Appointing the Chief Justice

The appointment of the **Chief Justice of a High Court** involves a specific consultative procedure:

- The President appoints the Chief Justice of a High Court.
- Before making the appointment, the President must consult with the **Governor** of the concerned state.
- Consultation with the **Chief Justice of India** is also mandatory in this process.

Therefore, the ultimate authority for appointing the **Chief Justice of High Court** in India rests with the **President**, following the constitutionally mandated consultation process.

32. Answer: c

Explanation:

- The question asks to identify the sport associated with the term '**Raider**'.
- Let's analyze the role of a '**Raider**' in different sports.

Understanding the Raider in Kabaddi

Kabaddi is a popular contact team sport with ancient Indian origins. It involves two teams trying to score points by sending a '**Raider**' into the opponent's court.

- **Role of the Raider:** The **Raider** is an offensive player. Their primary goal is to enter the opponent's half of the court, known as the 'lobby', and touch out one or more defenders.
- **The 'Cant':** Crucially, while raiding, the **Raider** must continuously repeat the word "**Kabaddi**" without taking another breath. This is called maintaining the 'cant'. Failure to do so results in the **Raider** being declared 'out'.
- **Scoring Points:** If the **Raider** successfully tags one or more defenders and returns safely to their own side before the 'cant' is broken or they are tackled, their team scores points. The number of points depends on how many defenders were tagged.
- **Risk Involved:** Defenders try to tackle the **Raider** to prevent them from returning to their half. If the defenders succeed, the **Raider** is 'out', and the defending team scores points.

Raider Terminology in Other Sports

The term '**Raider**' is specific to **Kabaddi** and is not used in other major sports like Cricket, Hockey, or Football. Let's look at player roles in those sports:

- **Cricket:** Roles include Batsman, Bowler, Wicket-keeper, and Fielders. There is no '**Raider**'.
- **Hockey:** Common positions are Forwards (Strikers/Wingers), Midfielders, Defenders, and Goalkeeper. A '**Raider**' is not a recognized position.
- **Football:** Players typically fulfill roles such as Forwards (Strikers), Midfielders, Defenders, and Goalkeepers. The term '**Raider**' does not apply here.

Conclusion on Raider Association

Based on the distinct role and terminology used within the sport, the term '**Raider**' is exclusively associated with **Kabaddi**.

Answer: Kabaddi

33. Answer: d

Explanation:

Understanding United Nations Official Languages

The United Nations (UN) is a global organization with member states from all over the world. To facilitate communication and ensure inclusivity among its diverse membership, the UN maintains a set of official languages. These languages are used in UN meetings and documentation.

Identifying the Official UN Languages

The United Nations currently recognizes six official languages. These languages are:

- Arabic
- Chinese (Mandarin)
- English
- French
- Russian
- Spanish

These languages represent a broad spectrum of global communication and are used for drafting, discussing, and publishing official UN documents and holding formal sessions.

Analyzing the Options Provided

Let's examine the languages listed in the options against the official UN languages:

- **Spanish:** This is one of the six official languages of the UN.
- **French:** This is also one of the six official languages of the UN.
- **Arabic:** This is another official language of the UN.

- **Turkish:** While Turkish is an important language spoken in Turkey and parts of Europe, it is not among the six official languages designated by the United Nations.

Conclusion on UN Language Status

Based on the established list of official languages, **Turkish** is the language from the given options that does not hold official status within the United Nations system. The other languages listed – Spanish, French, and Arabic – are indeed official languages used for UN operations.

34. Answer: a

Explanation:

Histology: The Microscopic Study Explained

Histology is a fascinating field within biology. It specifically focuses on the detailed structure of living organisms at a microscopic level. When we talk about histology, we are essentially discussing the study of **tissues**. Tissues are groups of similar cells that work together to perform a specific function. Histologists examine these tissues under microscopes to understand their composition, organization, and how they function within an organism.

Detailed Look at Histology

- Histology is derived from the Greek words 'histos' meaning tissue and 'logia' meaning study.
- It is also referred to as microscopic anatomy.
- Histologists investigate the relationship between the structure of tissues and their function.
- This field is crucial for understanding normal biological processes as well as diagnosing diseases, as many diseases manifest as changes in tissue structure.

Analyzing the Options for Histology

Let's examine the provided options to understand why the study of tissues is the correct description for histology:

- **Tissues:** This option directly aligns with the definition of histology. Histology is the scientific discipline dedicated to the study of biological tissues – collections of cells with similar structure and function.
- **Bones:** While bones are biological structures, the specific study of bones is called osteology. Bones contain various tissues (like bone tissue, cartilage, marrow), and their microscopic structure is studied within histology, but histology encompasses much more than just bones.
- **Muscles:** The study of muscles is known as myology. Muscle tissue is a major type of tissue studied in histology, but histology's scope extends to all types of tissues (epithelial, connective, muscle, and nervous tissue), not just muscles.
- **Coins:** The study of coins, currency, and medals is called numismatics. This is entirely unrelated to the biological study of tissues.

Conclusion on Histology's Focus

Based on the core definition and scope of the scientific discipline, histology is fundamentally the study of **tissues**. It provides the foundational understanding of how these tissues are structured, allowing us to comprehend the workings of organs and the body as a whole.

35. Answer: a

Explanation:

Exploring the Moin-ud-Dowlah Gold Cup Tournament's Sport

The question asks us to identify the sport connected with the famous **Moin-ud-Dowlah Gold Cup Tournament**. This is a key detail for anyone studying sports history

or trivia.

Identifying the Sport for Moin-ud-Dowlah Gold Cup

The **Moin-ud-Dowlah Gold Cup Tournament** is historically and predominantly associated with the sport of **Cricket**. It was a significant event in the landscape of Indian domestic cricket for many years.

Historical Significance in Cricket

Digging deeper into the history helps understand this connection:

- The tournament was established in memory of Nawab Sir Moin-ul-Mulk Bahadur, who was a notable administrator and patron of sports in Hyderabad.
- It was one of the major tournaments in the Indian first-class cricket circuit, especially during the mid-20th century.
- Many legendary cricketers have participated in this tournament, contributing to its prestige.
- Its legacy is firmly rooted in the development and promotion of cricket in India.

Why Other Sports Are Not Related

It's important to differentiate the Moin-ud-Dowlah Gold Cup from tournaments related to other sports:

- **Football:** This sport has its own distinct set of major tournaments, and the Moin-ud-Dowlah Gold Cup is not one of them.
- **Hockey:** Hockey tournaments, while significant, operate separately, and this cup doesn't fall under its banner.
- **Kabaddi:** Known as a traditional sport, Kabaddi has a different set of events and structures that do not include the Moin-ud-Dowlah Gold Cup.

Conclusion: Moin-ud-Dowlah Gold Cup and Cricket

In summary, the **Moin-ud-Dowlah Gold Cup Tournament** is a significant historical event specifically related to **Cricket**.

36. Answer: c

Explanation:

First Chief Justice of India Explained

This question asks us to identify the individual who held the prestigious position of the first Chief Justice of India. The Chief Justice of India is the head of the judiciary in India and leads the Supreme Court.

Identifying the First Chief Justice of India

To answer this question correctly, we need to know the historical timeline of India's judicial leadership after independence.

Let's consider the options provided:

- M. Patanjali Sastri
- Mehr Chand Mahajan
- H. J. Kania
- Sudhi Ranjan Das

Understanding the Role and Appointee

The Supreme Court of India was established on January 26, 1950, coinciding with the adoption of the Constitution of India. Before this, the Federal Court of India existed. The first person to be appointed as the Chief Justice of the Supreme Court of India was **H. J. Kania**.

H. J. Kania assumed office as the first Chief Justice of India on October 6, 1947, continuing in this role when the Supreme Court was formally established in 1950. He served until his death in November 1951.

The other individuals mentioned also played significant roles in the Indian judiciary:

- M. Patanjali Sastri served as the second Chief Justice of India.

- Mehr Chand Mahajan served as the third Chief Justice of India.
- Sudhi Ranjan Das served as the fifth Chief Justice of India.

Based on this historical context, **H. J. Kania** is correctly identified as the first Chief Justice of India.

37. Answer: b

Explanation:

Understanding the SI Unit for Luminous Intensity

Luminous intensity is a fundamental measure used in photometry, which deals with the measurement of light intensity. It specifically quantifies the perceived power of light emitted from a source in a given direction. It's important to know the standard units for physical quantities in the International System of Units (SI).

Identifying the SI Unit for Luminous Intensity

The question asks for the specific **SI unit** used to measure **Luminous intensity**. The SI system is built upon seven base units, each defining a fundamental physical quantity. **Luminous intensity** is one of these base quantities.

- The SI base unit designated for measuring **Luminous intensity** is the **Candela**.
- The symbol for the Candela unit is **cd**.

The Candela is defined based on the luminous efficacy of monochromatic radiation at a specific frequency, reflecting how the human eye perceives brightness.

Evaluating the Given Options

Let's look at each option to understand why **Candela** is the correct choice for the **SI unit of Luminous intensity**:

- **Mole:** This unit measures the 'amount of substance'. For example, one mole contains approximately 6.022×10^{23} elementary entities (like atoms or molecules). This is unrelated to light intensity.
- **Candela:** This is the correct **SI unit** for **Luminous intensity**. It directly measures the light power perceived by the human eye emitted per unit solid angle.
- **Kelvin:** This unit is used for thermodynamic temperature. It measures how hot or cold something is on a specific scale.
- **Ampere:** This is the SI unit for electric current, measuring the rate of flow of electric charge.

Reference: SI Base Units

For clarity, here's a summary of the SI base units and the quantities they represent. This helps distinguish between units measuring different physical concepts:

Physical Quantity	SI Base Unit	Unit Symbol
Length	Metre	m
Mass	Kilogram	kg
Time	Second	s
Electric current	Ampere	A
Thermodynamic temperature	Kelvin	K
Amount of substance	Mole	mol
Luminous intensity	Candela	cd

Final Determination of the SI Unit

As shown in the analysis and the table of SI base units, the **Candela** is the standard unit for measuring **Luminous intensity**. The other options, Mole, Kelvin, and Ampere, measure different fundamental quantities (amount of substance, temperature, and electric current, respectively) and are therefore incorrect for this question.

38. Answer: c

Explanation:

Understanding 'Wake Up, India: A Plea for Social Reform'

The question asks about the author of the renowned book 'Wake Up, India: A Plea for Social Reform'. This book is a significant work that addressed social issues in India during a crucial period.

Let's look at the options provided:

- Mother Teresa
- Mahatma Gandhi
- Annie Besant
- Jawaharlal Nehru

Each of these individuals played important roles, but only one is specifically known as the author of 'Wake Up, India'.

Author of 'Wake Up, India'

The book 'Wake Up, India: A Plea for Social Reform' was authored by **Annie Besant**. Annie Besant was a prominent British socialist, Theosophist, women's rights activist, writer, orator, and philanthropist. She became involved in the Indian independence movement and was a leading figure in the Home Rule League.

Her work in India extended beyond politics; she was also deeply concerned with social and educational reform. 'Wake Up, India' reflects her views and calls for social changes within Indian society.

Why Annie Besant?

Annie Besant arrived in India in 1893 as part of the Theosophical Society's work. She quickly became a key figure in various movements. Her writings and speeches were influential in highlighting social issues and advocating for reform alongside political

independence. 'Wake Up, India' is one of her notable literary contributions during her time in India, urging people to address social problems.

Other options are incorrect because while Mother Teresa worked on social welfare, she is not known for this specific book. Mahatma Gandhi and Jawaharlal Nehru were pivotal leaders in the independence movement and prolific writers, but 'Wake Up, India' is not attributed to either of them.

Revision Table: Key Figures and Works

Figure	Known For	Notable Works (Examples)
Mother Teresa	Missionary, humanitarian, Nobel Peace Prize laureate	Works focused on charity and poverty relief
Mahatma Gandhi	Leader of Indian independence movement, advocate of nonviolence	Hind Swaraj, My Experiments with Truth
Annie Besant	Theosophist, political activist, social reformer	Wake Up, India , An Autobiography, How India Wrought Her Freedom
Jawaharlal Nehru	First Prime Minister of India	The Discovery of India, Glimpses of World History

Additional Information on Annie Besant and 'Wake Up, India'

Annie Besant's book 'Wake Up, India: A Plea for Social Reform' was published in 1913. The book discusses various aspects of Indian society, including education, the caste system, women's rights, and religious reform. It is seen as an effort to stimulate introspection and action among Indians regarding their own social structure and customs, arguing that social regeneration was crucial alongside political awakening for the true progress of the nation. Her involvement in both the

Theosophical Society and political movements gave her a unique perspective, which is reflected in this work.

39. Answer: a

Explanation:

Locating the Ocean Crossed by the International Date Line

The question asks to identify the specific ocean through which the **International Date Line** primarily passes. The **International Date Line** is a crucial geographical reference used to distinguish the date from one side of the planet to the other.

Understanding the International Date Line

The **International Date Line** is an imaginary line demarcated mainly along the 180° meridian of longitude on the Earth's surface. Its main purpose is to separate one calendar day from the next. As one travels westward across the line, the date advances by one day; conversely, traveling eastward causes the date to revert by one day.

Key characteristics:

- It runs mostly north-south through the **Pacific Ocean**.
- It generally follows the 180° longitude but deviates significantly to avoid passing through populated land areas or existing political boundaries to prevent confusion in date.

The Path Through the Pacific Ocean

The **International Date Line** makes its journey across the globe primarily through the vast expanse of the **Pacific Ocean**. This large body of water separates Asia and Australia from the Americas.

Specifically:

- The line begins at the North Pole, travels south, and enters the **Pacific Ocean**.
- It passes between the Russian Far East and the U.S. state of Alaska (specifically, the Aleutian Islands).
- It continues south through the central, largely uninhabited region of the **Pacific Ocean**.
- Notable deviations occur to keep island nations like Kiribati on the same side and date, illustrating its adjustment around landmasses.
- It ultimately concludes at the South Pole.

Why Not Other Oceans?

- **Atlantic Ocean:** This ocean separates the Americas from Europe and Africa. The **International Date Line** is located on the opposite side of the globe, primarily marking the boundary in the Pacific.
- **Indian Ocean:** Located west of the Pacific and east of Africa, the **International Date Line** does not traverse this ocean.
- **Arctic Ocean:** While the **International Date Line** originates at the North Pole, its main path extends southward through the Pacific Ocean, not across the Arctic Ocean itself.

Conclusion

Based on its defined path and necessary deviations, the **International Date Line** passes through the **Pacific Ocean**.

40. Answer: a

Explanation:

Key Figures in the Jallianwala Bagh Massacre Revenge

This question relates to a significant event in Indian history, the **Jallianwala Bagh Massacre**, and asks to identify the person who killed General Michael O'Dyer, who was considered responsible for this atrocity.

General Michael O'Dyer and the Amritsar Massacre

General Michael O'Dwyer served as the Lieutenant Governor of Punjab during the British colonial rule in India. He was the highest British authority in Punjab when the events of April 13, 1919, unfolded in Amritsar. On that day, troops under the command of Brigadier-General Reginald Dyer opened fire on a peaceful, unarmed crowd gathered in the Jallianwala Bagh garden. This brutal act led to the deaths of hundreds of civilians and is known as the **Jallianwala Bagh Massacre**. While Reginald Dyer gave the order to fire, Michael O'Dwyer, as the Lieutenant Governor, was held responsible by many Indians for creating the conditions and supporting the actions that led to the massacre.

Revolutionary Act by Udham Singh

The individual who avenged the **Jallianwala Bagh Massacre** by killing General Michael O'Dyer was **Udham Singh**.

- **Background:** Udham Singh was a young Sikh who witnessed the aftermath of the massacre as a child. The horrific event deeply impacted him, fueling a lifelong desire for justice and revenge against the British officials responsible.
- **Assassination:** On March 13, 1940, Udham Singh traveled to London. During a joint meeting held at Caxton Hall, he shot and killed the former Lieutenant Governor of Punjab, Michael O'Dwyer. Singh believed O'Dwyer was the main perpetrator and symbol of British oppression responsible for the massacre.
- **Consequences:** Following the shooting, Udham Singh was arrested. He was put on trial, where he openly stated his reasons for the act, emphasizing his mission to avenge the victims of Jallianwala Bagh. He was convicted and later executed by hanging on July 31, 1940. His sacrifice made him a celebrated martyr in the Indian independence movement.

Analysis of Other Options

The other individuals listed as options were not involved in the assassination of General Michael O'Dyer:

- **Bhagat Singh:** A renowned revolutionary socialist who fought for India's independence. While inspired by the Jallianwala Bagh incident, he was executed in 1931 for different revolutionary activities, such as the bombing of the Central Legislative Assembly in Delhi.
- **Aravinda Ghosh:** Also known as Sri Aurobindo, he was a prominent nationalist, philosopher, and spiritual leader. He retired from politics in the early 1910s and focused on spiritual development. He had no involvement in the assassination.
- **Bal Gangadhar Tilak:** A key leader in the early phase of the Indian independence movement, known for his slogan "Swaraj is my birthright". He passed away in 1920, well before the assassination occurred in 1940.

Final Identification

Based on historical records, **Udham Singh** is the correct answer as he was the one who assassinated General Michael O'Dyer to seek retribution for the **Jallianwala Bagh Massacre**.

41. Answer: a

Explanation:

Understanding the UN Climate Change Conference (COP 25)

The UN Climate Change Conferences, known as the Conference of the Parties (COP), are crucial annual meetings where member nations discuss global climate action. The goal is to assess progress in dealing with climate change and negotiate strategies under the United Nations Framework Convention on Climate Change (UNFCCC).

COP 25: Host City Determination

The specific conference, COP 25, was held in December 2019. This particular conference faced a unique situation regarding its venue. Originally, Chile was designated to host the event in Santiago. However, due to significant social and political circumstances within the country, the government of Chile, in coordination with the UNFCCC secretariat, decided to withdraw its offer to host.

Following Chile's withdrawal, Spain extended an offer to host the conference. The offer was accepted, and the venue was moved to **Madrid**, the capital city of Spain. This decision was confirmed shortly before the conference was scheduled to begin.

Evaluating the Options Provided

- **Madrid:** As explained above, Madrid became the host city for COP 25 in December 2019 after the relocation from Chile.
- **Barcelona:** Barcelona is a major city in Spain, but it was not the designated host for COP 25.
- **Paris:** Paris famously hosted COP 21 in 2015, which resulted in the adoption of the Paris Agreement. However, it was not the host city for COP 25 in 2019.
- **Rome:** Rome is the capital of Italy and has hosted various international events, but it was not the location for the COP 25 conference in 2019.

Therefore, the city that hosted the UN Climate Change Conference (COP 25) in December 2019 was **Madrid**.

42. Answer: a

Explanation:

Kathakali: Identifying the Origin State

This solution focuses on identifying the Indian state where the classical dance form Kathakali originated. Kathakali is a unique and vibrant art form known for its

elaborate costumes, dramatic facial expressions, and intricate storytelling.

Understanding Kathakali Dance Form

Kathakali is one of the major classical dance forms recognized in India. The name itself translates to 'story-play' (*katha* meaning 'story' and *kali* meaning 'play' or 'drama'). It is characterized by:

- Elaborate and distinctive makeup (*chutti*)
- Intricate costumes and headgear
- Highly stylized gestures and poses (*mudras*)
- Dramatic facial expressions conveying emotions
- Storytelling, often based on Indian epics like the Mahabharata and Ramayana.

Kathakali performances are traditionally held in the evenings and often involve elaborate rituals and music.

Locating Kathakali's Geographical Roots

The question asks to identify the specific region associated with Kathakali. Let's examine the provided options:

- **Kerala:** This state in South India is renowned as the birthplace and primary center for Kathakali. The dance form evolved here over centuries.
- **Karnataka:** While Karnataka has its own rich cultural heritage, including classical dance forms like Yakshagana, Kathakali is not its primary classical dance form.
- **Tamil Nadu:** Tamil Nadu is famously the home of Bharatanatyam, another major classical dance form of India.
- **Maharashtra:** Maharashtra is known for folk dances like Lavani and has cultural connections to classical dance traditions like Kathak (originating primarily from North India). Kathakali is not associated with Maharashtra.

Conclusion on Kathakali's Origin

Based on the distinct characteristics and historical development of the dance form, Kathakali is unequivocally recognized as the classical dance form originating from

Kerala.

Indian State	Associated Classical Dance Form(s)
Kerala	Kathakali, Mohiniyattam
Karnataka	Yakshagana
Tamil Nadu	Bharatanatyam
Maharashtra	(Influence of Kathak, folk dances like Lavani)

Therefore, the correct identification for the origin of Kathakali is Kerala.

43. Answer: a

Explanation:

Understanding the Title 'Napoleon of South India'

The question asks to identify the historical ruler known as the "Napoleon of South India". This title is often bestowed upon powerful military leaders whose conquests and influence significantly expanded their kingdom's reach and power, drawing a parallel with Napoleon Bonaparte of France. In the context of South Indian history, this refers to a ruler from the prominent Chola dynasty.

Rajendra Chola I: The Conqueror

Rajendra Chola I (reigned c. 1014–1044 CE) is the ruler widely referred to as the "Napoleon of South India". This nickname highlights his exceptional military genius, ambitious expansionist policies, and the vastness of his empire.

Key Achievements of Rajendra Chola I:

- **Extensive Military Campaigns:** Rajendra Chola led successful military expeditions far beyond the traditional boundaries of South India.
- **North Indian Expedition:** He famously marched his armies north to the Ganges River, defeating various rulers along the way. This campaign demonstrated his military might and extended Chola influence significantly. He took the title *Gangaikonda Cholan* (The Chola who conquered the Ganges) after this victory.
- **Naval Prowess:** Rajendra Chola possessed a formidable navy and conducted successful naval expeditions against the Srivijaya Empire (parts of modern-day Indonesia and Malaysia). This naval dominance secured trade routes and established the Chola presence in Southeast Asia.
- **Consolidation of Power:** He consolidated Chola rule and suppressed rebellions effectively, maintaining stability across his expansive territory.
- **Administrative Reforms:** Alongside his military successes, he was also known for efficient administration and promoting culture and temple building, most notably the grand Brihadeeswarar Temple at Gangaikonda Cholapuram.

His military strategies, the scale of his conquests, and the effective administration of his vast empire are comparable to the achievements of Napoleon Bonaparte in a different era and continent, hence the popular moniker.

Contextualizing Other Chola Rulers

While other Chola rulers mentioned in the options were also important figures:

- **Rajadhiraja Chola:** A capable ruler and son of Rajendra Chola, known for his own military exploits, including battles against the Western Chalukyas.
- **Aditya Chola I:** Credited with consolidating Chola power and defeating the Pallavas.
- **Rajendra Chola II:** Known for his victory at the Battle of Kudalasangamam.

However, none of them match the sheer scale and audacity of Rajendra Chola I's military campaigns, particularly the expedition to North India and the naval expeditions, which uniquely earned him the title "Napoleon of South India".

Summary of Rajendra Chola I's Significance

Aspect	Details Highlighting Military Prowess
Northern Campaign	Reached the Ganges River; defeated multiple rulers.
Naval Expeditions	Conquered territories in Southeast Asia (Srivijaya).
Empire Size	Vast territory spanning South India, parts of Sri Lanka, and Southeast Asia.
Key Title Earned	<i>Gangaikonda Cholan</i>

Therefore, based on his far-reaching military achievements and expansionist vision, Rajendra Chola I is celebrated as the "Napoleon of South India".

44. Answer: a

Explanation:

Galwan Valley Clash: Identifying the Martyred Officer

The question asks to identify the specific officer who was martyred in the physical clash that occurred with Chinese troops in the Galwan Valley during June 2020. This confrontation was a significant event along the India-China border.

Understanding the Galwan Valley Clash Context

The Galwan Valley clash took place on the night of June 15-16, 2020. This military confrontation happened in the Ladakh region between soldiers of the Indian Army and the People's Liberation Army of China. It resulted in casualties on the Indian side and was a notable escalation in the border tensions between the two countries.

Analyzing the Military Personnel Options

We need to evaluate each individual mentioned in the options to determine their connection to the Galwan Valley incident and their fate:

- **Colonel B. Santosh Babu:**
 - Colonel B. Santosh Babu was serving as the Commanding Officer of the 16th Battalion of the Bihar Regiment (16 Bihar).
 - He was leading his troops in the Galwan Valley area during the clash in June 2020.
 - Colonel B. Santosh Babu tragically made the supreme sacrifice (was martyred) during this particular confrontation, making him the officer associated with the event mentioned in the question.
- **Hemant Karkare:**
 - Hemant Karkare was a distinguished officer of the Indian Police Service, serving as the Chief of the Anti-Terrorist Squad (ATS) in Mumbai.
 - He was tragically martyred during the horrific terrorist attacks in Mumbai in November 2008.
 - His death occurred during the 2008 Mumbai attacks, which is entirely separate from the Galwan Valley incident in 2020.
- **Colonel Ashutosh Sharma:**
 - Colonel Ashutosh Sharma was the Commanding Officer of the 21st Rashtriya Rifles (RR) unit of the Indian Army.
 - He was posthumously awarded the Ashoka Chakra for his exceptional bravery in a counter-insurgency operation in Jammu and Kashmir.
 - Although he was martyred in May 2020, the incident occurred during an encounter in South Kashmir, not in the Galwan Valley clash that happened the following month.
- **Nirmal Jit Singh Sekhon:**
 - Nirmal Jit Singh Sekhon was a Flying Officer in the Indian Air Force (IAF).
 - He displayed extraordinary courage and made the ultimate sacrifice during the Indo-Pakistani War of 1971.
 - For his valour, he was posthumously awarded the Param Vir Chakra, India's highest wartime military honour. His sacrifice dates back to the 1971 war.

Identifying the Officer Martyred at Galwan Valley

Based on the factual analysis of each option, **Colonel B. Santosh Babu** is the officer who was martyred in the physical clash with Chinese troops at the Galwan Valley in June 2020.

45. Answer: b

Explanation:

Identifying Hungary's Capital City

This question asks to identify the correct capital city of the European country, Hungary. Understanding the capitals of different countries is a common topic in geography.

Hungary Overview

Hungary is a landlocked country located in Central Europe. Its political, cultural, and economic center is its capital city.

Analyzing the Options for Hungary's Capital

Let's examine the choices provided:

- **Helsinki:** This is the capital city of Finland, a Nordic country in Northern Europe.
- **Budapest:** This city is known as the capital of Hungary.
- **Lisbon:** This is the capital city of Portugal, located in Southwestern Europe.
- **Brussels:** This city serves as the capital of Belgium and is also a major center for the European Union.

Confirming Hungary's Capital

Based on geographical facts, **Budapest** is the capital of Hungary. It was formed by the unification of Buda, Obuda, and Pest in 1873. Budapest is Hungary's largest city and a major economic, cultural, and educational hub.

The other options represent capitals of different European nations: Helsinki (Finland), Lisbon (Portugal), and Brussels (Belgium). Therefore, only Budapest correctly matches Hungary.

46. Answer: b

Explanation:

Understanding the Ural Mountains and Continental Boundaries

The question asks about the geographical feature that separates two major continents. Specifically, it asks which continents are separated by the Ural Mountains.

The Ural Mountains are a long mountain range that runs roughly north-south through Western Russia, from the coast of the Arctic Ocean to the Ural River and northwestern Kazakhstan. Historically and geographically, this mountain range is considered a significant boundary.

Ural Mountains: Separating Europe and Asia

The most widely accepted conventional boundary between the continents of Europe and Asia runs along the eastern base of the Ural Mountains, then the Ural River, the Caspian Sea, the Manych Depression, and the Black Sea.

Therefore, the Ural Mountains serve as a key natural separator between:

- Europe to the west
- Asia to the east

This makes them a crucial geographical landmark in defining the vast Eurasian landmass.

Analyzing the Options for Continental Separation

Let's look at the provided options and see which one correctly identifies the continents separated by the Ural Mountains:

- **Option 1: Africa and Asia**

These continents are primarily separated by the Isthmus of Suez, which contains the Suez Canal, and the Red Sea. The Ural Mountains are located far to the northeast of this region. This option is incorrect.

- **Option 2: Asia and Europe**

As discussed, the Ural Mountains are traditionally considered the boundary separating these two continents. This option aligns with geographical conventions.

- **Option 3: Africa and Europe**

These continents are separated by the Mediterranean Sea and the Strait of Gibraltar. The Ural Mountains are not located in this region. This option is incorrect.

- **Option 4: North America and South America**

These continents are joined by the Isthmus of Panama. The Ural Mountains are located in Eurasia, completely separate from the Americas. This option is incorrect.

Based on the geographical role of the Ural Mountains, the correct answer is that they separate Asia and Europe.

Revision Table: Major Continental Separations

Mountain Range/Water Body	Continents Separated	Location Context
Ural Mountains	Europe and Asia	Western Russia/Kazakhstan
Mediterranean Sea	Europe and Africa	Between Southern Europe and Northern Africa
Red Sea / Suez Canal	Africa and Asia	Between Northeastern Africa and Western Asia
Isthmus of Panama	North America and South America	Between Central and South America

Additional Information about Ural Mountains

Geography

While the Ural Mountains are a recognized boundary, it's important to note that continental boundaries are sometimes debated, especially on large landmasses like Eurasia. However, the Ural Mountains are the most commonly accepted natural feature marking the transition between Europe and Asia in that region.

The mountains are not particularly high compared to ranges like the Himalayas, but their length makes them a significant physical barrier. They have historically played a role in migration and settlement patterns.

47. Answer: c

Explanation:

The correct answer is Vitamin A.

★ Key Points

- Chemical names for different vitamins are as follows:

Vitamins	Chemical Names
Vitamin C	Ascorbic Acid
Vitamin B1	Thymine
Vitamin B2	Riboflavin
Vitamin B3	Pantothenic acid
Vitamin B5	Niacin
Vitamin B7	Biotin
Vitamin D	Calciferol

48. Answer: a

Explanation:

Understanding Badminton Court Zones

This question asks us to identify a specific area on a badminton court. The area in question is located between the **net** and the line that defines the boundary for a legal serve. Knowing the different parts of the **badminton court** is crucial for understanding the game, especially regarding serves and shot placement.

Defining the Badminton Forecourt

The specific zone described – the part of the court lying between the **net** and the front boundary line for serving – is known as the **forecourt**. This area is important during the serve and for players attempting quick, short shots near the net.

Analysis of Court Areas and Terms

Let's look at the given options to understand why **forecourt** is the correct answer:

- **Forecourt:** This term correctly identifies the area closest to the net, extending from the net back to the front service line. It's the region relevant to the question's description of the space between the **net** and the line marking the **inbounds limit of a service**.
- **Rally:** A **rally** in badminton refers to the period when the shuttlecock is in play between the serve being returned and the end of the point. It is not a physical area of the court.
- **Rearcourt:** The **rearcourt** is the opposite end of the court from the net. It extends from the middle of the court (roughly the short service line) back to the baseline and includes the area relevant for the doubles long service line. This is not the area described in the question.
- **Lunge:** A **lunge** is a type of footwork or movement a player makes to reach a shot, often used for wide or low shots. It is an action, not a specific region of the court.

Conclusion on Court Terminology

Based on the definitions of badminton court areas, the region situated between the **net** and the service line is consistently referred to as the **forecourt**. This matches the description provided in the question accurately.

49. Answer: d

Explanation:

Understanding Origami Papercraft Origins

Origami papercraft is a traditional and artistic method of folding paper to create various shapes and figures. The name itself, **Origami**, originates from Japanese words: 'ori' meaning 'folding,' and 'kami' meaning 'paper.' This art form has a rich history and deep cultural significance.

The Cultural Association of Origami Papercraft

The practice of **Origami papercraft** is historically and culturally linked to **Japan**. While paper originated in China, the art of paper folding as we know it today, involving precise folds and the creation of intricate designs, was significantly developed and popularized in **Japan**. It became an integral part of Japanese culture, often practiced during special occasions and as a form of meditative art.

Examining the Options for Origami's Country of Origin

To determine the country associated with **Origami papercraft**, let's review the given options:

- **Italy:** Italy is renowned for its art, history, and culinary traditions, but it does not have a historical connection to the origins of Origami papercraft.
- **France:** France boasts a rich cultural heritage, particularly in arts and fashion, yet Origami papercraft is not a traditional craft originating from France.
- **Philippines:** The Philippines has a diverse array of traditional crafts and art forms, but Origami papercraft is not native to this country.
- **Japan:** Japan is widely recognized as the country where **Origami papercraft** originated and flourished. The techniques, aesthetic principles, and cultural integration of Origami are deeply rooted in Japanese heritage.

Final Association: Origami Papercraft and Japan

Based on historical evidence and cultural recognition, **Origami papercraft** is strongly associated with **Japan**, its country of origin and development.

50. Answer: a

Explanation:

Understanding the Sanskrit Ramayana Author

The question asks to identify the author of the **Sanskrit Ramayana**. This epic poem is a foundational text in Hinduism and Indian culture.

Identifying the Author of the Sanskrit Ramayana

The original epic narrative of the Ramayana, composed in classical Sanskrit, is traditionally attributed to the sage **Valmiki**. He is considered the first poet (Adi Kavi) and the Sanskrit Ramayana is often referred to as the 'Valmiki Ramayana'.

Analysis of Options

Let's examine the given options:

- **Valmiki**: Widely recognized as the author of the Sanskrit Ramayana.
- **Kabir**: A renowned 15th-century mystic poet and saint, whose works are primarily in Hindi (Braj Bhasha and other dialects), not Sanskrit, and are distinct from the Ramayana narrative.
- **Tulsidas**: A 16th-century poet famous for writing the 'Ramcharitmanas', which retells the story of Rama but is written in the Awadhi language, a dialect of Hindi, not classical Sanskrit.
- **Vyasa**: Traditionally credited with compiling and writing the Mahabharata and the Puranas, not the Sanskrit Ramayana.

Conclusion on Sanskrit Ramayana

Based on literary tradition and historical consensus, **Valmiki** is the author credited with writing the **Sanskrit Ramayana**.

51. Answer: b

Explanation:

Analyzing Speeds and Circular Ground Parameters

This problem involves finding the time when three individuals, A, B, and C, starting simultaneously from the same point on a **circular ground**, will meet again at that exact starting point. We are given their respective speeds and the length of the

circular ground. To solve this, we need to calculate the time it takes for each individual to complete one full circle and then find the least common multiple (LCM) of these times.

Given Information:

- Speed of A: 36 km/h
- Speed of B: 54 km/h
- Speed of C: 18 km/h
- Length of the circular ground (Distance for one lap): 1200 m

Converting Speeds to Meters Per Second (m/s)

First, it's essential to work with consistent units. Since the track length is in meters and the final time is expected in seconds, we should convert the speeds from kilometers per hour (km/h) to meters per second (m/s). The conversion factor is:

$$1 \text{ km/h} = \frac{1000 \text{ m}}{3600 \text{ s}} = \frac{5}{18} \text{ m/s}.$$

- **Speed of A:** $\text{Speed}_A = 36 \text{ km/h} \times \frac{5}{18} \text{ m/s} = 2 \times 5 \text{ m/s} = 10 \text{ m/s}$
- **Speed of B:** $\text{Speed}_B = 54 \text{ km/h} \times \frac{5}{18} \text{ m/s} = 3 \times 5 \text{ m/s} = 15 \text{ m/s}$
- **Speed of C:** $\text{Speed}_C = 18 \text{ km/h} \times \frac{5}{18} \text{ m/s} = 1 \times 5 \text{ m/s} = 5 \text{ m/s}$

Calculating Individual Time to Complete One Lap

For A, B, and C to meet again at the starting point, each must have completed a whole number of laps. We calculate the time each person takes to complete exactly one lap (1200 m) using the formula: $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$.

- **Time for A to complete one lap:** $\text{Time}_A = \frac{1200 \text{ m}}{10 \text{ m/s}} = 120 \text{ seconds}$
- **Time for B to complete one lap:** $\text{Time}_B = \frac{1200 \text{ m}}{15 \text{ m/s}} = 80 \text{ seconds}$
- **Time for C to complete one lap:** $\text{Time}_C = \frac{1200 \text{ m}}{5 \text{ m/s}} = 240 \text{ seconds}$

Determining the Time to Meet at the Starting Point

They will all meet at the starting point again after a time that is the least common multiple (LCM) of their individual lap times (120 s, 80 s, and 240 s). This is because

the LCM represents the smallest time interval after which all three will simultaneously arrive back at the starting line.

To find the LCM of 120, 80, and 240, we can use prime factorization:

- $120 = 12 \times 10 = (2^2 \times 3) \times (2 \times 5) = 2^3 \times 3^1 \times 5^1$
- $80 = 8 \times 10 = (2^3) \times (2 \times 5) = 2^4 \times 5^1$
- $240 = 24 \times 10 = (2^3 \times 3) \times (2 \times 5) = 2^4 \times 3^1 \times 5^1$

The LCM is found by taking the highest power of each prime factor present in the numbers:

$$\text{LCM}(120, 80, 240) = 2^{\max(3,4,4)} \times 3^{\max(1,0,1)} \times 5^{\max(1,1,1)} \quad \text{LCM} = 2^4 \times 3^1 \times 5^1 \quad \text{LCM} = 16 \times 3 \times 5$$

$$\text{LCM} = 16 \times 15 \quad \text{LCM} = 240 \text{ seconds}$$

Therefore, individuals A, B, and C will all meet again at the starting point after 240 seconds.

52. Answer: a

Explanation:

Understanding Work Rates for X and Y

This problem involves calculating the time taken to complete a work, considering individual rates and combined effort. We need to find out how long it takes Y to finish the remaining part of the work after X leaves.

- **X's Work Rate:** X completes the work in 10 days. Therefore, in 1 day, X completes $\frac{1}{10}$ of the total work.
- **Y's Work Rate:** Y completes the same work in 15 days. So, in 1 day, Y completes $\frac{1}{15}$ of the total work.

Calculating Combined Work and Work Done

First, let's determine how much work X and Y do when they work together.

- **Combined Daily Rate:** When working together, their combined rate is the sum of their individual rates:

$$X's \text{ Rate} + Y's \text{ Rate} = \frac{1}{10} + \frac{1}{15}$$

To add these fractions, we find a common denominator, which is 30:

$$\frac{1}{10} + \frac{1}{15} = \frac{3}{30} + \frac{2}{30} = \frac{5}{30} = \frac{1}{6}$$

So, together, X and Y complete $\frac{1}{6}$ of the work each day.

- **Work Done in 2 Days:** They work together for 2 days. The amount of work done in these 2 days is:

$$\text{Combined Rate} \times \text{Time} = \frac{1}{6} \times 2 \text{ days} = \frac{2}{6} = \frac{1}{3}$$

Together, X and Y completed $\frac{1}{3}$ of the total work in 2 days.

Determining the Remaining Work

After 2 days, X leaves. We need to calculate how much work is left to be done.

- **Total Work:** We consider the total work to be 1 unit.
- **Remaining Work Calculation:**

$$\text{Remaining Work} = \text{Total Work} - \text{Work Done}$$

$$\text{Remaining Work} = 1 - \frac{1}{3} = \frac{3}{3} - \frac{1}{3} = \frac{2}{3}$$

So, $\frac{2}{3}$ of the work remains to be completed.

Calculating Time for Y to Complete Remaining Work

Now, only Y works to complete the remaining $\frac{2}{3}$ of the work. We use Y's individual work rate to find the time taken.

- **Time Formula:** The time taken to complete a task is calculated as:

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

- **Time for Y:** Y needs to complete the remaining $\frac{2}{3}$ of the work, and Y's rate is $\frac{1}{15}$ of the work per day.

$$\text{Time taken by Y} = \frac{\text{Remaining Work}}{\text{Y's Rate}}$$

$$\text{Time taken by Y} = \frac{\frac{2}{3}}{\frac{1}{15}}$$

$$\text{Time taken by Y} = \frac{2}{3} \times \frac{15}{1}$$

$$\text{Time taken by Y} = \frac{30}{3} = 10$$

Therefore, Y will take 10 days to complete the remaining work.

53. Answer: a

Explanation:

This problem involves calculating the distance covered by person A when two individuals, A and B, travel towards each other in opposite directions and meet at a specific point.

Understanding Speeds and Start Times

We are given the following information:

- Speed of A (S_A): 45 km/h
- Speed of B (S_B): 60 km/h
- A starts at 9:00 AM.
- B starts at 10:00 AM.
- They travel in opposite directions.
- They meet at the midpoint of the total distance covered.

The key difference in their start times is 1 hour. B starts 1 hour after A.

Calculating A's Head Start Distance

Before B starts travelling at 10:00 AM, A has already been travelling for 1 hour (from 9:00 AM to 10:00 AM). We can calculate the distance A covers during this hour:

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

$$\text{Distance covered by A before 10:00 AM} = S_A \times 1 \text{ hour} = 45 \text{ km/h} \times 1 \text{ h} = 45 \text{ km.}$$

Setting Up Equations for Meeting Point

Let the total distance between their starting points be D . The condition states they meet at the half of the total distance. This means the meeting point is $D/2$ from A's starting point and $D/2$ from B's starting point.

Let t be the time in hours after 10:00 AM when they meet.

At the meeting time:

- Total time travelled by A = $1 + t$ hours (since A started 1 hour earlier).
- Total time travelled by B = t hours.

The distance covered by A until they meet is:

$$\text{Distance}_A = S_A \times (1 + t) = 45(1 + t) \text{ km.}$$

The distance covered by B until they meet is:

$$\text{Distance}_B = S_B \times t = 60t \text{ km.}$$

According to the problem, they meet at the midpoint, meaning $\text{Distance}_A = D/2$ and $\text{Distance}_B = D/2$. Therefore:

1. $45(1 + t) = D/2$
2. $60t = D/2$

Solving for the Time to Meet

We can find the time t by setting the two expressions for $D/2$ equal to each other:

$$45(1 + t) = 60t$$

Expand the equation:

$$45 + 45t = 60t$$

Subtract $45t$ from both sides:

$$45 = 60t - 45t$$

$$45 = 15t$$

Solve for t :

$$t = \frac{45}{15}$$

$$t = 3 \text{ hours.}$$

This means they meet 3 hours after B started (i.e., 3 hours after 10:00 AM).

Determining the Distance Covered by A

The question asks for the distance covered by A in the journey. This is the value of Distance_A, which is equal to $D/2$. We can use the value of t we just found.

Using the formula for Distance_A:

$$\text{Distance}_A = 45(1 + t)$$

Substitute $t = 3$:

$$\text{Distance}_A = 45(1 + 3) = 45 \times 4$$

$$\text{Distance}_A = 180 \text{ km.}$$

Alternatively, we can use the distance covered by B, since Distance_B = $D/2$:

$$\text{Distance}_B = 60t = 60 \times 3 = 180 \text{ km.}$$

Since $\text{Distance}_A = D/2$ and $\text{Distance}_B = D/2$, both distances are equal, confirming our calculation. The distance covered by A is 180 km.

54. Answer: b

Explanation:

Average Age to Total Age Calculation

This problem asks us to calculate the combined age of an entire family. We are provided with the average age for distinct groups: **grandparents**, **parents**, and **grandchildren**. To solve this, we'll first determine the total age for each group using the average age and the number of people in that group. The formula connecting these is: $\text{Total Sum} = \text{Average Age} \times \text{Number of People}$.

Calculating Grandparents' Combined Age

First, let's find the total age of the **grandparents**.

- Number of grandparents = 2
- Average age of grandparents = 75 years
- Total age calculation: 75×2
- Total age of grandparents = 150 years

Calculating Parents' Combined Age

Next, we calculate the total age of the **parents**.

- Number of parents = 3
- Average age of parents = 45 years
- Total age calculation: 45×3
- Total age of parents = 135 years

Calculating Grandchildren's Combined Age

Then, we find the total age of the **grandchildren**.

- Number of grandchildren = 4
- Average age of grandchildren = 25 years
- Total age calculation: 25×4
- Total age of grandchildren = 100 years

Finding the Total Family Age

Finally, to get the **total family age**, we sum the total ages calculated for each group:

- Total Family Age = Total Age (Grandparents) + Total Age (Parents) + Total Age (Grandchildren)
- Total Family Age = $150 + 135 + 100$
- Total Family Age = 385 years

So, the combined age of the whole family is 385 years.

55. Answer: d

Explanation:

This problem asks us to find the **average speed** for a complete **journey** involving travel from point A to point B and then returning from B to A.

Understanding Average Speed Calculation

The average speed is not simply the average of the two speeds given (20 Km/hr and 30 Km/hr). This is because the time spent traveling at each speed is different. The correct formula for average speed is:

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

Breaking Down the Journey

Let's define the variables:

- Let the distance between point A and point B be d Km.
- The speed from A to B (v_1) is 20 Km/hr.
- The speed from B to A (v_2) is 30 Km/hr.

Calculating Total Distance

The person travels from A to B (distance d) and then returns from B to A (distance d).

- Distance (A to B) = d Km
- Distance (B to A) = d Km
- **Total Distance** = Distance (A to B) + Distance (B to A) = $d + d = 2d$ Km.

Calculating Total Time

We need to calculate the time taken for each part of the journey using the formula
Time = Distance / Speed.

- Time taken for the journey from A to B (t_1) = $\frac{\text{Distance (A to B)}}{v_1} = \frac{d}{20}$ hours.
- Time taken for the journey from B to A (t_2) = $\frac{\text{Distance (B to A)}}{v_2} = \frac{d}{30}$ hours.
- **Total Time** = $t_1 + t_2 = \frac{d}{20} + \frac{d}{30}$ hours.

To add these fractions, we find a common denominator, which is 60:

- Total Time = $\frac{3 \times d}{3 \times 20} + \frac{2 \times d}{2 \times 30} = \frac{3d}{60} + \frac{2d}{60}$
- Total Time = $\frac{3d+2d}{60} = \frac{5d}{60}$ hours.

Simplifying the fraction:

- Total Time = $\frac{d}{12}$ hours.

Calculating the Average Speed

Now we apply the average speed formula using the total distance and total time we calculated.

- Average Speed = $\frac{\text{Total Distance}}{\text{Total Time}}$
- Average Speed = $\frac{2d \text{ Km}}{\frac{d}{12} \text{ hours}}$

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

- Average Speed = $2d \times \frac{12}{d}$ Km/hr
- Average Speed = 2×12 Km/hr
- Average Speed = 24 Km/hr

Conclusion

The average speed of the person for the whole journey is 24 Km/hr.

56. Answer: a

Explanation:

Understanding Student Fee Payment and Scholarships

This solution aims to find the total number of students receiving a scholarship based on the provided information about fee payment percentages and the number of students who do not pay fees.

Calculating Total Student Population

Let T be the total number of students in the college.

- Percentage of girls = 40%
- Number of girls = $0.40 \times T$
- Percentage of boys = $100\% - 40\% = 60\%$
- Number of boys = $0.60 \times T$

We are given the percentages of boys and girls who pay their fees:

- Boys paying fees = 85%
- Girls paying fees = 92.5%

From this, we can find the percentages of students who do not pay their fees:

- Boys not paying fees = $100\% - 85\% = 15\%$
- Girls not paying fees = $100\% - 92.5\% = 7.5\%$

Now, let's calculate the number of boys and girls not paying fees in terms of T :

- Number of boys not paying fees = 15% of (60% of T) = $0.15 \times (0.60 \times T) = 0.09 \times T$
- Number of girls not paying fees = 7.5% of (40% of T) = $0.075 \times (0.40 \times T) = 0.03 \times T$

The total number of students not paying fees is the sum of boys and girls not paying fees:

- Total students not paying fees = $(0.09 \times T) + (0.03 \times T) = 0.12 \times T$

We are given that the total number of students not paying fees is 180.

- $0.12 \times T = 180$
- $T = \frac{180}{0.12}$
- $T = \frac{18000}{12}$
- $T = 1500$

So, the total number of students in the college is 1500.

Calculating Students Paying Fees

Let's calculate the actual number of boys and girls:

- Number of girls = 40% of 1500 = $0.40 \times 1500 = 600$
- Number of boys = 60% of 1500 = $0.60 \times 1500 = 900$

Now, calculate the number of boys and girls paying fees:

- Number of boys paying fees = 85% of 900 = $0.85 \times 900 = 765$
- Number of girls paying fees = 92.5% of 600 = $0.925 \times 600 = 555$

The total number of students paying fees is:

- Total students paying fees = Number of boys paying fees + Number of girls paying fees

- Total students paying fees = $765 + 555 = 1320$

Determining Scholarship Recipients

We are told that half ($1/2$) of the students who pay their fees receive a scholarship.

- Students getting scholarship = $\frac{1}{2} \times (\text{Total students paying fees})$
- Students getting scholarship = $\frac{1}{2} \times 1320$
- Students getting scholarship = 660

Therefore, 660 students get a scholarship.

57. Answer: a

Explanation:

This problem involves calculating savings based on percentages of pocket money and a total amount. We need to determine the savings of sibling B, given information about sibling A's pocket money, spending, and savings, as well as B's share of the total pocket money and spending habits.

Calculating A's Pocket Money

We are given that sibling A spends 20% of his pocket money. This means A saves the remaining percentage:

$$\text{A's Saving Percentage} = 100\% - 20\% = 80\%$$

We know that A's saving is Rs. 144. If 80% of A's pocket money is Rs. 144, we can calculate A's total pocket money (let's call it P_A).

Using the formula:

$$\text{A's Savings} = \text{A's Saving Percentage} \times P_A$$

$$144 = 0.80 \times P_A$$

To find P_A , we rearrange the equation:

$$P_A = \frac{144}{0.80}$$

$$P_A = \frac{1440}{8}$$

$$P_A = 180$$

So, A's pocket money is Rs. 180.

Determining the Total Pocket Money Amount

The problem states that A's pocket money is 30% of the total amount. We know A's pocket money is Rs. 180.

Let the total amount of pocket money be T .

$$\text{A's Pocket Money} = 30\% \times T$$

$$180 = 0.30 \times T$$

To find the total amount T :

$$T = \frac{180}{0.30}$$

$$T = \frac{1800}{3}$$

$$T = 600$$

Therefore, the total pocket money amount available to the siblings is Rs. 600.

Calculating B's Pocket Money

We are told that B's pocket money is 20% of the total amount. We found the total amount to be Rs. 600.

Let B's pocket money be P_B .

$$P_B = 20\% \times T$$

$$P_B = 0.20 \times 600$$

$$P_B = 120$$

So, B's pocket money is Rs. 120.

Calculating B's Savings

Sibling B spends 50% of his pocket money. This means B saves the remaining percentage:

$$\text{B's Saving Percentage} = 100\% - 50\% = 50\%$$

Now, we calculate B's savings using his pocket money amount ($P_B = 120$):

$$\text{B's Savings} = \text{B's Saving Percentage} \times P_B$$

$$\text{B's Savings} = 50\% \times 120$$

$$\text{B's Savings} = 0.50 \times 120$$

$$\text{B's Savings} = 60$$

Thus, B's savings are Rs. 60.

Final Answer

Based on the calculations, sibling B's savings are Rs. 60. This matches Option 1.

58. Answer: b

Explanation:

Understanding the Cost and Selling Price Relationship for Shirts

This question involves finding the **profit percentage** based on a relationship between the **cost** price of multiple shirts and the **selling** price of a different quantity of the same shirts. We are told that the cost incurred for 12 shirts is exactly the same as the revenue received from selling 8 shirts.

Determining the Ratio of Selling Price to Cost Price

Let's denote the cost price (CP) of a single shirt as ' C ' and the selling price (SP) of a single shirt as ' S '.

From the problem statement:

- The total cost price for 12 shirts = $12 \times C$.
- The total selling price for 8 shirts = $8 \times S$.

The problem states these amounts are equal:

$$12C = 8S$$

To calculate the profit percentage, we need to understand how the selling price relates to the cost price. We can rearrange the equation to find the ratio of the selling price (S) to the cost price (C):

$$\frac{S}{C} = \frac{12}{8}$$

Simplifying this fraction gives us:

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

This ratio ($S/C = 3/2$) means that the selling price of one shirt is 1.5 times its cost price. For every 2 units of cost, the shirt is sold for 3 units.

Calculating Profit per Shirt

Profit is defined as the selling price minus the cost price. Let's calculate the profit made on one shirt:

$$\text{Profit} = S - C$$

Using the relationship $S = \frac{3}{2}C$ that we derived:

$$\text{Profit} = \left(\frac{3}{2}C\right) - C$$

To subtract, we find a common denominator:

$$\text{Profit} = \left(\frac{3}{2}C\right) - \left(\frac{2}{2}C\right)$$

$$\text{Profit} = \left(\frac{3-2}{2}\right) C$$

$$\text{Profit} = \frac{1}{2}C$$

This calculation shows that the profit made on each shirt is equal to half of its cost price.

Calculating the Profit Percentage

The profit percentage is calculated using the formula:

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

Now, we substitute the values we found for profit and cost price per shirt:

- Profit = $\frac{1}{2}C$
- Cost Price = C

Plugging these into the formula:

$$\text{Profit Percentage} = \left(\frac{\frac{1}{2}C}{C}\right) \times 100\%$$

The ' C ' (cost price) cancels out in the fraction:

$$\text{Profit Percentage} = \left(\frac{1}{2}\right) \times 100\%$$

$$\text{Profit Percentage} = 50\%$$

Final Answer Summary

The profit percentage earned in this transaction, where the cost of 12 shirts equals the selling price of 8 shirts, is 50%.

59. Answer: c

Explanation:

Work and Time Concepts Explained

This problem involves calculating the time required to complete a work given different combinations of workers (men and women) and their working capacities. We need to determine the individual work rate of a man and a woman to solve this.

Let ' M ' represent the amount of work one man can complete in one day.

Let ' W ' represent the amount of work one woman can complete in one day.

The total amount of work required to complete the task is constant.

Equations from Work Scenarios

We can set up equations based on the information provided:

- **Scenario 1:** 24 men and 6 women complete the work in 10 days. The total work done is the sum of work done by men and women over the given time. $\text{Work} = (\text{Number of Men} \times \text{Man's Rate} + \text{Number of Women} \times \text{Woman's Rate}) \times \text{Days}$
 $\text{Work} = (24M + 6W) \times 10$ $\text{Work} = 240M + 60W$ (Equation 1)
- **Scenario 2:** 6 men and 6 women complete the same work in 12 days. $\text{Work} = (6M + 6W) \times 12$ $\text{Work} = 72M + 72W$ (Equation 2)

Relationship Between Men and Women Work Rate

Since the total work is the same in both scenarios, we can equate Equation 1 and Equation 2:

$$240M + 60W = 72M + 72W$$

Now, we rearrange the terms to find the relationship between M and W:

$$240M - 72M = 72W - 60W$$

$$168M = 12W$$

Divide both sides by 12:

$$\frac{168M}{12} = \frac{12W}{12}$$

$$14M = W$$

This result tells us that the amount of work one woman can do in a day is equivalent to the amount of work 14 men can do in a day.

Combined Work Rate Calculation

We need to find out how long it takes for 4 men and 1 woman to complete the work.

First, calculate their combined daily work rate:

$$\text{Combined Rate} = (4 \text{ Men's Rate}) + (1 \text{ Woman's Rate}) \quad \text{Combined Rate} = 4M + W$$

Substitute the value of W (from $W = 14M$) into the expression:

$$\text{Combined Rate} = 4M + 14M \quad \text{Combined Rate} = 18M$$

So, 4 men and 1 woman working together can complete $18M$ worth of work in one day.

Total Work Calculation

Let's calculate the total amount of work in terms of 'M' using Equation 1 (we could also use Equation 2):

$$\text{Work} = 240M + 60W$$

Substitute $W = 14M$:

$$\text{Work} = 240M + 60(14M) \quad \text{Work} = 240M + 840M \quad \text{Work} = 1080M$$

The total work required is equivalent to $1080M$.

Time Calculation for the Task

To find the number of days required for 4 men and 1 woman to complete the work, we use the formula:

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

Substitute the values we found:

$$\text{Time} = \frac{1080M}{18M} \quad \text{Time} = \frac{1080}{18} \quad \text{Time} = 60$$

Therefore, 4 men and 1 woman will complete the work in 60 days.

60. Answer: d

Explanation:

Evaluating the Expression with Cubes

This solution focuses on calculating the value of a mathematical expression that involves the **cubes** of decimal numbers and subsequent **division**. We will break down the calculation step-by-step, converting decimals to fractions for easier computation.

The expression to evaluate is:

$$\left[(0.3)^3 + (0.6)^3 \right] \div \left[(0.6)^3 + (0.2)^3 \right]$$

Converting Decimals for Calculation

Working with fractions often simplifies calculations involving powers and division. We convert the decimal numbers in the expression to fractions with a common

denominator, which makes adding terms with the same power easier:

- $0.3 = \frac{3}{10}$
- $0.6 = \frac{6}{10}$
- $0.2 = \frac{2}{10}$

Calculating the Cubes of Decimals

The next step is to calculate the **cube** (the third power, or raising to the power of 3) of each fraction:

- $(0.3)^3 = \left(\frac{3}{10}\right)^3 = \frac{3 \times 3 \times 3}{10 \times 10 \times 10} = \frac{27}{1000}$
- $(0.6)^3 = \left(\frac{6}{10}\right)^3 = \frac{6 \times 6 \times 6}{10 \times 10 \times 10} = \frac{216}{1000}$
- $(0.2)^3 = \left(\frac{2}{10}\right)^3 = \frac{2 \times 2 \times 2}{10 \times 10 \times 10} = \frac{8}{1000}$

Adding Terms for Numerator and Denominator

Now, we substitute these calculated cube values back into the original expression and perform the addition operations within the brackets (the numerator and the denominator separately):

Numerator Calculation:

The numerator involves the sum of the first two cubed terms:

$$(0.3)^3 + (0.6)^3 = \frac{27}{1000} + \frac{216}{1000}$$

Since the denominators are the same (1000), we simply add the numerators:

$$\frac{27+216}{1000} = \frac{243}{1000}$$

Denominator Calculation:

The denominator involves the sum of the second and third cubed terms:

$$(0.6)^3 + (0.2)^3 = \frac{216}{1000} + \frac{8}{1000}$$

Adding the numerators because the denominators are the same:

$$\frac{216+8}{1000} = \frac{224}{1000}$$

Performing the Division

With the numerator and denominator values calculated, we now perform the **division** as required by the expression:

$$\text{Expression} = \frac{\text{Numerator}}{\text{Denominator}} = \frac{\frac{243}{1000}}{\frac{224}{1000}}$$

To divide one fraction by another, we multiply the first fraction by the reciprocal of the second fraction:

$$\frac{243}{1000} \times \frac{1000}{224}$$

Notice that the 1000 in the numerator and the denominator cancel each other out:

$$\frac{243 \times \cancel{1000}}{\cancel{1000} \times 224} = \frac{243}{224}$$

Final Result

The step-by-step calculation shows that the value of the given expression simplifies to $\frac{243}{224}$. This fraction represents the final answer after performing all the operations.

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61. Answer: c

Explanation:

Finding the Simple Interest Rate

This explanation details how to calculate the rate of simple interest when the total amount grows significantly over a period. We will break down the problem, explain the relevant concepts, and show the step-by-step calculation to find the interest rate.

Understanding Simple Interest Concepts

Simple Interest is a method of calculating the interest charge on a loan or investment. It is determined by multiplying the daily interest rate by the principal by the number of days that elapse until the payment is due. The formula used is:

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

Where:

- SI is the Simple Interest earned.
- P is the Principal amount (the initial amount of money).
- R is the Rate of interest per year (in percent).
- T is the Time period in years.

The final **Amount** (A) is the sum of the Principal and the Simple Interest:

$$A = P + SI$$

Problem Breakdown: Simple Interest Scenario

The question asks us to find the **rate of simple interest** under specific conditions:

- The **time period** (T) is 20 years.
- The final **amount** (A) becomes 7 times the initial **principal** (P). This means $A = 7P$.

Our goal is to find the value of R .

Calculating the Simple Interest Rate

Let's follow these steps:

1. Express Interest in terms of Principal:

We know that the Amount (A) is the sum of Principal (P) and Simple Interest (SI).

$$A = P + SI$$

Given that $A = 7P$, we can substitute this into the equation:

$$7P = P + SI$$

Now, we can find the Simple Interest (SI) by rearranging the equation:

$$SI = 7P - P$$

$$SI = 6P$$

This tells us that the interest earned over 20 years is 6 times the original principal.

2. Use the Simple Interest Formula:

We use the standard formula for simple interest:

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

3. Substitute Known Values:

We substitute the values we know: $SI = 6P$, $T = 20$ years.

$$6P = \frac{P \times R \times 20}{100}$$

4. Solve for the Rate (R):

To find R , we can first cancel out P from both sides (assuming the principal is not zero):

$$6 = \frac{R \times 20}{100}$$

Now, simplify the fraction $\frac{20}{100}$:

$$6 = \frac{R}{5}$$

To isolate R , multiply both sides by 5:

$$R = 6 \times 5$$

$$R = 30$$

Result: Simple Interest Rate Determination

The calculation shows that the rate of simple interest required for the amount to become 7 times itself in 20 years is 30% per year.

62. Answer: d

Explanation:

Understanding How One Fraction Exceeds Another

The question asks us to find the difference between two given fractional expressions. Specifically, we need to calculate how much the first expression, $\frac{7}{(\frac{8}{9})}$, is greater than the second expression, $\frac{8}{(\frac{9}{7})}$.

Simplifying the First Fractional Expression

First, let's simplify the expression $\frac{7}{(\frac{8}{9})}$. Dividing by a fraction is the same as multiplying by its reciprocal.

- The expression can be written as $7 \div \frac{8}{9}$.
- The reciprocal of $\frac{8}{9}$ is $\frac{9}{8}$.
- So, the expression becomes $7 \times \frac{9}{8}$.
- Performing the multiplication: $\frac{7 \times 9}{8} = \frac{63}{8}$.

Therefore, the first expression simplifies to $\frac{63}{8}$.

Simplifying the Second Fractional Expression

Next, we simplify the second expression, $\frac{8}{(\frac{9}{7})}$.

- This can be written as $8 \div \frac{9}{7}$.
- The reciprocal of $\frac{9}{7}$ is $\frac{7}{9}$.
- So, the expression becomes $8 \times \frac{7}{9}$.
- Performing the multiplication: $\frac{8 \times 7}{9} = \frac{56}{9}$.

Thus, the second expression simplifies to $\frac{56}{9}$.

Calculating the Difference Between the Expressions

Now, we need to find how much $\frac{63}{8}$ exceeds $\frac{56}{9}$. This means we calculate the difference: $\frac{63}{8} - \frac{56}{9}$.

To subtract these fractions, we need a common denominator. The least common multiple (LCM) of the denominators 8 and 9 is $8 \times 9 = 72$.

- Convert $\frac{63}{8}$ to an equivalent fraction with a denominator of 72:

$$\frac{63}{8} = \frac{63 \times 9}{8 \times 9} = \frac{567}{72}$$

- Convert $\frac{56}{9}$ to an equivalent fraction with a denominator of 72:

$$\frac{56}{9} = \frac{56 \times 8}{9 \times 8} = \frac{448}{72}$$

- Now, subtract the second fraction from the first:

$$\frac{567}{72} - \frac{448}{72} = \frac{567 - 448}{72}$$

- Calculate the numerator: $567 - 448 = 119$.
- So, the difference is $\frac{119}{72}$.

Conclusion

The expression $\frac{7}{(\frac{8}{9})}$ exceeds the expression $\frac{8}{(\frac{9}{7})}$ by $\frac{119}{72}$.

63. Answer: c

Explanation:

Understanding the Shopkeeper's Profit Calculation

This problem involves calculating the overall percentage gain a shopkeeper makes on pens. We need to consider the initial cost, additional expenses, the price set for

sale, and the discount offered. The goal is to find out how much profit the shopkeeper made as a percentage of the total cost incurred.

Calculating Total Cost Price (CP)

First, let's determine the total amount the shopkeeper spent. This includes the cost of buying the pens and the expenses for transportation and packaging.

- Number of pens = 180
- Cost price per pen = Rs. 120
- Transportation and packaging cost = Rs. 2160

The total cost of the pens is calculated as:

Cost of pens = Number of pens $\times$ Cost price per pen

Cost of pens = $180 \times 120 = 21600$ Rs.

Now, add the transportation and packaging costs to find the total cost price (CP):

Total CP = Cost of pens + Transportation and packaging cost

Total CP = $21600 + 2160 = 23760$ Rs.

Determining the Selling Price (SP) per Pen

The shopkeeper set a marked price for each pen and then offered a discount. Let's calculate the actual selling price per pen after the discount.

- Marked price per pen = Rs. 150
- Discount percentage = 4%

The discount amount on each pen is:

Discount amount = Discount percentage $\times$ Marked price per pen

Discount amount = $4\% \times 150 = \frac{4}{100} \times 150 = 0.04 \times 150 = 6$ Rs.

The selling price (SP) per pen is the marked price minus the discount:

SP per pen = Marked price per pen – Discount amount

SP per pen = $150 - 6 = 144$ Rs.

Calculating Total Selling Price (SP)

With the selling price per pen determined, we can now find the total revenue generated from selling all the pens.

Total SP = Number of pens $\times$ SP per pen

Total SP = $180 \times 144 = 25920$ Rs.

Calculating the Overall Profit

Profit is the difference between the total selling price and the total cost price.

Profit = Total SP – Total CP

Profit = $25920 - 23760 = 2160$ Rs.

Calculating the Overall Percentage Gain

The overall percentage gain is calculated using the profit and the total cost price.

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

Percentage Gain = $\left(\frac{2160}{23760} \right) \times 100$

To simplify the fraction $\frac{2160}{23760}$, we can first divide both numbers by 10:

Percentage Gain = $\left(\frac{216}{2376} \right) \times 100$

Now, let's simplify the fraction $\frac{216}{2376}$. We can divide both the numerator and the denominator by common factors:

- Divide by 2: $\frac{108}{1188}$
- Divide by 2: $\frac{54}{594}$
- Divide by 2: $\frac{27}{297}$

- Divide by 9: $\frac{3}{33}$
- Divide by 3: $\frac{1}{11}$

So, the fraction simplifies to $\frac{1}{11}$.

$$\text{Percentage Gain} = \frac{1}{11} \times 100 = \frac{100}{11} \%$$

Converting the fraction to a decimal:

$$\text{Percentage Gain} \approx 9.09\%$$

Conclusion

The shopkeeper's overall percentage gain is approximately 9.09%. This is calculated by finding the total cost, the total selling price after discount, the profit made, and expressing that profit as a percentage of the total cost.

64. Answer: b

Explanation:

Given:

$$A : B = 3 : 6 = 1 : 2 \quad \text{-----(i)}$$

$$B : C = 7 : 28 = 1 : 4 \quad \text{-----(ii)}$$

Concept used:

If $P : Q$ and $Q : R$ are given, then $P : Q : R$ is given by

$$\begin{array}{ccc} P & : & Q \\ & \nearrow & \searrow \\ & Q & : & R \\ \hline P \times Q & : & Q \times Q & : & Q \times R \end{array}$$

Calculation:

$$A : B = 1 : 2$$

$$B : C = 1 : 4$$

To equate the value of B in both equations we will multiply equation (ii)

by 2 so we get,

$$\Rightarrow B : C = 2 : 8$$

$$\Rightarrow A : B : C = 1 \times 2 : 2 \times 2 : 2 \times 8$$

$$\Rightarrow A : B : C = 2 : 4 : 16 = 1 : 2 : 8$$

$$\therefore A : B : C = 1 : 2 : 8$$

65. Answer: a

Explanation:

Calculating the Simple Interest Rate for Investment

This question asks us to find the **rate of interest** at which a certain **sum** was invested, considering changes in the investment amount over time. We are given the initial investment, additional investments, total time, and the total simple interest earned.

Understanding Simple Interest

Simple interest is calculated only on the principal amount, or on that portion of the principal amount that remains unpaid and has not yet been amortized. The formula for simple interest (I) is:

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

Where:

- P is the Principal amount (the initial amount of money)
- R is the Rate of interest per year (%)
- T is the Time the money is invested or borrowed for, in years

Analyzing the Investment Scenario

The investment situation can be divided into two periods:

1. The first 3 years.
2. The period from year 3 to year 8.

We know the total interest earned over 8 years is **Rs. 4970**.

Calculating Interest for the First Period

For the first 3 years:

- Principal (P_1) = **Rs. 7000**
- Time (T_1) = **3 years**
- Rate (R) = $R\%$ (This is what we need to find)

The interest earned during this period (I_1) is:

$$I_1 = \frac{P_1 \times R \times T_1}{100}$$

$$I_1 = \frac{7000 \times R \times 3}{100}$$

$$I_1 = 70 \times R \times 3$$

$$I_1 = 210 \times R$$

Calculating Interest for the Second Period

After 3 years, an additional **Rs. 3000** was invested. The total time frame is **8 years**.

- The second period starts after 3 years and lasts until 8 years, so the time duration (T_2) is $8 - 3 = 5$ years.

- The new Principal (P_2) is the initial principal plus the additional amount: \$7000 + 3000 = **Rs. 10000\$.**
- Rate (R) = $R\%$

The interest earned during this second period (I_2) is:

$$I_2 = \frac{P_2 \times R \times T_2}{100}$$

$$I_2 = \frac{10000 \times R \times 5}{100}$$

$$I_2 = 100 \times R \times 5$$

$$I_2 = 500 \times R$$

Calculating the Total Interest and Solving for Rate

The total interest earned is the sum of the interest from both periods:

$$\text{Total Interest} = I_1 + I_2$$

We are given that the total interest is **Rs. 4970**.

$$4970 = (210 \times R) + (500 \times R)$$

Combine the terms with R :

$$4970 = (210 + 500) \times R$$

$$4970 = 710 \times R$$

Now, solve for R by dividing the total interest by 710:

$$R = \frac{4970}{710}$$

$$R = \frac{497}{71}$$

Performing the division:

$$R = 7$$

Conclusion

The rate of interest at which the sum was invested is 7%.

66. Answer: c

Explanation:

Average Salary Calculation for 6 Persons

This problem requires us to calculate the specific salary of the 6th person by utilizing the provided average salary information for a group of 6 people and a subgroup of 5 people.

Total Salary Calculation for Groups

We begin by calculating the total sum of salaries for both groups involved.

- **Total Salary for the Group of 6 Persons:**
 - Given: Average salary of 6 persons = Rs. 15,000.
 - The relationship between total salary, average salary, and the number of people is:

$$\text{Total Salary} = \text{Average Salary} \times \text{Number of Persons}$$

- Applying this formula for 6 persons:

$$\text{Total Salary}_{6 \text{ persons}} = \text{Rs. } 15,000 \times 6$$

$$\text{Total Salary}_{6 \text{ persons}} = \text{Rs. } 90,000$$

- So, the combined salary for all 6 people is Rs. 90,000.
- **Total Salary for the First 5 Persons:**
 - Given: Average salary of the first 5 persons = Rs. 12,000.
 - Using the same formula:

$$\text{Total Salary}_{5 \text{ persons}} = \text{Rs. } 12,000 \times 5$$

$$\text{Total Salary}_{5 \text{ persons}} = \text{Rs. } 60,000$$

- Thus, the combined salary for the first 5 people is Rs. 60,000.

Calculate 6th Person's Salary

To find the **salary of the 6th person**, we subtract the total earnings of the first 5 people from the total earnings of all 6 people. This difference isolates the 6th person's individual salary.

- Salary of 6th Person = (Total Salary of 6 Persons) – (Total Salary of first 5 Persons)
- Substituting the calculated total salaries:

$$\text{Salary of 6th Person} = \text{Rs. } 90,000 - \text{Rs. } 60,000$$

- Performing the subtraction:

$$\text{Salary of 6th Person} = \text{Rs. } 30,000$$

Therefore, the salary of the 6th person is Rs. 30,000.

Salary Data Summary Table

Group Description	Number of Persons	Average Salary (Rs.)	Total Salary (Rs.)
All 6 Persons	6	15,000	90,000
First 5 Persons	5	12,000	60,000
6th Person	1	(Calculated)	30,000

Confirming the 6th Person's Salary

The step-by-step calculation shows that the salary for the 6th person amounts to Rs. 30,000. This result is consistent with the options provided for the question.

67. Answer: c

Explanation:

Understanding Average Speed for a Two-Way Journey

The question asks us to calculate the **average speed** for a person named P who completes a round trip between Surat and Jaipur. The journey involves traveling from Surat to Jaipur at one speed and returning from Jaipur to Surat at a different speed. We need to find the overall average speed for the entire journey.

Average Speed Formula Explained

The fundamental formula for calculating average speed is:

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

It's important to remember that average speed is not simply the average of the two speeds (i.e., $(x + y)/2$), especially when the time spent traveling at each speed is different.

Step-by-Step Calculation for the Journey

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

1. **Define Distance:** Let the distance between Surat and Jaipur be denoted by D km.
2. **Calculate Time for the First Leg (Surat to Jaipur):**

The speed for this leg is x km/h.

Using the formula $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$,

$$\text{Time}_1 = \frac{D}{x} \text{ hours.}$$

3. **Calculate Time for the Second Leg (Jaipur to Surat):**

The speed for the return leg is y km/h.

$$\text{Time}_2 = \frac{D}{y} \text{ hours.}$$

4. Calculate Total Distance:

The total distance covered is the distance from Surat to Jaipur plus the distance from Jaipur back to Surat.

$$\text{Total Distance} = D + D = 2D \text{ km.}$$

5. Calculate Total Time:

The total time is the sum of the times taken for both legs of the journey.

$$\text{Total Time} = \text{Time}_1 + \text{Time}_2 = \frac{D}{x} + \frac{D}{y}$$

To add these fractions, we find a common denominator (xy):

$$\text{Total Time} = \frac{Dy}{xy} + \frac{Dx}{xy} = \frac{Dy+Dx}{xy} = \frac{D(y+x)}{xy} \text{ hours.}$$

6. Calculate the Average Speed:

Now, we apply the average speed formula using the total distance and total time:

$$\text{Average Speed} = \frac{\text{Total Distance}}{\text{Total Time}} = \frac{2D}{\frac{D(x+y)}{xy}}$$

To simplify, we multiply the total distance by the reciprocal of the total time:

$$\text{Average Speed} = 2D \times \frac{xy}{D(x+y)}$$

The distance D cancels out:

$$\text{Average Speed} = \frac{2 \times \cancel{D} \times xy}{\cancel{D}(x+y)} = \frac{2xy}{x+y} \text{ km/h}$$

Matching the Result with Options

The calculated average speed for the entire journey is $\frac{2xy}{x+y}$ km/h.

Let's compare this with the given options:

- Option 1: $\frac{2xy}{2x+y}$
- Option 2: $\frac{xy}{x+y}$
- Option 3: $\frac{2xy}{x+y}$
- Option 4: $\frac{2xy}{x+2y}$

Our calculated result, $\frac{2xy}{x+y}$, matches Option 3.

Conclusion

The average speed of P for the entire journey from Surat to Jaipur and back is $\frac{2xy}{x+y}$ km/h. This formula represents the harmonic mean of the two speeds, which is the correct way to calculate average speed when the distances traveled at different speeds are equal.

68. Answer: c

Explanation:

Understanding the Calculation Error

The problem involves a student making a mistake in a calculation. Specifically, the student **multiplied** a certain **number** using the fraction $3/5$ when the correct fraction should have been $2/5$. We need to find the **percentage error** in this calculation.

Calculating Correct and Actual Values

Let's assume the original **number** the student was working with is represented by the variable ' N '.

- **Correct Calculation:** The intended calculation was to multiply the number ' N ' by $\frac{2}{5}$. So, the correct result should be:

$$N \times \frac{2}{5} = \frac{2N}{5}$$

- **Actual Calculation:** The student actually **multiplied** the number ' N ' by $\frac{3}{5}$. So, the result the student obtained was:

$$N \times \frac{3}{5} = \frac{3N}{5}$$

Determining the Error in the Calculation

The error occurs because the student used the wrong fraction. The error is the difference between the result the student got and the correct result.

Error = (Actual Calculation) - (Correct Calculation)

Substituting the values we found:

$$\text{Error} = \frac{3N}{5} - \frac{2N}{5}$$

To subtract these fractions, they already have a common denominator (5):

$$\text{Error} = \frac{3N - 2N}{5} = \frac{N}{5}$$

So, the absolute error in the calculation is $\frac{N}{5}$.

Calculating the Percentage Error

The **percentage error** is calculated relative to the correct value. The formula is:

$$\text{Percentage Error} = \left(\frac{\text{Error}}{\text{Correct Value}} \right) \times 100\%$$

Now, let's plug in the values we calculated:

- Error = $\frac{N}{5}$
- Correct Value = $\frac{2N}{5}$

So, the percentage error is:

$$\text{Percentage Error} = \left(\frac{\frac{N}{5}}{\frac{2N}{5}} \right) \times 100\%$$

To simplify the fraction within the parentheses, we can multiply the numerator by the reciprocal of the denominator:

$$\text{Percentage Error} = \left(\frac{N}{5} \times \frac{5}{2N} \right) \times 100\%$$

The ' N ' terms cancel out, and the '5' terms also cancel out:

$$\text{Percentage Error} = \left(\frac{1}{2} \right) \times 100\%$$

Finally, calculate the percentage:

$$\text{Percentage Error} = 0.5 \times 100\% = 50\%$$

Therefore, the percentage error in the calculation is 50%.

69. Answer: d

Explanation:

Deconstructing Jumbled Letters: Finding the Odd One Out

The task requires us to rearrange jumbled letters into meaningful words and then identify the word that does not belong to the same category as the others. We need to carefully analyze the letters provided for each option.

Anagram Analysis: Identifying Body-Related Terms

Let's examine each jumbled word:

- **THLAAPS**: These letters can be rearranged to form **SPATULA**. A spatula is a common tool, often used in medical or laboratory settings.
- **THANAPH**: Rearranging these letters gives us **PHALANX**. A phalanx is a type of bone found in the fingers and toes, directly related to anatomy.
- **LESIED**: These letters can be rearranged to form **PILOSE**. In biology and anatomy, 'pilose' is an adjective meaning 'hairy'.

Identifying the Outlier: The Non-Anatomical Word

The words SPATULA, PHALANX, and PILOSE all relate to the human body, anatomy, or medical contexts. Now let's look at the last option:

- **ENAHTME**: Attempts to rearrange these letters do not yield a common word related to anatomy or the body. While words like 'THEME', 'NAME', 'MEET', or 'ANTHEM' can be formed or are close anagrams, they do not fit the established category related to the body.

Therefore, **ENAHTME** is the word that is different from the others because it does not form a meaningful word related to anatomy or the body, unlike SPATULA, PHALANX, and PILOSE.

The different word is ENAHTME.

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70. Answer: b

Explanation:

Decoding the Letter Analogy: BROWNIE to DTQYPKG

This question involves identifying a specific relationship between the letters of the word **BROWNIE** and the sequence **DTQYPKG**. Once this pattern is understood, we need to apply the same logic to the word **DOCUMENTARY** to find the missing sequence among the choices.

Pattern Identification: BROWNIE to DTQYPKG

To uncover the rule, let's compare the position of each letter in the alphabet (where A=1, B=2, ..., Z=26). We list the letters and their corresponding positions:

Word	Letter	Alphabet Position	Shift	Resulting Letter	Resulting Position
BROWNIE	B	2	+2	D	4
BROWNIE	R	18	+2	T	20
BROWNIE	O	15	+2	Q	17
BROWNIE	W	23	+2	Y	25
BROWNIE	N	14	+2	P	16
BROWNIE	I	9	+2	K	11
BROWNIE	E	5	+2	G	7

The table clearly shows that each letter in **BROWNIE** is replaced by the letter that is 2 places after it in the alphabet. The transformation can be described mathematically as: $\text{New Position} = (\text{Original Position} + 2) \pmod{26}$. (Note: we use modulo 26 to handle wrapping around the alphabet, e.g., Y+2 becomes A).

Applying the "+2" Shift Rule to DOCUMENTARY

We now apply the identified "+2" shift rule to each letter of the word **DOCUMENTARY**:

- D (position 4): $4 + 2 = 6$, which corresponds to F.
- O (position 15): $15 + 2 = 17$, which corresponds to Q.
- C (position 3): $3 + 2 = 5$, which corresponds to E.
- U (position 21): $21 + 2 = 23$, which corresponds to W.
- M (position 13): $13 + 2 = 15$, which corresponds to O.
- E (position 5): $5 + 2 = 7$, which corresponds to G.
- N (position 14): $14 + 2 = 16$, which corresponds to P.
- T (position 20): $20 + 2 = 22$, which corresponds to V.
- A (position 1): $1 + 2 = 3$, which corresponds to C.
- R (position 18): $18 + 2 = 20$, which corresponds to T.

- Y (position 25): $25 + 2 = 27$. Since 27 is greater than 26, we find the equivalent position by calculating $27 \pmod{26} = 1$. Position 1 corresponds to A.

Combining these results gives the transformed sequence: **FQEWOGPVCTA**.

Selecting the Correct Alternative

By comparing our derived sequence, **FQEWOGPVCTA**, with the provided options, we find that it matches Option 2.

- Option 1: FQEWONPVCTA
- Option 2: FQEWOGPVCTA
- Option 3: FQEWOGPVCTF
- Option 4: FQEWOMPVCTA

Therefore, the correct sequence related to **DOCUMENTARY**, following the established pattern, is **FQEWOGPVCTA**.

71. Answer: c

Explanation:

Analogy Explanation: Anthropology and Tissues

This question requires identifying the relationship between two pairs of words. The first pair establishes a connection, and we need to find the word that completes the second pair with the same relationship. The question is: **Anthropology** is related to **Human beings** in the same way as an unknown field of study is related to **Tissues**.

Understanding Anthropology

Anthropology is the scientific study of **human beings**. It explores human behavior, culture, biology, and societies across different times and places.

The Second Part of the Analogy: Tissues

We need to find the term that represents the scientific study of **tissues**. Tissues are groups of similar cells that perform a specific function in an organism.

Analyzing the Options

Let's examine each option to see which one specifically relates to the study of tissues:

- **Cytology:** This is the branch of biology concerned with the structure and function of plant and animal *cells*. It is not the study of tissues.
- **Lithology:** This is the branch of geology that studies rocks, specifically their composition, structure, formation, and classification. It is unrelated to the study of tissues.
- **Histology:** This is the branch of biology concerned with the study of the microscopic anatomy of *tissues*. It involves examining tissues using microscopes to understand their structure and organization.
- **Oncology:** This is the branch of medicine that deals with the prevention, diagnosis, and treatment of *cancer*. It is not the primary study of tissues in general.

Key Terminology Summary

Here's a summary of the fields of study mentioned and their subjects:

Field of Study	Subject of Study
Anthropology	Human beings
Cytology	Cells
Lithology	Rocks
Histology	Tissues
Oncology	Cancer

Conclusion: Selecting the Correct Word

Based on the definitions, **Histology** is the field dedicated to the study of **tissues**. Therefore, the analogy holds: Anthropology studies human beings, just as Histology studies tissues.

72. Answer: d

Explanation:

Analyzing the Analogy: Bihu and Assam

The question presents an analogy: "Bihu : Assam :: Kathakali : ?". We need to find the word that has the same relationship with "Kathakali" as "Assam" has with "Bihu".

First, let's understand the relationship between **Bihu** and **Assam**. **Bihu** is a prominent and widely celebrated festival primarily associated with the state of **Assam** in India. It signifies a major cultural event for the Assamese people.

Exploring Kathakali and its State

Next, we need to identify the relationship for **Kathakali**. **Kathakali** is a highly stylized classical Indian dance-drama known for its elaborate costumes, intricate makeup, and expressive storytelling through gestures and movements.

We need to find the Indian state that is most famously associated with **Kathakali**. Kathakali is recognized as the traditional dance form originating from and predominantly performed in the state of **Kerala**.

Determining the Related Word for Kathakali

Following the pattern of Festival : State :: Dance Form : State, we establish that just as Bihu belongs to Assam, Kathakali belongs to Kerala.

Let's look at the given options:

- Orissa

- Sikkim
- Karnataka
- Kerala

Comparing the identified relationship with the options, we find that **Kerala** is the correct state associated with the classical dance form **Kathakali**.

Therefore, the related word for Kathakali in this analogy is **Kerala**.

The complete analogy is: **Bihu : Assam :: Kathakali : Kerala**.

73. Answer: b

Explanation:

Water is made of two-component Hydrogen and Oxygen. So here one of this considered eg. Oxygen

Similarly,

Salt has two-component Chlorine and Sodium. So here we will consider Chlorine from the given option.

Hence, the correct answer is "Chlorine".

★ Additional Information

	Symbol	Atomic No.
Nitrogen	N	7
Chlorine	Cl	17
Fluorine	F	9
Bromine	Br	35

74. Answer: b

Explanation:

Odd Word Classification Strategy

The task is to identify the odd word out from the given options. This involves finding a common characteristic or category shared by three of the words and identifying the word that does not fit into this category.

Analyzing the Words: Hirakud, Sutlej, Almatti, Mettur

Let's look at each word individually to understand what it represents:

- **Hirakud:** This is the name of a famous dam located in the state of Odisha, India. It is built across the Mahanadi River.
- **Sutlej:** This is the name of a major river in Asia. It flows through China, India, and Pakistan. Dams like the Bhakra Nangal Dam are built on this river, but Sutlej itself is the name of the river.
- **Almatti:** This refers to the Almatti Dam, which is located in the state of Karnataka, India. It is built across the Krishna River.
- **Mettur:** This is the Mettur Dam, situated in the state of Tamil Nadu, India. It is constructed across the Kaveri River.

Identifying the Common Category

Upon reviewing the definitions, we can observe a pattern:

- Hirakud is classified as a **Dam**.
- Almatti is classified as a **Dam**.
- Mettur is classified as a **Dam**.

Therefore, Hirakud, Almatti, and Mettur share the common characteristic of being names of prominent **dams** in India.

Determining the Different Word

The word **Sutlej** does not fit the category of 'dam'. Instead, it represents a **river**.

Because Sutlej is a river, while the other three words are dams, Sutlej is the odd word out.

75. Answer: b

Explanation:

Identifying the Odd Word Related to Space

The question requires us to find the word that is different from the others among the given options: 'Stars', 'Celestial', 'Constellation', and 'Solar system'. All these terms relate to astronomy and outer space. We need to analyze their meanings and relationships to identify the outlier.

Defining the Astronomical Terms

Let's first understand the meaning of each term:

- **Stars:** Stars are massive, luminous spheres of plasma held together by their own gravity. They generate light and heat through nuclear fusion in their core. Examples include our Sun.
- **Constellation:** A constellation is a group of stars that appear to form a pattern or figure in the night sky, typically named after a mythological figure, animal, or object. Examples include Ursa Major or Orion.
- **Solar System:** A solar system consists of a star (like our Sun) and all the celestial objects gravitationally bound to it, such as planets, dwarf planets, moons, asteroids, and comets.
- **Celestial:** This word is an adjective used to describe anything that relates to the sky, outer space, or the heavens. It's a general descriptor for objects or phenomena in space.

Analyzing the Word Group

To find the odd word out, let's look at the category each word belongs to:

- 'Stars' is a noun referring to a specific type of astronomical object.
- 'Constellation' is a noun referring to a specific pattern or group of stars.
- 'Solar system' is a noun referring to a specific system containing a star and orbiting bodies.
- 'Celestial' is an adjective used to describe things related to space.

We can observe that 'Stars', 'Constellation', and 'Solar system' are all specific **entities** or **structures** found in space. They are all nouns representing concrete astronomical concepts.

Finding the Differentiating Factor

The term 'Celestial' stands apart from the others. While it relates to space, it functions differently:

- 'Celestial' is a **descriptor** (an adjective), not a specific object or system itself.
- We can have *celestial bodies* (which includes stars, planets etc.), *celestial mechanics*, or *celestial navigation*. It modifies or categorizes other nouns related to space.
- In contrast, 'Stars', 'Constellation', and 'Solar system' are the actual subjects or objects being described.

Conclusion: The Odd Word Out

Based on this analysis, 'Celestial' is the odd word out. It is an adjective used to describe things in space, whereas 'Stars', 'Constellation', and 'Solar system' are all nouns representing specific astronomical objects or arrangements within space.

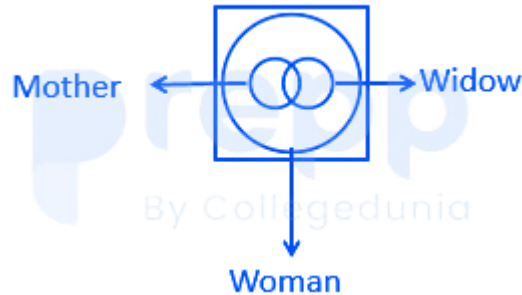
76. Answer: b

Explanation:

All mothers and widows are women.

Some mothers are widows.

Thus, the following Venn diagram best describes this relationship:



Hence, the correct answer is "option (2)".

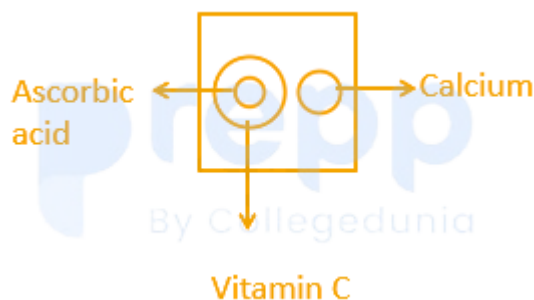
77. Answer: d

Explanation:

Ascorbic acid is a form of Vitamin C.

And Calcium is a different mineral.

Thus, the following Venn diagram best describes this relationship:



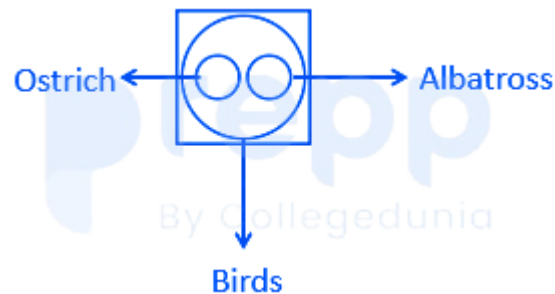
Hence, the correct answer is "option (4)".

78. Answer: c

Explanation:

Ostrich and Albatross are birds.

Thus, the following Venn diagram best describes this relationship:



Hence, the correct answer is "option (3)".

★ Additional Information

Ostrich The largest and heaviest living bird, the ostrich is flightless and instead is built for running.

Albatross

The albatross is one of the largest seabirds on Earth. It has the largest wingspan of any living bird. They are known for their excellent flying skills and can go miles without having to flap their wings a single time.

79. Answer: b

Explanation:

Moon is a natural satellite.

All natural satellites are celestial bodies.



Hence, the correct answer is "option (2)".

80. Answer: c

Explanation:

Analogy Explanation: Warmish : Gelid :: Reticent : ?

This question asks to identify the word that has the same relationship with "Reticent" as "Gelid" has with "Warmish". We need to carefully analyze the relationship between the first pair of words to determine the pattern.

Understanding the Relationship: Warmish and Gelid

Let's first break down the meanings of the words in the first pair:

- **Warmish:** This word means 'slightly warm' or 'moderately warm'. It suggests a mild degree of warmth.
- **Gelid:** This word means 'icy' or 'extremely cold'. It signifies a very low temperature.

The relationship between **Warmish** and **Gelid** is one of **antonyms**, specifically concerning temperature. "Warmish" represents a mild positive state (warmth), while

"Gelid" represents an extreme negative state (coldness). They are opposites on the temperature spectrum.

Analyzing the Target Word: Reticent

Now let's consider the word **Reticent**:

- **Reticent**: This word means 'not revealing one's thoughts or feelings readily'. Someone who is reticent is typically reserved, shy, or hesitant to speak openly.

Evaluating the Options

We need to find an option that is the opposite of "Reticent", similar to how "Gelid" is the opposite of "Warmish". Let's examine each choice:

- **1. Secretive**: Being secretive means intentionally hiding information or keeping things hidden. While related to not revealing things, it often implies a more active concealment than simply being reserved (reticent).
- **2. Hottish**: This word means 'somewhat hot'. It relates to temperature, like "Warmish", but it is not an opposite. "Warmish" and "Hottish" are similar in meaning (both indicating warmth), unlike "Warmish" and "Gelid".
- **3. Candid**: This word means 'truthful and straightforward; frank'. It implies speaking openly and honestly, without holding back thoughts or feelings. This is a direct opposite of being reserved or reluctant to speak, which defines "Reticent".
- **4. Wince**: To wince means to make a sudden, involuntary grimace or shrinking movement, usually out of pain or distress. This word is unrelated to the concept of communication or reservation.

Conclusion: Selecting the Best Antonym

Comparing "Reticent" (reserved, not speaking freely) with the options, **Candid** (frank, open, speaking freely) provides the clearest and most direct antonymous relationship. This mirrors the relationship between "Warmish" (slightly warm) and "Gelid" (extremely cold), where opposites are presented.

Therefore, the word that completes the analogy is "Candid".

81. Answer: a

Explanation:

Understanding the Analogy Relationship: Contiguity vs. Distance

The first part of the analogy compares **Contiguity** and **Distance**.

- **Contiguity** refers to the state of being close together, touching, or adjacent. It implies a lack of space or separation.
- **Distance** refers to the amount of space between two things or points; it signifies separation.

The relationship between **Contiguity** and **Distance** is one of opposition; they are antonyms. Contiguity represents the absence of distance, and distance represents the absence of contiguity.

Identifying the Relationship for Torment

The question asks us to find a word related to **Torment** in the same way that **Distance** is related to **Contiguity**. Since the first pair represents opposite concepts (antonyms), we need to find the antonym of **Torment** from the given options.

- **Torment** means extreme suffering, agony, or distress, either physical or mental.

We are looking for a word that means the opposite of suffering or distress.

Evaluating the Options for Torment's Antonym

Let's examine each option to see how it relates to **Torment**:

- **1. Delight**: This means great happiness, pleasure, or joy. It is the direct opposite of suffering and distress. Therefore, **Delight** is an antonym of **Torment**.
- **2. Domain**: This refers to a territory, an area of knowledge, or a field of activity. It has no direct relationship as an opposite to **Torment**.

- **3. Affliction:** This means something that causes pain or suffering. It is a synonym or a closely related concept to **Torment**, not an antonym.
- **4. Adjacency:** This means being next to or adjoining something else. It is similar in meaning to **Contiguity** and is unrelated to **Torment** as an opposite.

Conclusion: Finding the Opposite of Torment

Based on the antonym relationship identified between **Contiguity** and **Distance**, we need the antonym of **Torment**.

Comparing **Torment** (suffering) with the options:

- **Delight** (happiness/pleasure) is the clear opposite.
- **Affliction** is a synonym.
- **Domain** and **Adjacency** are unrelated concepts.

Therefore, the word that completes the analogy by being the opposite of **Torment** is **Delight**.

82. Answer: a

Explanation:

Odd Word Out Analysis

The question asks us to identify the word that is different from the others in a group of four: 'Feathery', 'Hefty', 'Heavy', and 'Massive'. We need to find a common characteristic among three words and pick the one that doesn't share it.

Analyzing Word Meanings

Let's examine the meaning of each word to understand their relationship:

- **Feathery:** This describes something that is very light, delicate, and resembles a feather in texture or weight. It implies a lack of significant weight.

- **Hefty:** This word means strongly and impressively large, heavy, and powerful. It relates to substantial weight and size.
- **Heavy:** This is a direct term for having a great weight.
- **Massive:** This word means large and heavy or solid. It indicates considerable size and weight.

Finding the Connection

By looking at the definitions, we can see that three of the words share a common theme:

- 'Hefty', 'Heavy', and 'Massive' all describe qualities associated with significant **weight** or being large and substantial.

Identifying the Different Word

The word 'Feathery' describes lightness, which is the opposite of the characteristic (heaviness) shared by 'Hefty', 'Heavy', and 'Massive'. Because it describes a lack of weight, 'Feathery' does not fit the pattern.

Therefore, the odd word out is **Feathery**.

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83. Answer: d

Explanation:

Identifying the Odd Word Out

This question requires us to identify the word that is different from the others based on a shared characteristic. We need to find a common link between three of the words and then single out the one that does not share this link.

Analyzing the Meaning of Each Word

Let's explore the meaning of each option to find the connection:

- **Complimentary:** This term often refers to something given free of charge, usually as a gesture of goodwill or as an addition to a service. For instance, a hotel might offer *complimentary* breakfast.
- **Gratuitous:** While this word can mean something done without good reason, its primary meaning relevant here is "done without charge" or "free".
- **Gratis:** This is a direct and common term meaning "free of charge" or "without payment".
- **Expensive:** This word signifies that something costs a large amount of money; it implies high cost.

Establishing the Common Link

Upon examining the definitions, we can see a clear pattern:

- The words **Complimentary**, **Gratuitous**, and **Gratis** all share the core meaning of being provided without cost or payment. They are essentially synonyms in the context of being free.

Determining the Different Word

The word **Expensive** is distinctly different. Its meaning is directly opposite to the concept of being free. While the first three words relate to the absence of cost, **Expensive** highlights the presence of a high cost.

Therefore, **Expensive** is the odd word out because it does not fit the category of words related to being free of charge.

84. Answer: c

Explanation:

In question figure, one of the dots lies in the common region of all the four figures,



The second dot lies in the common region of diamond and rectangle only



And the third dot lies in the region of parallelogram only.



Only figure (C) consists of these types of regions.



Hence, "C" is the correct answer.

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85. Answer: b

Explanation:

In question figure, one of the dots lies in the common region of pentagon and diamond only.



The second dot lies in the region common to pentagon, rectangle and heart.



Only **Figure (C)** of these types of region



In **Figure (A), (B) and (D)** pentagon and diamond do not have common region where other shapes are not intersecting.

Hence, the correct answer is "**Option C**".

86. Answer: d

Explanation:

On observing the figure carefully, we get,

In question figure,

- 1) One of the dots lies in the common region of trapezium and circle only
- 2) The second dot lies in the region common to all the figures.

Figure A:



Here, one of the dots lies in the common region of trapezium and circle only and second dot doesn't lie in the region common to all the figures.

Figure B: All conditions are fulfilled in this figure

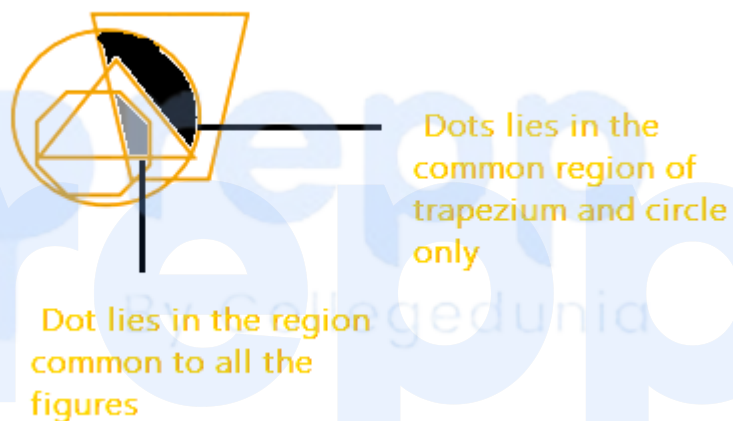


Figure C:



Here, one of the dots lies in the common region of trapezium and circle only and second dot doesn't lie in the region common to all the figures.

Figure D:



Here, one of the dots lies in the common region of trapezium and circle only and second dot doesn't lie in the region common to all the figures.

Only figure (B) consists of these types of regions.



Hence, the correct answer is "B".

87. Answer: a

Explanation:

In question figure, one of the dots lies in the common region of octagon and rectangle only, the second dot lies in the common region of trapezium and rectangle only and the third dot lies in the common region of the trapezium and partial circle only.

(A):



A

Only figure (A) consists of all types of regions.

(B):



B

The second dot lies in the common region of trapezium and rectangle only.

(C):



C

The second dot lies in the common region of trapezium and rectangle only.

(D):



D

The second dot lies in the common region of trapezium and rectangle only and the third dot lies in the common region of the trapezium and partial circle only.



Hence, "A" is the correct answer.

88. Answer: a

Explanation:

In question figure, one of the dots lies in the common region of a pentagon, circle and arrow only,



The second dot lies in the common region of circle and heart only.



and the third dot lies in the region of pentagon only.



Only figure (B) consists of these types of regions.



Hence, "B" is the correct answer.

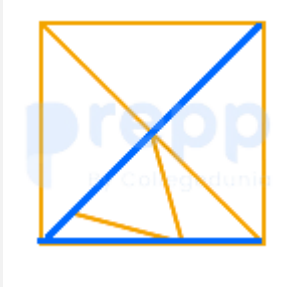
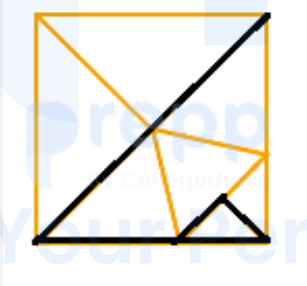
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89. Answer: c

Explanation:

The given figure is embedded in,



No.	Options	Question	Answer
1.			Not Embedded
2.			Not Embedded
3.			Embedded
4.			Not Embedded

Hence, the correct answer is "option (3)".

90. Answer: a

Explanation:

The embedded par of image is:



No.	Option	Question	Answer
1.			Embedded
2.			Not Embedded
3.			Not Embedded
4.			Not Embedded

Hence, the correct answer is "Option (1)".

91. Answer: b

Explanation:

The answer figure which will complete the picture is as:

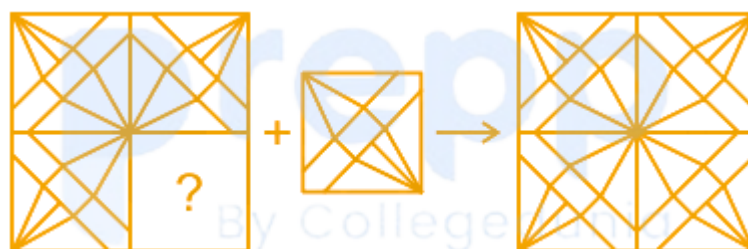


Hence, the correct answer is " Option 2 ".

92. Answer: b

Explanation:

The answer figure which will complete the pattern in the given question figure is as follows:

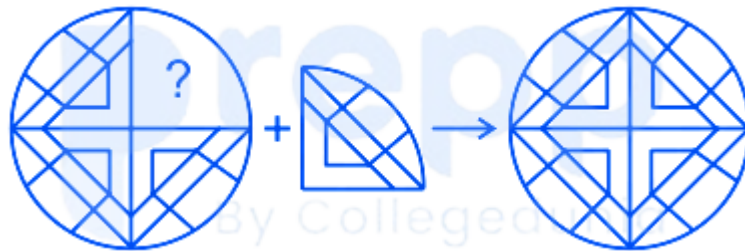


Hence, the correct answer is " Option (2)".

93. Answer: a

Explanation:

The answer figure which will complete the pattern in the given question figure is as follows:

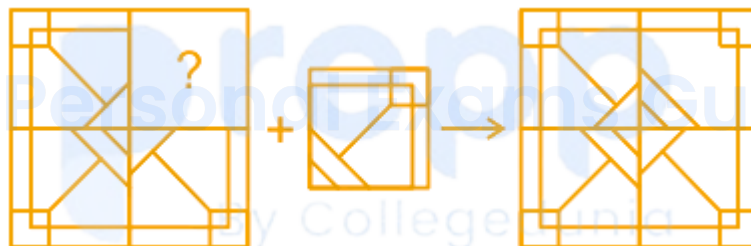


Hence, the correct answer is " option (1)".

94. Answer: b

Explanation:

The answer figure which will complete the pattern in the given question figure is as follows:

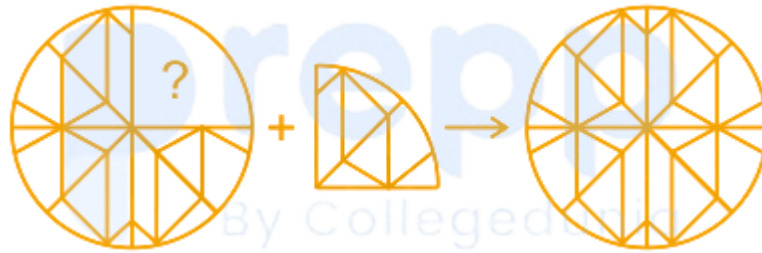


Hence, the correct answer is " option (2)".

95. Answer: c

Explanation:

The answer figure which will complete the pattern in the given question figure is as follows:



Hence, the correct answer is " option (3)" .

96. Answer: d

Explanation:

On observing the figure carefully, we get:

Figure A:



Here, the smiley's lips and the arrow are facing each other in the figure.

Figure B:



Here, the smiley's lips and the arrow are facing each other in the figure.

Figure C:



Here, the smiley's lips and the arrow are facing each other in the figure.

Figure D:



Here, the smiley's lips and the arrow are **not facing** each other in the figure.

The smiley's lips and the arrow are facing each other in all the figures except **figure D** where it is not facing each other.

Hence, the correct answer is "**Figure (D)**".

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97. Answer: c

Explanation:

The logic followed here is:

1)



- The open corner of the partial circle and the longer end of the diagonal strip are facing each other .

2)



B

- The open corner of the partial circle and the longer end of the diagonal strip are facing each other .

3)



C

- The open corner of the partial circle and the longer end of the diagonal strip are facing opposite to each other .

4)



D

- The open corner of the partial circle and the longer end of the diagonal strip are facing each other.

Except **figure C** where the shorter end of the diagonal strip is facing the open corner of the partial circle.

Hence, **figure (C)** is the correct answer.

98. Answer: c

Explanation:

The logic followed here is;

1) Two consecutive figures are interchanging their position. Here Triangle and moon are interchanging their position with each other also, hexagon and star are interchanging.

2) Two alternate figures are interchanging their position. Here moon and star, and triangle and hexagon are interchanging their position.

Again interchange of consecutive figures and then alternate figures and so on.



From above arrangement we get the figure,



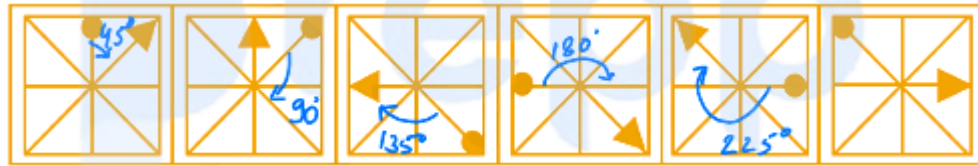
Hence, **option 3** is the correct answer.

99. Answer: b

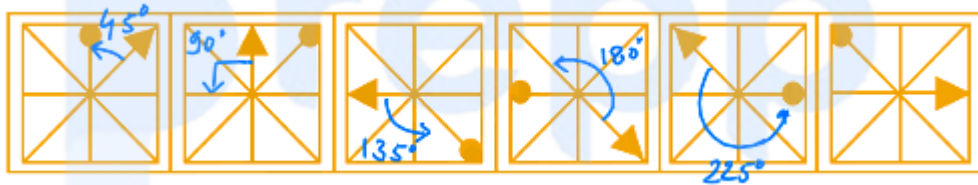
Explanation:

The pattern followed here is:

1. In each step, the circle is rotating 45° , 90° , 135° , 180° , and finally 225° clockwise.



2. Triangle in each step is rotating 45° , 90° , 135° , 180° , and finally 225° anticlockwise.



The image which complete the series is shown below:



Hence, the correct answer is "Option (2)".

100. Answer: d

Explanation:

We have to check the options:

Figure A:



Here, there are 5 five square bracket.

Figure B:



Here, there are 4 square bracket and 1 round bracket.

Figure C:



Here, there are 3 square bracket and 2 round bracket.

Figure D:



Here, there are 2 square bracket and 3 round bracket.

Figure E:



Here, there are 1 square bracket and 4 round bracket.

In each step, one square bracket changes into a round bracket with its open ends facing the opposite direction.



Hence the correct answer is "option (4)".

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