

Answers

1. Answer: c

Explanation:

Black Lead Identification

The question asks to identify the common name for the material known as **black lead**. This term is often associated with writing implements, specifically pencils.

Understanding Pencil Core Material

The core, or "lead," inside a standard pencil is not actually made from the metal lead (element Pb). Instead, it is made from a mixture of **graphite** and clay. Graphite is a crystalline form of carbon.

Historically, because **graphite** has a greyish-black colour and a somewhat metallic sheen, it was mistaken for a form of lead and thus given the name "**black lead**".

Analyzing the Options

Let's look at each option provided:

- **Diamond:** Diamond is another form (allotrope) of carbon, famous for its hardness and brilliance. Unlike graphite, it is not soft enough or suitable for use as pencil lead.
- **Graphene:** Graphene is a single layer of graphite. While related to graphite, it's a distinct material known for its unique electronic properties and is not the substance traditionally called **black lead** in the context of pencils.
- **Graphite:** This is the correct answer. Graphite is the soft, grey-black form of carbon that makes up the core of pencils. It was historically referred to as **black lead**.
- **Pencil:** A pencil is the complete writing tool, usually consisting of a wooden or mechanical casing holding the graphite-clay core. The term **black lead** refers specifically to the core material itself, not the entire pencil.

Final Identification of Black Lead

Therefore, the material commonly known as **black lead** is **graphite**.

2. Answer: c

Explanation:

Planning Commission Establishment Year in India

This solution addresses the question regarding the year the **Planning Commission** was established in **India**. The Planning Commission played a crucial role in India's post-independence economic development.

Key Information: Planning Commission Establishment

The **Planning Commission** of India was established on **March 15, 1950**, by a government resolution.

Historical Context of the Planning Commission

- The establishment of the Planning Commission was a significant step following India's independence in 1947.

- Its primary objective was to promote a rapid rise in the standard of living in the country through effective, rational exploitation of its resources.
- The Planning Commission was tasked with making **five-year plans** for the most effective and balanced utilization of the country's resources.
- The first Five-Year Plan commenced on April 1, 1951.

Analysis of Options

The question asks for the year the Planning Commission was set up. Based on historical records:

- Option 1 (1965): Incorrect.
- Option 2 (1955): Incorrect.
- **Option 3 (1950): Correct.** The Planning Commission was established in March 1950.
- Option 4 (1960): Incorrect.

Conclusion on Establishment Year

Therefore, the correct year for the setup of the Planning Commission in India is **1950**.

It's worth noting that the Planning Commission was dissolved by the Government of India on August 13, 2014, and replaced by the NITI Aayog (National Institution for Transforming India).

3. Answer: c

Explanation:

Understanding Majuli: The World's Largest Riverine Island

The question asks to identify the river in which Majuli, known as the largest riverine island, is located. A riverine island is a piece of land surrounded by river water. Majuli holds the distinction of being a very large island formed by the Brahmaputra River and its distributaries.

Locating Majuli Island

Majuli is a large island in the Brahmaputra River, located in the state of Assam in India. It was formed by changes in the course of the river and its tributaries, especially the Kherkutia Xuti, a channel of the Brahmaputra, and the Subansiri river.

Historical records and geographical studies consistently place Majuli within the mighty Brahmaputra river system.

Analyzing the Options

Let's consider the given options:

- **Narmada:** The Narmada River flows westward through central India. While it has islands within its course, Majuli is not located here.
- **Kaveri:** The Kaveri River is a major river flowing through the states of Karnataka and Tamil Nadu in South India. It also has islands, but Majuli is in North-East India.
- **Brahmaputra:** The Brahmaputra is one of the major rivers of Asia, flowing through China, India, and Bangladesh. It is known for its vast braided channels and dynamic course changes, which are responsible for the formation and changes in Majuli island.
- **Godavari:** The Godavari River is the second longest river in India, flowing eastward through central and southeastern India. Majuli is not associated with the Godavari river basin.

Based on geographical facts, Majuli island is situated in the Brahmaputra River.

Why Brahmaputra is the Correct River for Majuli

The Brahmaputra River is known for carrying a large amount of sediment and having a braided channel pattern in many areas, particularly in Assam. This unique characteristic of the Brahmaputra creates conditions suitable for the formation of large riverine islands like Majuli. Over time, sediment deposition and changes in river flow have shaped this significant geographical feature.

Summary of Majuli Location

In conclusion, Majuli, recognized as the largest riverine island, is definitively found in the Brahmaputra River.

Feature	Description
Island Name	Majuli
Type	Riverine Island
Location (River)	Brahmaputra River
Location (State, Country)	Assam, India
Significance	Considered the world's largest riverine island

Revision Table: Key Facts About Majuli and Brahmaputra

Concept	Detail
What is Majuli?	A large riverine island.
Where is Majuli located?	In the Brahmaputra River.
Which part of India?	Assam (North-East India).
How are riverine islands formed?	By sediment deposition within a river channel, often due to changes in river course.

Additional Information: Brahmaputra River System

The Brahmaputra River is a transboundary river flowing through Tibet (China), India, and Bangladesh. In India, it flows through Arunachal Pradesh and Assam. It is a major waterway and lifeline for the region, though it is also known for devastating floods and erosion, which pose significant challenges to Majuli island's existence.

The dynamic nature of the Brahmaputra's flow and sediment load constantly reshapes the landscape, including the size and form of Majuli.

4. Answer: b

Explanation:

The correct answer is South Korea.

- South Korea is the land of Morning Calm.

★ Key Points

- South Korea is called ' Morning Calm '.

- The title is most suited because of its spellbinding natural beauty of picturesque high mountains and clear waters and its splendid tranquillity, particularly in the morning.
- Seoul is the capital of South Korea.
- The currency of **South Korea** is **Won**.
- **Yoon Suk-yeol** is the current (2022) president of South Korea.
- **Han Duck-soo** is the current prime minister (2022) of South Korea.

★ **Additional Information**

- Japan is called Nihon (Nippon), meaning, "the sun's origin".
- Finland is known as the Land of the Thousand Lakes.
- Thailand is called the Land of White Elephants.

5. Answer: a

Explanation:

The question asks to identify the aircraft with which the **Scalp missile** is integrated.

Understanding the Scalp Missile

The **Scalp missile**, also widely known as **Storm Shadow**, is a sophisticated, long-range, deep-strike, air-launched cruise missile. It is designed to penetrate dense anti-aircraft defenses and destroy high-value stationary targets, such as command centers, airfields, and infrastructure. Key features include its stealth characteristics and sophisticated guidance system, enabling precision attacks from stand-off distances.

Aircraft Integration with Scalp Missile

The integration of advanced missiles like the **Scalp** significantly enhances the capabilities of fighter aircraft. Let's look at the options provided:

- **Rafale:** The French-made **Rafale** fighter jet is a highly capable multirole aircraft. It is specifically equipped and designed to carry and deploy the **SCALP EG** (the French version of the missile). This integration forms a crucial part of the Rafale's strategic strike capability, allowing it to engage targets deep within enemy territory effectively.
- **MiG-21:** The **MiG-21** is an older generation Soviet-era fighter. It typically operates with Soviet/Russian weaponry and is not integrated with Western missiles like the **Scalp**.
- **Sukhoi Su-30 MKI:** This is a Russian-origin twin-engine fighter jet, prominently used by the Indian Air Force. The Su-30MKI primarily uses Russian air-to-ground missiles, such as the Kh-59 variants, not the **Scalp missile**.
- **Tejas:** The **Tejas** is an Indian-designed light combat aircraft. While it has a modular payload system capable of carrying various weapons, the **Scalp missile** integration is primarily associated with the **Rafale** aircraft.

Conclusion on Scalp Missile Integration

Based on the known operational capabilities and weapon systems associated with each aircraft, the **Scalp missile** (SCALP EG) is integrated with the **Rafale** fighter aircraft. This combination provides a potent long-range strike capability.

6. Answer: c

Explanation:

Castle Terminology in Sports

The term 'Castle' is specifically related to the strategy board game of **Chess**. This term is not typically used in the context of Kho-Kho, Football, or Kabaddi.

Meaning of 'Castle' in Chess

In the game of **Chess**, 'Castle' often refers to the **Rook** piece, which is sometimes colloquially called a castle due to its appearance resembling a castle tower. More significantly, 'Castle' relates to a special move called **Castling**.

Castling is a unique move in Chess involving both the King and one of the Rooks. It is the only move where two pieces are moved simultaneously, and it's the only time the King can move two squares.

Details of the Castling Move

Castling serves the dual purpose of protecting the King and bringing the Rook into a more active position in the game.

Execution:

- The King is moved two squares horizontally towards a Rook (either the Kingside or Queenside Rook).
- The Rook involved is then moved to the square immediately adjacent to the King on the opposite side.

Conditions for Castling: To perform the castling move legally, the following conditions must be met:

- This must be the very first move for both the King and the chosen Rook.
- There should be no pieces positioned between the King and the Rook.
- The King cannot currently be in check (under attack).
- The King cannot pass through or land on a square that is under attack by an opponent's piece.

Association with Other Sports

The terminology 'Castle' or 'Castling' is exclusive to **Chess**. The other sports mentioned have different terminologies:

- **Kho-Kho:** A tag sport focused on chasing and running.
- **Football:** A team sport involving kicking a ball to score goals.
- **Kabaddi:** A contact team sport requiring raiding and tackling skills.

Therefore, the sport associated with the term 'Castle' is **Chess**.

7. Answer: c

Explanation:

First Indian World Amateur Billiards Champion Identified

The question asks to identify the **first Indian** person to achieve the prestigious **World Amateur Billiards title**. This title is a significant recognition in the sport of billiards, and India has produced several world-class players over the years.

Wilson Jones's Historic Billiards Achievement

Wilson Jones holds the distinction of being the **first Indian** to win the **World Amateur Billiards title**. He achieved this remarkable feat in 1958.

- Wilson Jones first won the World Amateur Billiards Championship in 1958.
- He successfully defended his title, winning it again in 1964.
- His victories marked a significant milestone for India in the global billiards arena, inspiring many future generations of players.

Other Notable Indian Billiards Players

While Wilson Jones was the first Indian champion in the World Amateur Billiards, other players listed have also achieved great success in the sport:

- **Pankaj Advani:** A highly accomplished cue sports player, Advani has won multiple world championships, including the World Billiards Championship multiple times and World Snooker Championship titles.
- **Michael Ferreira:** Another legendary Indian billiards player, Ferreira won the World Billiards Championship in 1983.
- **Geet Sethi:** Widely regarded as one of the greatest players in the history of English billiards, Sethi has won the World Professional Billiards Championship multiple times and holds numerous other international titles.

However, the specific achievement of being the **first Indian** to claim the **World Amateur Billiards title** belongs to Wilson Jones.

8. Answer: c

Explanation:

Red Fort Construction Timeline

The historic Red Fort, known in Hindi as Lal Qila, is a magnificent structure located in Delhi. Its construction is closely associated with a specific period in Mughal history.

Historical Context of the Red Fort's Building

The Red Fort was commissioned and built during the reign of the Mughal Emperor **Shah Jahan**. He is renowned for his architectural contributions to the Mughal Empire, including the Taj Mahal.

- **Commencement of Construction:** Construction of the Red Fort began in the year 1638.
- **Completion Year:** The massive project was completed over a span of 10 years, concluding in 1648.
- **Purpose:** Shah Jahan wanted a new walled city and palace complex, Shahjahanabad, and the Red Fort served as its palace complex. It became the main residence of the Mughal emperors.

Mughal Emperors and Fortifications

It's helpful to understand the context of other prominent Mughal rulers:

- **Akbar:** Emperor Akbar built the Agra Fort and Fatehpur Sikri.
- **Jehangir:** Jehangir made additions to the Agra Fort.
- **Aurangzeb:** Shah Jahan's successor, Aurangzeb, made some minor additions to the Red Fort complex but did not initiate its primary construction.

Therefore, the Red Fort is fundamentally a product of **Shah Jahan's** vision and reign, representing a peak in Mughal architecture.

9. Answer: c

Explanation:

Understanding the First FIFA World Cup Host

The question asks to identify the country that hosted the inaugural FIFA World Cup tournament.

The FIFA World Cup is the most prestigious international football tournament, contested by the senior men's national teams of the members of the Fédération Internationale de Football Association (FIFA), the sport's global governing body. The tournament has been held every four years since the inaugural tournament in 1930, except in 1942 and 1946, when it was not held because of the Second World War.

Identifying the First Host Nation

The decision for the host of the first FIFA World Cup was made by the FIFA Congress. Several countries expressed interest, but ultimately, a specific South American nation was selected.

The country chosen to host the first-ever FIFA World Cup in 1930 was Uruguay. This decision was made partly because Uruguay was celebrating the centenary of its first constitution and had also won the Olympic football tournaments in 1924 and 1928, showcasing their football prowess.

Analyzing the Options

Let's look at the given options in the context of the first FIFA World Cup host:

- **France:** France is a major footballing nation and has hosted the World Cup multiple times, but not the first one. France hosted in 1938 and 1998.
- **Brazil:** Brazil is renowned for its football history and has hosted the World Cup twice, in 1950 and 2014. They were not the first host.
- **Uruguay:** As discussed, Uruguay hosted the first FIFA World Cup in 1930.
- **Italy:** Italy has also hosted the World Cup twice, in 1934 and 1990. They were the second host nation, not the first.

Based on the history of the tournament, Uruguay was indeed the host of the first FIFA World Cup.

Key Details of the 1930 FIFA World Cup in Uruguay

- **Host:** Uruguay
- **Year:** 1930
- **Participants:** 13 teams (7 from South America, 4 from Europe, and 2 from North America)
- **Champion:** Uruguay (They defeated Argentina in the final)

Year	Host Country	Champion
1930	Uruguay	Uruguay
1934	Italy	Italy
1938	France	Italy

This table clearly shows Uruguay as the host of the 1930 tournament.

Revision Table: FIFA World Cup History

FIFA World Cup Year	First Host Country	Key Fact
1930	Uruguay	Inaugural tournament, hosted to celebrate 100 years of Uruguay's constitution and their Olympic successes.

Additional Information: Early FIFA World Cups

The decision to hold the first World Cup in Uruguay in 1930 presented challenges for European teams due to the long and costly sea voyage required to travel to South America. Consequently, many European teams did not participate.

The tournament took place entirely in Montevideo, the capital of Uruguay, using three stadiums, the primary one being the Estadio Centenario, built specifically for the tournament.

The success of the 1930 tournament laid the groundwork for future FIFA World Cups, establishing it as the premier global football event.

10. Answer: b

Explanation:

Archery National Game Identification

This solution addresses the question of identifying the country where archery is considered the national game. We will examine the provided options to determine the correct association.

Understanding National Games

A national game or sport often holds significant cultural importance and is widely played or followed within a country. Many countries have officially declared national games, while in others, certain sports gain prominence through tradition and popularity.

Analysis of Country Options and Their National Games

Let's explore the status of archery in relation to the countries listed:

- **Myanmar:** While traditional martial arts like Lethwei are culturally significant, and sports like football are popular, archery is not recognized as the national game of Myanmar.
- **Bhutan:** Archery holds a special place in Bhutanese culture. It is traditionally played during festivals and celebrations, and it is widely regarded as the national sport of Bhutan. The Bhutanese people often refer to it as their national game.
- **Nepal:** Volleyball was officially declared the national sport of Nepal in 2017. Before that, there was debate, but archery has never been designated as Nepal's national sport.
- **Sri Lanka:** Volleyball is the official national sport of Sri Lanka. While archery might be practiced, it does not hold the status of the national game.

Conclusion on Archery's National Status

Based on the cultural significance and common recognition, archery is prominently associated as the national game with Bhutan.

11. Answer: b

Explanation:

Keibul Lamjao National Park Location Explained

The question asks to identify the state where the Keibul Lamjao National Park is situated. This park is a significant natural reserve known for its unique ecosystem.

Identifying the State for Keibul Lamjao National Park

The Keibul Lamjao National Park is famously located in the state of **Manipur**. It holds the distinction of being the world's only floating national park, situated in the southern part of the Loktak Lake.

About Keibul Lamjao National Park

Key details about the park include:

- **Location:** Situated in Manipur, India.
- **Unique Feature:** It is the world's only floating national park.
- **Habitat:** It is the last natural refuge of the Sangai, the Manipur brow-antlered deer, an endangered species.
- **Ecosystem:** The park is characterized by the 'phumdis', which are heterogeneous masses of vegetation, soil, and decomposed organic matter, floating on the surface of Loktak Lake.

State Options Analysis

Let's review the options provided:

- **Tripura:** While Tripura has several protected areas, Keibul Lamjao National Park is not located there.
- **Manipur:** This is the correct state where the Keibul Lamjao National Park is located.
- **Mizoram:** Mizoram has national parks like Murlen and Phawngpui, but Keibul Lamjao is not among them.
- **Meghalaya:** Meghalaya is known for parks like Nokrek National Park, but Keibul Lamjao is not in this state.

Therefore, based on geographical facts, the Keibul Lamjao National Park is located in **Manipur**.

12. Answer: b

Explanation:

Exploring the First Man-Made Polymer: Bakelite

The question asks to identify the world's **first man-made polymer**. Polymers are large molecules made up of repeating subunits called monomers. While natural polymers like wood, silk, and rubber have existed for ages, the development of synthetic or man-made polymers marked a significant scientific advancement.

Understanding Bakelite: The Pioneer Polymer

Bakelite is widely recognized as the **first truly synthetic polymer** developed commercially. It was invented by the Belgian-American chemist Leo Baekeland in 1907.

- **Invention:** Bakelite was created by reacting phenol with formaldehyde under heat and pressure.
- **Significance:** It was groundbreaking because it was the first synthetic plastic that was durable, heat-resistant, and a good electrical insulator.
- **Properties:** Its unique characteristics made it suitable for a wide range of applications, replacing traditional materials like wood, metal, and rubber in many products.
- **Applications:** Early uses included electrical insulators, handles for cookware, billiard balls, and radio casings.

Why Bakelite is the First Man-Made Polymer

Bakelite's invention was a pivotal moment in chemical history. Unlike earlier materials that were derived from natural polymers (like celluloid from cellulose), Bakelite was synthesized entirely from small molecules and possessed entirely new properties. It paved the way for the age of plastics.

Comparison with Other Options

Let's look at why the other options are not considered the world's *first* man-made polymer:

- **Nylon:** Invented by Wallace Carothers at DuPont in the 1930s, Nylon was the first synthetic fiber made entirely from low-weight chemicals. It came decades after Bakelite.
- **Polyester:** While polyesters have a long history, commercially significant polyesters like PET (Polyethylene terephthalate) became widespread much later, mainly in the mid-20th century.
- **Polyethylene:** Although simple polyethylene was first accidentally synthesized in 1898 by Hans von Pechmann, its commercial production and understanding as a versatile plastic didn't happen until the 1930s and later. Bakelite predates this practical development significantly.

Conclusion

Based on the historical timeline and the definition of a synthetic polymer, **Bakelite** holds the distinction of being the world's **first man-made polymer**, invented in 1907.

13. Answer: d

Explanation:

Understanding Akbar's Navratnas

Akbar, the great Mughal emperor, was known for his policy of religious tolerance and his patronage of arts and culture. His court was adorned with nine eminent personalities who were exceptionally talented in various fields. These nine people were collectively known as the 'Navratnas' or 'Nine Jewels' of Akbar's court. They served as his advisors, ministers, artists, and scholars, contributing significantly to his reign.

Identifying the Navratnas

The nine personalities widely recognized as Akbar's Navratnas were:

- Raja Birbal (Witty advisor)
- Tansen (Renowned musician)
- Abul Fazal (Chronicler and historian)
- Faizi (Poet and scholar, Abul Fazal's brother)
- Raja Todar Mal (Finance minister)
- Raja Man Singh (Trusted general)
- Abdul Rahim Khan-i-Khana (Poet and noble)
- Faqi Aziao-Din (Mystic and advisor)
- Mulla Do Pyaza (Advisor, though his existence is sometimes debated by historians)

Analyzing the Options Provided

Let's examine each option given in the question to determine who was NOT among the Navratnas:

1. **Abul Fazal:** Abul Fazal ibn Mubarak was a prominent advisor and the author of Akbarnama and Ain-i-Akbari. He was definitely one of the nine Navratnas.
2. **Abdur Rahim Khankhana:** Mirza Abdur Rahim Khan-i-Khana was a poet and a noble in Akbar's court. He was the son of Bairam Khan. He was one of the Navratnas.
3. **Tansen:** Miyan Tan Sen was a legendary Hindustani classical musician. He was brought to Akbar's court and was undoubtedly one of the nine Navratnas.
4. **Bairam Khan:** Bairam Khan was a very important figure in Akbar's early life and reign. He served as Akbar's guardian and regent during his minority. However, Bairam Khan's association with Akbar was primarily in the early years before the concept of Navratnas became established. Bairam Khan fell out of favour and was removed from his position and later died.

in 1561, well before the group of Navratnas was recognized. Therefore, Bairam Khan was not considered one of Akbar's later 'Nine Jewels'.

Conclusion on Akbar's Navratnas

Based on the historical facts about Akbar's court and the famous Navratnas, Bairam Khan, despite his crucial role in Akbar's initial years, was not included in the list of the nine famous personalities known as the Navratnas.

Revision Table: Key Personalities of Akbar's Court

Personality	Role/Contribution	Was part of Navratnas?
Abul Fazal	Historian, Advisor, Chronicler	Yes
Abdur Rahim Khankhana	Poet, Noble	Yes
Tansen	Musician	Yes
Bairam Khan	Regent, Guardian (Early Reign)	No
Raja Birbal	Advisor, Wit	Yes
Raja Todar Mal	Finance Minister	Yes
Raja Man Singh	General	Yes
Faizi	Poet, Scholar	Yes
Faqi Aziao-Din	Mystic, Advisor	Yes
Mulla Do Pyaza	Advisor (Disputed)	Yes (Traditionally listed)

Additional Information on Akbar's Court and Navratnas

The concept of Navratnas was not unique to Akbar's court; other rulers in Indian history, like Chandragupta II Vikramaditya, are also said to have had Navratnas. However, Akbar's Navratnas are perhaps the most famous.

These individuals represented a diverse range of talents and backgrounds, reflecting Akbar's inclusive approach. They played a vital role not only in the administration of the vast Mughal Empire but also in the cultural and intellectual life of the court. Their presence underscored Akbar's vision of a syncretic culture and efficient governance. Understanding the roles of these Navratnas helps us appreciate the complexities and richness of the Mughal court under Akbar.

Bairam Khan's role was significant during Akbar's initial years, particularly after Humayun's death when Akbar was very young. He successfully handled challenges and consolidated the empire's position. However, his period of influence was distinct from the later phase where the Navratnas became prominent figures in the Emperor's advisory council and cultural circle.

14. Answer: b

Explanation:

Thumri Folk Dance Relation

The question asks to identify the region associated with the folk dance form known as **Thumri**. Understanding the origins and cultural context of various folk dances is important in Indian cultural studies. Let's explore the connection between **Thumri** and the given options.

Understanding the Thumri Dance Form

Thumri is a genre of Indian music and dance, known for its expressive and often romantic themes. While primarily recognized as a musical form, it has significant connections to dance, particularly in its classical and semi-classical interpretations. It originated in the region of North India.

Geographical Association of Thumri

The cultural landscape of India features a diverse array of folk traditions. The **Thumri** style, encompassing both music and its associated dance elements, is deeply rooted in the traditions of **Uttar Pradesh**. Cities like Lucknow and Banaras (Varanasi) in **Uttar Pradesh** are considered significant centres for the development and patronage of **Thumri**.

Analysis of Options

- **Arunachal Pradesh:** This northeastern state has distinct tribal folk dances, none of which are identified as **Thumri**.
- **Uttar Pradesh:** This state is widely recognized as the primary region associated with the **Thumri** style, both in music and dance.
- **Madhya Pradesh:** While Madhya Pradesh has a rich folk heritage (like 'Gaur Maria' or 'Karm'), **Thumri** is not specifically linked to this state.
- **Andhra Pradesh:** This southern state is known for classical dances like Kuchipudi and folk dances such as 'Dappu Natyam', but not **Thumri**.

Conclusion on Thumri Folk Dance

Based on the cultural geography of Indian folk and classical traditions, **Thumri** finds its strongest association and origin in the state of **Uttar Pradesh**. Therefore, the correct option linking the **Thumri** folk dance style to its geographical region is **Uttar Pradesh**.

15. Answer: b

Explanation:

Understanding Maharatna Companies in India

The Government of India categorizes its Public Sector Undertakings (PSUs) into different tiers based on their performance and financial strength. The highest tier is the **Maharatna** status. Companies achieving this status are granted greater operational and financial autonomy, allowing them to invest significant capital without seeking prior government approval. To qualify for the **Maharatna** status, a PSU must meet stringent criteria, including an average annual turnover of more than ₹25,000 crore, a net worth of over ₹15,000 crore, and a significant average annual net profit after tax of more than ₹4,000 crore over the last three years. They must also have a minimum presence in international markets.

Analysis of Maharatna Status for Listed Companies

Let's examine the status of each company mentioned in the options:

- **Steel Authority of India Limited (SAIL):** SAIL is a major steel-making company in India and is designated as a **Maharatna** company. Its consistent performance and large scale of operations meet the required criteria for this prestigious status.
- **Hindustan Copper Limited (HCL):** Hindustan Copper Limited is involved in the mining and processing of copper in India. While it is a significant government-owned entity, it holds the **Miniratna** status, not the **Maharatna** status. It does not meet the high financial thresholds required for **Maharatna** recognition.
- **Oil & Natural Gas Corporation Limited (ONGC):** ONGC is one of India's largest integrated oil and gas exploration and production companies. It is a well-established **Maharatna** company, recognized for its substantial contribution to the energy sector and its strong financial standing.

- **Bharat Heavy Electricals Limited (BHEL):** BHEL is a leading company in the manufacturing of power plant equipment and transportation systems. It is classified as a **Maharatna** company, reflecting its significant scale, market presence, and financial health.

Identifying the Non-Maharatna Company

Based on the analysis, three of the listed companies – Steel Authority of India Limited, Oil & Natural Gas Corporation Limited, and Bharat Heavy Electricals Limited – currently hold the **Maharatna** status. Hindustan Copper Limited, however, is not a Maharatna company; it belongs to the Miniratna category.

Therefore, Hindustan Copper Limited is the company from the given options that is NOT a Maharatna company.

16. Answer: b

Explanation:

Hippocamp Moon's Planet Identification

This section aims to identify the specific planet within our solar system that has 'Hippocamp' as its moon. Learning about the diverse moons orbiting different planets helps us understand the complex dynamics of planetary systems.

Understanding the Moon Hippocamp

Hippocamp is recognized as a natural satellite, or moon, that orbits a specific planet. This particular moon was discovered using observations from the Hubble Space Telescope, with its discovery announced in 2013. It is noted for its small size compared to many other moons.

Determining Hippocamp's Parent Planet

Through detailed astronomical observation and analysis, Hippocamp has been confirmed to be a moon of the planet **Neptune**. Neptune is the eighth planet from the Sun and is known for its numerous moons, the most famous of which is Triton. Hippocamp is classified as one of Neptune's smaller moons.

Key details about Hippocamp:

- **Moon Name:** Hippocamp
- **Planet Orbited:** Neptune

Consequently, Hippocamp is a moon orbiting the planet Neptune.

17. Answer: a

Explanation:

IRENA Headquarters Location Explained

The International Renewable Energy Agency (IRENA) is a significant intergovernmental organization established to promote the widespread adoption and sustainable use of renewable energy sources globally. Its mission involves assisting countries in transitioning towards cleaner energy solutions and achieving sustainable development.

This question focuses on identifying the specific location designated as the main base of operations for the International Renewable Energy Agency.

Confirming the Headquarters of IRENA

The primary headquarters of the International Renewable Energy Agency (IRENA) is located in **Abu Dhabi**. Abu Dhabi is the capital city of the United Arab Emirates (UAE). The selection of Abu Dhabi as the host city was finalized in 2009, and the agency officially began its functions from this location in 2011.

Evaluating the Location Options

Let's review the options provided concerning the headquarters of the International Renewable Energy Agency:

Option Provided	City	Analysis
A	Abu Dhabi	This is the correct location for the IRENA headquarters.
B	Dubai	Dubai is a major global city within the UAE, but it is not the location of IRENA's headquarters.
C	Sharjah	Sharjah is another emirate in the UAE, however, it is not where IRENA is headquartered.
D	Kuwait	Kuwait is a separate country located in the Persian Gulf region and does not host IRENA's headquarters.

Based on this analysis:

- The International Renewable Energy Agency's headquarters are confirmed to be in **Abu Dhabi**.
- The other options, Dubai, Sharjah, and Kuwait, are incorrect locations for the agency's main office.

Abu Dhabi's role as the host city for IRENA reflects the UAE's dedication to advancing renewable energy and its position as a key participant in global energy transition efforts.

18. Answer: a

Explanation:

John Lewis and the Famous Quote: 'We want to be free now'

The question asks to identify the person who said the phrase '**We want to be free now**'. This powerful statement is closely associated with the American Civil Rights Movement and the fight for immediate equality and justice.

Understanding the Context of the Quote

The phrase '**We want to be free now**' captures the urgency and determination of activists during the Civil Rights Movement. It reflects a deep-seated desire for freedom and an end to segregation and discrimination, demanding immediate change rather than gradual progress.

Identifying the Speaker: John Lewis

John Lewis was a pivotal figure in the American Civil Rights Movement. As a young leader, he was involved in many significant events, including the Freedom Rides, the March on Washington, and the Selma to Montgomery marches. His activism was characterized by a commitment to non-violent resistance and a persistent call for freedom and justice. The quote '**We want to be free now**' perfectly encapsulates his unwavering stance and the sentiment of many participants in the movement who were tired of waiting for basic human rights.

Analysis of Other Options

To confirm the correct speaker, let's briefly look at the other prominent figures mentioned:

- **Mahatma Gandhi:** A leader of the Indian independence movement, Mahatma Gandhi is renowned for his philosophy of non-violent civil disobedience (Satyagraha). While he fought for freedom, his famous slogans and writings focus on Indian independence and self-rule, such as '*Quit India*'.
- **Nelson Mandela:** A central figure in the fight against apartheid in South Africa, Nelson Mandela dedicated his life to achieving racial equality. His speeches often addressed the struggle for liberation from apartheid, famously stating, "*I have fought against white domination, and I have fought against black domination. I have cherished the ideal of a democratic and free society in which all persons live together in harmony and with equal opportunities. It is an ideal which I hope to live for and to achieve. But if needs be, it is an ideal for which I am prepared to die.*"
- **Subhas Chandra Bose:** Another key leader in India's struggle for independence, Subhas Chandra Bose advocated for armed struggle against British rule. His famous rallying cry was "*Give me blood, and I shall give you freedom!*", emphasizing a different approach to achieving liberation.

Conclusion on the Quote's Origin

Based on historical records and the context of the Civil Rights Movement in the United States, the declaration '**We want to be free now**' is attributed to the spirit and actions led by figures like **John Lewis**, representing the immediate demand for civil rights and an end to segregation.

19. Answer: b

Explanation:

Understanding Revolutionary Organizations Formed Outside India

This question requires identifying which of the listed organizations was established outside the geographical boundaries of India. The focus is on **revolutionary organizations** and their place of formation.

Analysis of Organizations and Their Formation Location

Let's examine each option to determine where the organization was formed:

- **Indian Association:** This association was founded in Calcutta, India, in 1876 by Surendranath Banerjee and Anandamohan Bose. Its primary goal was to foster political consciousness and unity among Indians.
- **Ghadar Party:** This party was established in San Francisco, USA, in 1913. It was founded by Indian immigrants living in North America with the explicit aim of initiating a revolutionary movement to liberate India from British rule. Key figures included Lala Har Dayal. This clearly indicates it was a **revolutionary organization formed outside India**.
- **Bengal-British India Society:** Founded in London in 1843, this society aimed to improve the condition of the Indian people and promote friendly relations between the British and Indians. While it had connections to India and Indians, its base was in Britain.
- **India League:** This organization was founded in London in 1874, also aiming to promote political education and stimulate public interest in the political questions concerning India. Similar to the Bengal-British India Society, its operational center was outside India.

Identifying the Organization Formed Abroad

Based on the analysis, the **Ghadar Party** is the organization that meets the criteria of being a **revolutionary organization** established outside India. Its founding in the United States was pivotal for its operations targeting British India.

Conclusion on Revolutionary Organizations

Comparing the locations of formation, the Ghadar Party stands out as the only explicitly **revolutionary organization formed outside India** among the choices provided. The other organizations, while significant in India's political history, were either formed within India or had different primary objectives and locations.

Therefore, the correct option is the **Ghadar Party**.

20. Answer: c

Explanation:

Vedic Literature: Identifying Magical Rituals and Charms

The ancient Indian Vedic literature consists of four primary Vedas: the Rigveda, Samaveda, Yajurveda, and Atharva Veda. Each Veda contains distinct hymns, rituals, and philosophical insights. This explanation will clarify which of these sacred texts focuses on magical rituals and charms.

Content Overview of the Four Vedas

Understanding the core content of each Veda helps in identifying their specific themes:

- **Rigveda:** This is the oldest Veda, primarily composed of hymns (*suktas*) praising various deities like Agni, Indra, and Surya. It lays the foundation for much of Vedic thought but does not significantly focus on magical practices.
- **Samaveda:** This Veda is largely a collection of melodies and chants (*saman*) set to verses, most of which are borrowed from the Rigveda. Its purpose is primarily for liturgical singing during sacrifices.
- **Yajurveda:** This Veda contains prose mantras and formulas (*yajus*) that are recited during sacrificial ceremonies (*yajnas*). It provides the structure and specific instructions for performing rituals.
- **Atharva Veda:** This Veda stands out as it contains a collection of spells, charms, incantations, and hymns that deal with everyday life, mundane concerns, healing, protection from evil, and supernatural forces. It is the repository of knowledge concerning **magical rituals and charms**.

Focus on Magical Rituals and Charms

The **Atharva Veda** is particularly known for its inclusion of practices related to magic. It includes:

- Charms for success, love, and long life.
- Incantations for healing diseases and removing poisons.
- Rites for protection against enemies and negative influences.
- Spells related to agriculture and prosperity.

While the other Vedas focus primarily on hymns, prayers, and sacrificial procedures, the Atharva Veda uniquely addresses the domain of folk magic, healing arts, and occult practices, making it the Veda that mentions **magical rituals and charms**.

21. Answer: d

Explanation:

Greenland's Geographical Position Explained

Greenland is the world's largest island, and pinpointing its **Greenland location** is key to understanding its geography. It's a vast territory mostly covered by ice, situated between the Arctic and Atlantic Oceans.

Understanding Greenland's Location in the North Atlantic

The specific **Greenland location** places it in the **North Atlantic Ocean**. It lies northeast of the North American continent (specifically Canada) and northwest of Europe. It bridges the gap between the Arctic Ocean and the Atlantic Ocean.

Analyzing the Options for Greenland's Location

Let's review the choices to confirm the correct **Greenland location**:

- **South Pacific:** This ocean basin is located south of the equator and is geographically very distant from Greenland. This option is incorrect.
- **Indian Ocean:** The Indian Ocean is situated south of Asia and between Africa and Australia. Greenland is not located here. This option is incorrect.
- **Caribbean Sea:** This sea is a warm, tropical body of water located southeast of the Gulf of Mexico and north of South America. Greenland's cold climate and position are entirely different. This option is incorrect.
- **North Atlantic:** This part of the Atlantic Ocean is north of the equator. Greenland's geographic coordinates place it squarely within the northwestern region of the **North Atlantic Ocean**. This is the correct geographical area for Greenland.

Confirming the Correct Greenland Location

Based on its position relative to North America and Europe, and its place between the Arctic and Atlantic Oceans, the most accurate description for the **Greenland location** is the **North Atlantic**.

22. Answer: b

Explanation:

Andre Agassi's Famous Nicknames

Nicknames are often given to famous personalities, especially athletes, reflecting their playing style, personality, or origins. In the world of tennis, Andre Agassi was a highly recognized player known for his powerful game and distinctive style.

Understanding Andre Agassi's Monikers

Andre Agassi, a legendary American tennis player, earned several nicknames throughout his illustrious career. These nicknames often captured different aspects of his persona and performance on the court.

- **The Punisher:** This nickname likely referred to Agassi's aggressive and relentless style of play. He was known for his powerful groundstrokes and his ability to wear down opponents, making him a formidable force on the court.
- **The Las Vegas Kid:** This nickname highlights Agassi's roots. He was born and raised in Las Vegas, Nevada. This moniker connected him to his hometown and perhaps reflected his exciting, sometimes unpredictable, playing style that captivated audiences, much like the spirit of Las Vegas itself.

While other athletes like Jack Jacobs, James Franklin Edwards, and Rahul Dravid are known in their respective fields (boxing and cricket), the specific nicknames 'Punisher' and 'The Las Vegas Kid' are famously associated with Andre Agassi.

23. Answer: c

Explanation:

Identifying India's Largest Freshwater Lake

The question asks to identify the specific **river** that passes through the **largest freshwater lake of India**. To determine the correct answer, we need to identify this lake and the river associated with it.

The **largest freshwater lake in India** is widely recognized as **Wular Lake**.

Wular Lake is situated in the beautiful Kashmir Valley in the northern part of India. It's known for its scenic beauty and its importance as a vital habitat for various species of migratory birds.

The Role of the Jhelum River

The **Jhelum River** plays a crucial role in the existence and sustenance of Wular Lake.

- The Jhelum River originates from the Pir Panjal range and flows through the Kashmir Valley.
- As the river travels, it enters and flows through the Wular Lake, significantly contributing to its formation and water supply.
- Therefore, the Jhelum River is directly associated with the largest freshwater lake in India.

Examining Other River Options

Let's look at why the other options are not the correct answer:

- **Ganga River:** The Ganga River is a major river system in India, flowing eastwards across the Gangetic plain. While it supports vast floodplains and associated ecosystems, it does not pass through Wular Lake or any other lake that qualifies as the largest freshwater lake in India.
- **Brahmaputra River:** The Brahmaputra River flows through the northeastern states of India, primarily Assam. It is known for its massive volume and Brahmaputra river island, Majuli. However, it is not connected to the largest freshwater lake in India.
- **None of these:** Since the Jhelum River is correctly identified as passing through the largest freshwater lake (Wular Lake), this option is incorrect.

Final Conclusion

Considering the geographical information, the **Jhelum River** is the only river among the choices that passes through India's **largest freshwater lake**, the Wular Lake.

24. Answer: a

Explanation:

South Africa: The Location of the Kalahari Desert

The question asks to identify the country where the **Kalahari desert** is located. Understanding the geographical distribution of major deserts is important for geography studies.

Kalahari Desert Geographical Distribution

- 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.
- Considering the options provided, **South Africa** is a primary country where a significant portion of the Kalahari ecosystem resides.

Analysis of Options for Kalahari Desert Location

Let's examine the given options:

- **1. South Africa:** This is correct. A substantial part of the Kalahari Desert landscape is found within the borders of **South Africa**, particularly in the Northern Cape province.
- **2. Chile:** This country is located in South America and is known for the Atacama Desert, one of the driest places on Earth. It does not contain the Kalahari Desert.

- **3. India:** This country is in South Asia and features deserts like the Thar Desert. The Kalahari Desert is not located in India.
- **4. Saudi Arabia:** This country is in the Middle East and is famous for its vast deserts, including the Rub' al Khali (Empty Quarter), part of the larger Arabian Desert. The Kalahari Desert is not found here.

Key Facts about the Kalahari Desert

The Kalahari is not a true desert in the most common sense (meaning almost entirely arid sand dunes). Instead, it is largely a semi-desert, with areas that receive moderate rainfall, supporting savanna vegetation, grasses, acacia trees, and shrubs. It spans over 900,000 square kilometers, making it a vast and significant biome in Southern Africa.

25. Answer: a

Explanation:

Rickets Cause: Understanding Vitamin D Deficiency

Rickets is a health condition that affects bones, primarily in children. It leads to soft and weak bones, which can cause bone deformities and pain.

Key Concepts Related to Rickets

- **Rickets:** A condition characterized by the softening and weakening of bones in children.
- **Bone Health:** The strength and integrity of the skeletal system.
- **Vitamins:** Essential organic compounds required in small quantities for the body's normal growth and function.

The Role of Vitamin D in Bone Health

Vitamin D plays a crucial role in maintaining healthy bones. It helps the body absorb calcium and phosphorus from the food consumed. Calcium and phosphorus are essential minerals for building and maintaining strong bones.

- **Calcium Absorption:** Vitamin D facilitates the uptake of calcium from the intestines into the bloodstream.
- **Phosphorus Regulation:** It also helps regulate phosphorus levels, another vital component of bone structure.
- **Bone Mineralization:** Adequate Vitamin D ensures that calcium and phosphorus are properly incorporated into the bone matrix, making bones hard and strong.

Vitamin D Deficiency and Rickets

When there is a lack of sufficient Vitamin D in the body, the intestines cannot absorb enough calcium and phosphorus. This deficiency leads to impaired bone mineralization, causing the bones to become soft, weak, and deformed. This condition is known as rickets.

The primary cause of rickets is indeed the deficiency of **Vitamin D**.

Other Vitamins and Their Roles

Let's briefly look at the other vitamins mentioned in the options:

- **Vitamin A:** Essential for vision, immune function, and cell growth. Its deficiency causes night blindness and other vision problems.
- **Vitamin K:** Crucial for blood clotting and bone metabolism. Deficiency can lead to excessive bleeding.
- **Vitamin E:** Acts as an antioxidant, protecting cells from damage. Deficiency is rare but can affect nerve and muscle function.

While these vitamins are essential for overall health, their deficiency does not cause rickets. Rickets is specifically linked to the lack of **Vitamin D**.

Conclusion

Based on the vital role of **Vitamin D** in calcium absorption and bone mineralization, its deficiency is the direct cause of rickets in children.

26. Answer: d

Explanation:

Unscrambling Jumbled Letters: A Step-by-Step Approach

The task is to unscramble the letters provided in each option to form recognizable English words. Once the words are formed, the goal is to identify the "odd one out" – the word that doesn't fit into the same category as the others.

Step 1: Rearranging the Jumbled Letter Sets

Let's unscramble each set of letters:

- **APRUIJ**: When rearranged, these letters form the word **PRAIRIE**. A prairie is a biome characterized by grasslands, with few trees or shrubs.
- **LINAMA**: These letters rearrange to spell **ANIMAL**. This is a general biological term for a living organism.
- **GLEUMBA**: Unscrambling this sequence yields the word **MAMMAL**. Mammals are a specific class within the animal kingdom.
- **OSORIN**: Rearranging these letters results in the word **ORISON**. An orison is an older, less common term for a prayer.

Step 2: Categorizing the Unscrambled Words

After unscrambling, we have the following words:

- **PRAIRIE**
- **ANIMAL**
- **MAMMAL**
- **ORISON**

Now, let's group these words based on their meaning or category:

- **PRAIRIE** refers to a geographical feature or a type of environment.
- **ANIMAL** is a broad category within biology, encompassing all living creatures that are not plants, fungi, or bacteria.
- **MAMMAL** is a more specific classification within the animal kingdom, belonging to the field of biology.
- **ORISON** refers to prayer, which is an act of religious devotion or communication, an abstract concept.

Step 3: Identifying the Odd One Out

By comparing the categories, we can see a common theme among three of the words:

- **PRAIRIE** relates to the natural environment.
- **ANIMAL** is a fundamental category of life.
- **MAMMAL** is a classification of living beings.

These three terms (Prairie, Animal, Mammal) are all connected to the natural world and biology.

The word **ORISON**, meaning prayer, does not fit this theme. It belongs to the realm of religion or abstract concepts, rather than the natural world or biology.

Therefore, the odd one out among the rearranged words is **ORISON**, which comes from the jumbled letters **OSORIN**.

27. Answer: a

Explanation:

Understanding the Medical Analogy

This question asks us to find a word that completes an analogy. We need to identify the relationship between the first pair of words and apply that same relationship to the second word to find the missing word.

Analyzing the Nephrology–Kidneys Relationship

The first pair is **Nephrology** : **Kidneys**.

- **Nephrology** is the branch of medicine that focuses on the study and treatment of the kidneys.
- **Kidneys** are the organs that Nephrology specializes in.

So, the relationship is: '[Medical Specialty] : [Organ/System Studied]'.

Exploring Hematology

The second part of the analogy is **Hematology** : ?.

- **Hematology** is the branch of medicine concerned with the study of blood, blood-forming organs, and blood diseases.

Connecting Hematology to the Correct Term

Following the identified relationship ('[Medical Specialty] : [Organ/System Studied]'), Hematology studies blood.

Evaluating the Options

Let's look at the given options:

- **Blood:** Hematology is directly related to the study of blood.
- **Skin:** The study of skin is called Dermatology.
- **Bones:** The study of bones is called Osteology.
- **Liver:** The study of the liver is called Hepatology.

Based on the definition, Hematology specifically deals with blood.

Conclusion of the Analogy

Therefore, Hematology is related to Blood in the same way that Nephrology is related to Kidneys. The medical specialty Hematology focuses on the study of blood.

28. Answer: a

Explanation:

The option figure in which the given figure is embedded is option '1'.

No.	Option	Question	Answer
1.			Embedded
2.			Not Embedded
3.			Not Embedded
4.			Not Embedded

Hence, the correct answer is "option (1)".

29. Answer: b

Explanation:

The least possible Venn diagram that best represents the relationship among the classes Cobra, Moth, Salamander is as follows:

1. Cobra is the common name of a group of snakes .
2. Moths are a group of insects .
3. Salamanders are a group of amphibians .

Thus, there is no common relation between any of these groups.

Hence, the correct answer is "Option 2".

30. Answer: b

Explanation:

Understanding the Task: Finding the Odd Pair

The question asks us to identify the **odd pair** from the given options. Each option consists of a city name and a country name. We need to figure out the relationship between the city and the country in each pair and find the one that doesn't fit the pattern established by the others.

Analyzing City-Country Pairings

Typically, these types of questions relate a capital city to its country. Let's check if each pair follows this rule:

- **TIRANA – ALGERIA:** Tirana is the capital city of Albania. Algeria's capital is Algiers. This pair incorrectly links Tirana to Algeria.
- **VIENNA – AUSTRIA:** Vienna is indeed the capital city of Austria. This pair correctly matches the city with its country.
- **HELSINKI – HUNGARY:** Helsinki is the capital city of Finland. The capital of Hungary is Budapest. This pair incorrectly links Helsinki to Hungary.
- **TEHRAN – IRAQ:** Tehran is the capital city of Iran. The capital of Iraq is Baghdad. This pair incorrectly links Tehran to Iraq.

Identifying the Odd Pair

Let's summarize our findings:

- Tirana – Algeria: Incorrect Pairing
- Vienna – Austria: Correct Pairing
- Helsinki – Hungary: Incorrect Pairing
- Tehran – Iraq: Incorrect Pairing

We can see that three of the pairs (Tirana-Algeria, Helsinki-Hungary, and Tehran-Iraq) are incorrect associations between a capital city and the country mentioned. The pair Vienna-Austria, however, is a correct association.

The **odd pair** is the one that differs from the rest in its characteristic. In this case, Vienna – Austria is the odd one out because it is the only *correct* city-country capital pairing among the options, while the others are incorrect pairings.

31. Answer: c

Explanation:

1. Some goods are transported by ships.
2. Some goods are transported by trucks.
3. Also, there are some goods that are transported by other vehicles.

Thus, the Venn diagram that best represents the relationship among goods, ship, truck is as follows:



Hence, option 3 is the correct answer.

32. Answer: d

Explanation:

We have to check each option:

Figure A:



Here, figure has six sides and every alternate side have one inside line and one outside line

Figure B:



Here, figure has six sides and every alternate side have one inside line and one outside line.

Figure C:



Here, figure has six sides and every alternate side have one inside line and one outside line.

Figure D:



Here, the figure has six sides, But every alternate side **do not** have one inside line and one outside .

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

33. Answer: c

Explanation:

Understanding the Lion : Roar Analogy

This question asks us to find a word that has the same relationship to 'Bear' as 'Roar' has to 'Lion'. This type of question is known as an analogy, where we must identify the connection between the first pair of words and apply that same connection to the second pair.

Analyzing the Relationship: Lion to Roar

Let's first examine the relationship between **Lion** and **Roar**. A **Lion** is a specific type of animal. A **Roar** is the characteristic sound that a **Lion** makes. So, the relationship is **Animal :: Sound it Makes**.

Applying the Pattern to Bear

We need to find a word that represents the sound a **Bear** makes, using the same **Animal :: Sound it Makes** relationship. We are looking for the specific sound associated with a **Bear**.

Evaluating the Options Related to Bear Sounds

Let's consider each option provided:

- **Bellow:** This term typically describes a loud, deep cry made by animals like cattle, or sometimes by humans in pain or anger. While loud, it's not the primary sound associated with a bear.
- **Bleat:** This is the sound made by sheep or goats. It is a high-pitched cry and is not related to a bear's sound.
- **Growl:** This is a low, guttural, rumbling sound often made by dogs, bears, and other animals, usually indicating displeasure, warning, or aggression. This sound is commonly associated with bears.
- **Rattle:** This refers to a sound produced by shaking something loose or the characteristic sound made by a rattlesnake. It does not describe the vocalization of a bear.

Selecting the Word Related to Bear

Comparing the options with the known sounds animals make, **Growl** is the most appropriate term for the sound a **Bear** produces. This maintains the relationship identified in the first pair (**Lion : Roar**).

Therefore, the word that is related to **Bear** in the same way that **Roar** is related to **Lion** is **Growl**.

34. Answer: d

Explanation:

In the question figure, one of the dot lies in the region common to the circle, square, and rectangle only.



The second dot lies in the region common to the circle, triangle, and rectangle only.



The third dot lies in the region common to the square and rectangle only.



Only **Figure (D)** consist are these types of regions.



In **Figure (A) (B) & (C)** there is no region common to the circle, triangle and the rectangle only.

Hence, the correct answer is "**Option 4**".

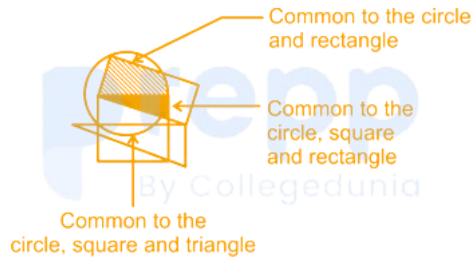
35. Answer: c

Explanation:

In the question figure,

1. One dot is in the common area of one circle and one rectangle.
2. One dot is in the common area of one triangle and one circle and one square.
3. One dot is in the common area of one rectangle and one circle and one square.

Here, in the given figures, **Figure (d)** is fulfill all required conditions.



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

36. Answer: b

Explanation:

In the question figure, one of the dot lies in the region common to all three figures.



The one dot lies in the region common to square and circle only.



The other dot lies in the region common to the circle only.



Only **Figure (C)** consist of these types of regions.

In the **Figure (A)**, there is no common region for circle and square.

In the **Figure (B) & (D)** there is no common region for all the figures.

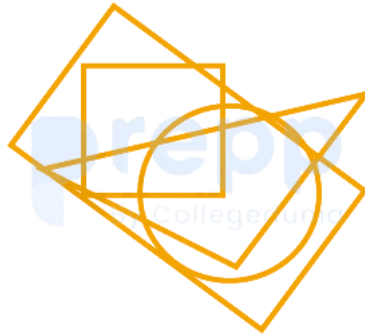
Hence, the correct answer is "Option 2".

37. Answer: d

Explanation:

In figure (X), the dot lies in the region common to circle, triangle and rectangle only.

In figures (B), (C) and (D), there is no common region to circle, triangle and rectangle only whereas in figure (A) there is the region where all three shapes lie together.



Hence, figure (A) is the correct answer.

38. Answer: b

Explanation:

In the question figure, one dot lies in the region common to the circle and triangle only.



One dot is lies in the region common to the circle and two quadrilateral only.



Other third dot lies in the region common to one of the quadrilateral, triangle and circle only.



Only figure (A) consist these types of region.

Figure (C) is not consist these dots, because they don't have a common region of quadrilateral, triangle and circle

Figure (B) is not consist these dots, because they don't have a common region of Circle and triangle only

Figure (D) is not consist these dots, because they don't have a common region of two quadrilateral and circle.

Hence, the correct answer is "Option A".

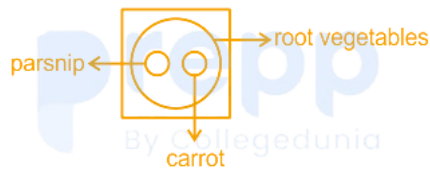
39. Answer: d

Explanation:

The logic followed here is :

- Carrots and parsnips are root vegetables.
- There are many other root vegetables like sweet potato, beetroot, onions etc.

Thus, the Venn diagram that best represents the relationship among root vegetables, carrot, parsnip is as follows:



Hence, **option 4** is the correct answer.

40. Answer: a

Explanation:

Odd One Out: Identifying the Distinction

This question requires us to identify the individual from the given list who stands out from the rest based on their primary role or field of work. We need to carefully consider the backgrounds and significant contributions of each person mentioned: Lord Tennyson, Lord Mountbatten, Lord Dalhousie, and Lord Linlithgow.

Examining Lord Tennyson's Background

Lord Tennyson, whose full name was Alfred Tennyson, was a towering figure in English literature. His primary contribution was to the field of poetry. He held the prestigious position of Poet Laureate, officially appointed to serve the British monarchy, for much of Queen Victoria's reign. His notable works include collections like "Poems by Two Brothers," "In Memoriam A.H.H.," and narrative poems such as "Enoch Arden." His legacy is firmly rooted in his literary achievements.

Examining British Administrators: Mountbatten, Dalhousie, Linlithgow

The other individuals listed were prominent figures in British administration, particularly concerning India:

- **Lord Mountbatten** (Louis Mountbatten): He was a British statesman and naval officer who played a critical role in the final years of the British Raj. He served as the last Viceroy of India and subsequently the first Governor-General of independent India.
- **Lord Dalhousie** (James Andrew Broun Ramsay): He served as the Governor-General of India from 1848 to 1856. His tenure was marked by significant administrative reforms, the introduction of the railway and telegraph, and territorial expansion through the Doctrine of Lapse.
- **Lord Linlithgow** (Victor Alexander John Hope): He held the office of Viceroy of India from 1936 to 1943. His period as Viceroy covered crucial events leading up to India's independence.

These three individuals were central figures in the political and administrative history of British India, holding high governmental positions.

The Defining Difference: Literature vs. Administration

When comparing the individuals, a clear distinction emerges:

- Lord Tennyson is distinguished by his career as a celebrated **poet** and literary figure.
- Lord Mountbatten, Lord Dalhousie, and Lord Linlithgow are all recognized for their significant roles in the **political administration** and governance of India during the British colonial era.

Conclusion: Identifying the Odd One Out

Based on this analysis, **Lord Tennyson** is the odd one out. His primary identity and contribution are linked to the field of literature (poetry), whereas the other three individuals are primarily known for their high-ranking administrative and political roles within the context of British India.

41. Answer: c

Explanation:

England and Atlantic Ocean Geographical Link

This question is based on identifying a geographical relationship. The first pair, "England : Atlantic", establishes a connection where the **Atlantic Ocean** is the major body of water bordering or geographically associated with **England**. Specifically, the Atlantic Ocean lies to the west of England.

Analyzing Greenland's Location Relative to Oceans

We need to find a similar geographical relationship for **Greenland**. Greenland is the world's largest island, located in the North Atlantic Ocean, largely within the Arctic Circle.

- **Greenland** is bordered by the **Arctic Ocean** to the north and west.
- It is bordered by the **Atlantic Ocean** (specifically the Greenland Sea and Irminger Sea) to the east and south.

Therefore, both the Arctic Ocean and the Atlantic Ocean have significant geographical associations with Greenland.

Determining the Correct Ocean Association for Greenland

Let's examine the given options in relation to Greenland:

- **Antarctic ocean:** This ocean is located around Antarctica and has no direct geographical relation to Greenland.
- **Pacific ocean:** This ocean is located on the opposite side of North America and has no direct geographical relation to Greenland.
- **Arctic ocean:** This ocean borders Greenland to the north and west. This is a strong geographical connection.
- **Indian ocean:** This ocean is located in the Southern Hemisphere and has no direct geographical relation to Greenland.

Comparing the relationship between England and the Atlantic Ocean (a bordering ocean), Greenland's most fitting association among the choices provided, considering its northern location and extensive coastline along it, is the **Arctic Ocean**.

42. Answer: a

Explanation:

Odd Pair Word Identification

The question asks us to identify the 'odd pair' from a list of word pairs,

Analyzing the Word Pairs

To find the odd pair, let's examine the connection between the author

- **Option 1:** Turning points – A. P. J. Abdul Kalam
- **Option 2:** Flight of Pigeons –

Detailed Pair

Here's a closer look at each association:

- **Pair 1: Turning points – A. P. J. Abdul Kalam**
Dr. A. P. J. Abdul Kalam, the former President of India,

ReasoningThe to sel the "c pair". Base comr know and

where each pair consists of a book title and an author's name. This means we need to find the pair that does not fit with the others, based on the correctness of the association between the title and the author.

and the book title in each option:

- Swami Vivekananda
- Option 3: Pathway to God – Ruskin Bond
 - Option 4: The Cherry Tree – Rabindranath Tagore

authored several books. One of his works is indeed titled *Turning Points: A journey through challenges*. This book reflects on his experiences.

litera recor

- Pair 2: Flight of Pigeons – Swami Vivekananda
Swami Vivekananda was a renowned spiritual leader and philosopher. While his teachings often used metaphors, a major published work titled *Flight of Pigeons* is not commonly associated with him. This suggests a potential mismatch.

- Pair 3: Pathway to God – Ruskin Bond
Ruskin Bond is a celebrated Indian author known for his works on nature and children. He did author a book titled *Pathway to*

Prepp
Your Personal Exams Guide

God:
Conversations
with Ruskin
Bond, which
delves into
spiritual
themes. This
is a correct
association.

- **Pair 4: The Cherry Tree – Rabindranath Tagore**
Rabindranath Tagore was a Nobel Prize-winning poet and writer. However, the famous poem *The Cherry Tree* was written by Ruskin Bond, not Rabindranath Tagore. This is an incorrect association.

43. Answer: d

Explanation:

On observing all the options:

Option (1)



Here, 4 connected arrows are present.

Option (2)



Here, 4 connected arrows are present.

Option (3)



Here, 4 connected arrows are present.

Option (4)



Here, 5 connected arrows are present.

All Options Except option (4) are having 4 connected arrows but in option (4) there are 5 connected arrows so it is odd one out, as shown below:

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

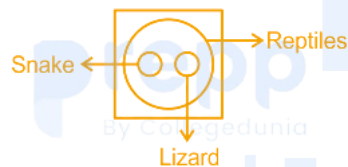
44. Answer: d

Explanation:

The logic followed here is:

1. Snakes and lizards are reptiles.
2. Some of the other reptiles are crocodiles, turtles etc.

Thus, the Venn diagram that best represents the relationship between Snake, Lizard and Reptiles is as follows:



Hence, option 4 is the correct answer.

45. Answer: a

Explanation:

Analogy Solution: CLIMB : FHLQD :: CREPT : ?

Analyzing the CLIMB to FHLQD Pattern

This question involves an analogy, meaning we need to find the relationship between the first pair of words ("CLIMB" and "FHLQD") and then apply that same relationship to the third word ("CREPT") to find the fourth word.

We will examine the change in alphabetical position for each letter in "CLIMB" to get "FHLQD":

- The first letter C is the 3rd letter of the alphabet. It relates to F, the 6th letter. The change is $6 - 3 = +3$.
- The second letter L is the 12th letter. It relates to H, the 8th letter. The change is $8 - 12 = -4$.
- The third letter I is the 9th letter. It relates to Q, the 17th letter. The change is $17 - 9 = +8$.

- The fourth letter **M** is the 13th letter. It relates to **Q**, the 17th letter. The change is $17 - 13 = +4$.
- The fifth letter **B** is the 2nd letter. It relates to **D**, the 4th letter. The change is $4 - 2 = +2$.

So, the pattern of changes applied to the letters of "CLIMB" is a sequence of shifts: **+3, -4, +3, +4, +2**.

Deriving the Result for CREPT

Now, we apply this exact pattern of shifts (**+3, -4, +3, +4, +2**) to the letters of the word "CREPT":

- First letter **C**: Its position is 3. Applying the first shift: $3 + 3 = 6$. The 6th letter is **F**.
- Second letter **R**: Its position is 18. Applying the second shift: $18 - 4 = 14$. The 14th letter is **N**.
- Third letter **E**: Its position is 5. Applying the third shift: $5 + 3 = 8$. The 8th letter is **H**.
- Fourth letter **P**: Its position is 16. Applying the fourth shift: $16 + 4 = 20$. The 20th letter is **T**.
- Fifth letter **T**: Its position is 20. Applying the fifth shift: $20 + 2 = 22$. The 22nd letter is **V**.

Combining these resulting letters forms the word **FNHTV**.

Final Answer Selection

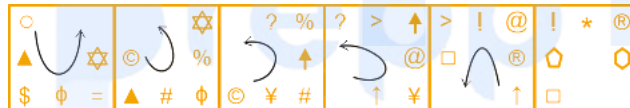
The word derived by applying the pattern to "CREPT" is "FNHTV". This result matches the first option provided in the multiple-choice question.

46. Answer: d

Explanation:

The pattern followed here is :

- 1) All the elements move in an anticlockwise direction in each step.



- 2) The first, third and fifth elements according to anticlockwise direction are replaced by new elements in first step and After one gap this step is repeated.



- 3) Then the second, fourth and sixth elements according to anticlockwise direction are replaced by new elements in the next step. After one gap this step is repeated.



Hence, the figure in **option 4** is the correct answer.

47. Answer: c

Explanation:

The pattern followed here is :

The logic followed here is:



Each figure have 5 positions as shown in the figure above.

The element at position 1 moves to position 2. Here + is replace with G



The element at position 2 moves to position 3. Here G is replace with



The element at position 3 moves to position 4. Here E replace with @



The element at position 4 moves to position 5. Here F is replace with \$



The element at position 5 gets eliminated and a new figure appears at position 1.



Hence, the correct answer is "Option 3".

48. Answer: d

Explanation:

The pattern followed here is-

The shape or element in the upper right quadrant shifts to the lower left quadrant in the successive figure.

The shape or element in the lower right quadrant shifts to the upper right quadrant in the successive figure.

The shape or element in the upper left quadrant shifts to the lower right quadrant in the successive figure.

And a new shape or element is added to the upper left quadrant and the element or shape in lower left quadrant is removed in every successive step.

Here, Option 2 and 4 both can be correct answers but according to the last figure only option 4 is correct



Thus, **figure 4** of the given options will replace the question mark.

★ **Mistake Points**

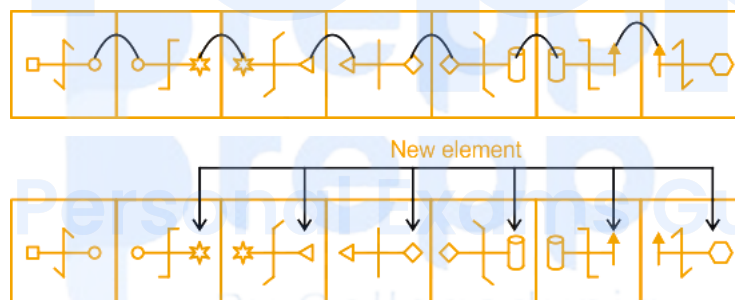
Please observe the orientation of the star in both options. There is a slight difference in both options.

49. Answer: c

Explanation:

The logic followed here is:

1) In each step, the right-hand side element becomes the left-hand side element and a new element appears as the right-hand side element.



2) Both the line on upper and lower side rotate 45° in an anticlockwise direction in each step.



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

50. Answer: a

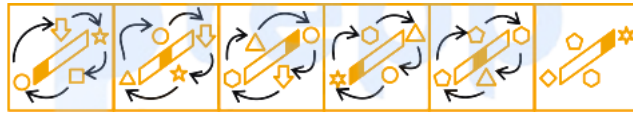
Explanation:

The logic followed here is:

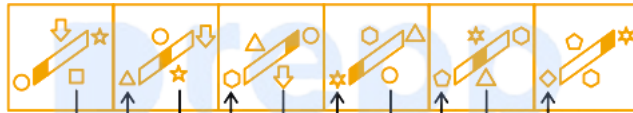
1) The shading moves from lower-left corner to the upper-right corner of the quadrilateral.



2) The elements move to the adjacent side (of the quadrilateral) in a **clockwise direction**.



3) The element that reaches the Left-hand side position gets replaced by a **new symbol**.



□ Disappear ☆ Disappear ↓ Disappear ○ Disappear △ Disappear
△ Appear ☆ Appear ☆ Appear ☆ Appear ☆ Appear

From above logic we get,



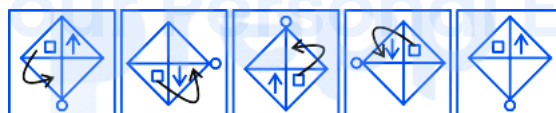
Hence, **option (1)** is the next image in the series.

51. Answer: a

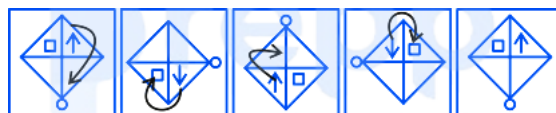
Explanation:

The pattern followed is,

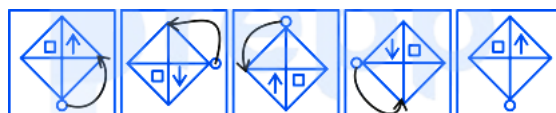
1) Small square changes its position in an **anticlockwise direction**.



2) The water image of the arrow sign changes its position in a **clockwise direction**.



3) The circle moves adjacent to the corner of the square in an **anticlockwise direction**.



From above logic we get,



Hence, option (1) is the correct answer.

52. Answer: c

Explanation:

Identifying the Odd Geographical Pair

The question asks us to identify the pair of words that does not fit the pattern established by the other pairs. In this case, the pairs consist of a desert name and a geographical location (continent or country). We need to determine the correct location for each desert and see which pair has an incorrect association.

Analyzing Desert Locations

Let's examine each option to verify the geographical placement of the deserts mentioned:

- **Atacama - South America:** The Atacama Desert is famously located in the northern part of Chile, which is situated in South America. Therefore, this pair correctly associates the desert with its continent.
- **Sahara - Africa:** The Sahara Desert is the largest hot desert globally and covers a vast area of Northern Africa. This pair correctly matches the desert with its continent.
- **Karakum - Argentina:** The Karakum Desert is a large desert located in Central Asia, primarily within the country of Turkmenistan. Argentina is a country located in South America. This pair incorrectly associates the Karakum Desert with Argentina.
- **Taklamakan - China:** The Taklamakan Desert is situated in the Xinjiang Uyghur Autonomous Region of China, which is in Asia. This pair correctly associates the desert with its country.

Identifying the Mismatched Pair

Based on the analysis, the pair "Karakum - Argentina" is the odd one out because the Karakum Desert is located in Central Asia (Turkmenistan), not in Argentina.

Desert	Given Location	Actual Location	Correct Pair?
Atacama	South America	South America (Chile)	Yes
Sahara	Africa	Africa	Yes
Karakum	Argentina	Central Asia (Turkmenistan)	No
Taklamakan	China	Asia (China)	Yes

The task involves geographical knowledge of major deserts. By comparing the given location with the actual location of each desert, we find that the Karakum Desert is misplaced in the options provided. The other deserts are correctly associated with their respective continents or countries.

53. Answer: c

Explanation:

The figure which will complete the pattern of the question figure is given below:



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

54. Answer: d

Explanation:

The figure which will complete the pattern of question figure is given below:



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

55. Answer: c

Explanation:

The figure which complete the pattern of question figure is given below:



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

56. Answer: b

Explanation:

This solution explains how to decode the pattern used to code the word **SETTING** as **TGWXNTN** and then applies this pattern to find the code for the word **CERTAIN**.

Identifying the Coding Pattern

First, let's analyze the relationship between the letters of the original word 'SETTING' and its coded form 'TGWXNTN'. We compare each letter and its position in the alphabet:

- S is the 19th letter, T is the 20th letter. ($19 + 1 = 20$)
- E is the 5th letter, G is the 7th letter. ($5 + 2 = 7$)
- T is the 20th letter, W is the 23rd letter. ($20 + 3 = 23$)
- T is the 20th letter, X is the 24th letter. ($20 + 4 = 24$)
- I is the 9th letter, N is the 14th letter. ($9 + 5 = 14$)
- N is the 14th letter, T is the 20th letter. ($14 + 6 = 20$)
- G is the 7th letter, N is the 14th letter. ($7 + 7 = 14$)

The observed pattern is that each letter in the original word is shifted forward in the alphabet by an increasing number, starting from +1 for the first letter, +2 for the second, and so on, up to +7 for the seventh letter.

Let's represent this pattern mathematically:

$$\text{Position}_{\text{coded}} = \text{Position}_{\text{original}} + \text{Shift}$$

Where the Shift value increases sequentially: 1, 2, 3, 4, 5, 6, 7.

Applying the Pattern to CERTAIN

Now, we apply the same identified pattern (+1, +2, +3, +4, +5, +6, +7) to the letters of the word **CERTAIN**.

The word is CERTAIN.

- **C**: The 3rd letter. Applying a shift of +1:

$$3 + 1 = 4$$

The 4th letter is **D**.

- **E**: The 5th letter. Applying a shift of +2:

$$5 + 2 = 7$$

The 7th letter is **G**.

- **R**: The 18th letter. Applying a shift of +3:

$$18 + 3 = 21$$

The 21st letter is **U**.

- **T**: The 20th letter. Applying a shift of +4:

$$20 + 4 = 24$$

The 24th letter is **X**.

- **A**: The 1st letter. Applying a shift of +5:

$$1 + 5 = 6$$

The 6th letter is **F**.

- **I**: The 9th letter. Applying a shift of +6:

$$9 + 6 = 15$$

The 15th letter is **O**.

- **N**: The 14th letter. Applying a shift of +7:

$$14 + 7 = 21$$

The 21st letter is **U**.

Final Coded Word

Combining the resulting letters, we get the coded word for CERTAIN:

DGUXFOU

Therefore, in the given code language, CERTAIN will be coded as DGUXFOU.

57. Answer: d

Explanation:

Understanding the SAVING to TYWGOE Relationship

The primary task is to decipher the relationship connecting the first term "SAVING" to the second term "TYWGOE". This involves analyzing how each letter in "SAVING" transforms into the corresponding letter in "TYWGOE".

We can map the letters to their positions in the English alphabet ($A=1, B=2, \dots, Z=26$).

- The word SAVING has letters corresponding to positions: S(19), A(1), V(22), I(9), N(14), G(7).
- The word TYWGOE has letters corresponding to positions: T(20), Y(25), W(23), G(7), O(15), E(5).

By comparing the positions, we can identify the pattern:

- S (position 19) changes to T (position 20). The change is $20 - 19 = +1$.
- A (position 1) changes to Y (position 25). This is a shift of -2 positions (wrapping around from A to Z, then Y). Mathematically, $(1 - 2) \pmod{26} = -1 \pmod{26} = 25$.
- V (position 22) changes to W (position 23). The change is $23 - 22 = +1$.
- I (position 9) changes to G (position 7). The change is $7 - 9 = -2$.
- N (position 14) changes to O (position 15). The change is $15 - 14 = +1$.
- G (position 7) changes to E (position 5). The change is $5 - 7 = -2$.

Therefore, the consistent pattern applied to the letters of SAVING is: Add 1, Subtract 2, Add 1, Subtract 2, Add 1, Subtract 2.

Applying the SAVING Pattern to BONUS

Now, we apply the established pattern (+1, -2, +1, -2, +1) to the third term, "BONUS", to find the missing fourth term.

First, let's list the positions of the letters in BONUS:

- B corresponds to position 2.
- O corresponds to position 15.
- N corresponds to position 14.
- U corresponds to position 21.
- S corresponds to position 19.

Applying the pattern sequence:

- For B (2): Apply +1. The result is $2 + 1 = 3$. The 3rd letter is C.
- For O (15): Apply -2. The result is $15 - 2 = 13$. The 13th letter is M.
- For N (14): Apply +1. The result is $14 + 1 = 15$. The 15th letter is O.
- For U (21): Apply -2. The result is $21 - 2 = 19$. The 19th letter is S.
- For S (19): Apply +1. The result is $19 + 1 = 20$. The 20th letter is T.

Combining these resulting letters, we get the word CMOST.

Selecting the Correct Option

The word derived by applying the pattern to "BONUS" is "CMOST". We now check this against the provided options:

1. DCOMR
2. CMRST
3. DOMTR
4. CMOST

Our result, CMOST, directly matches Option 4.

58. Answer: a

Explanation:

Choosing the Correct Preposition for 'Delighted'

This question requires filling in the blank in the sentence: "She was delighted _____ as well as surprised at her friend's fluke." We need to select the most appropriate word from the given options to complete the sentence grammatically and logically. The phrase "as well as surprised" indicates that the subject experienced both delight and surprise regarding "her friend's fluke".

Analysis of Options for the Blank

Let's examine each option to see how it fits the context:

- **Option 1: with**
The construction "delighted with" is a common and grammatically correct phrasal structure in English. It signifies the reason or source of the delight. For instance, "Children are often delighted with a new toy." Using "with" here means she was pleased because of her friend's fluke. The sentence becomes, "She was delighted **with** as well as surprised at her friend's fluke," which is contextually appropriate.
- **Option 2: but**
"But" is a conjunction used to introduce a contrast or exception. It does not fit grammatically after "delighted" when followed by "as well as" and a noun phrase indicating the cause. "Delighted but" would typically require a different sentence structure, perhaps contrasting her delight with something else.
- **Option 3: to**
The phrase "delighted to" is generally followed by a verb in its infinitive form (e.g., "She was delighted *to see* him"). It explains the action that caused the delight. Since the blank is followed by a noun phrase ("her friend's fluke"), "to" is not the correct preposition in this context.
- **Option 4: None of these**
As "with" is a suitable option, this choice is incorrect.

Grammatical Explanation and Conclusion

The verb "delighted" often collocates with prepositions like "with" or "at," or it can be followed by "to + infinitive."

- "Delighted **with** something" - indicates the cause or object of delight.
- "Delighted **at/by** something" - also indicates the cause or object of delight, often used for events or news.
- "Delighted **to** do something" - indicates the action causing delight.

In the given sentence, the blank precedes the phrase "as well as surprised at her friend's fluke." The word "fluke" is the cause of both surprise and delight. The preposition "with" correctly links "delighted" to its cause, "her friend's fluke".

Therefore, the correct word to fill in the blank is "with".

59. Answer: d

Explanation:

Understanding the Idiom "Walking on Thin Ice"

Idioms are phrases where the words together have a meaning that is different from the dictionary definitions of the individual words. "Walking on thin ice" is a common English idiom used to describe a situation.

Literally, imagine trying to walk across a frozen lake where the ice is very thin. It's incredibly dangerous because the ice could break at any moment, causing you to fall into the freezing water. This literal image conveys a sense of extreme danger and instability.

Figuratively, the idiom "walking on thin ice" means being in a situation that is precarious, risky, or potentially dangerous. It suggests that you are close to causing trouble or facing negative consequences, and any wrong move could lead to a bad outcome. It often implies that someone is behaving in a way that might anger or offend others, or that they are involved in a risky activity.

Analyzing the Options for "Walking on Thin Ice"

Let's examine each option to see which one best matches the meaning of the idiom:

- **Option 1: walking carefully**

While someone in a risky situation might need to walk carefully, this option only describes the manner of walking and misses the core element of danger or risk inherent in the idiom. Being careful is a response to risk, not the definition of the risky situation itself.

- **Option 2: performing a ballet**

This option is completely unrelated to the meaning of the idiom "walking on thin ice". Ballet is a form of dance and has no connection to the figurative meaning of risk or precariousness.

- **Option 3: slipping on ice**

Slipping on ice might be a possible consequence of literally walking on thin ice, but it's not the meaning of the idiom itself. The idiom refers to being in the dangerous situation *before* any mishap occurs, not the mishap itself.

- **Option 4: doing something risky**

This option perfectly captures the figurative meaning of the idiom. "Doing something risky" implies engaging in an activity or being in a situation where there's a high chance of failure, trouble, or negative consequences. This aligns directly with the precariousness conveyed by "walking on thin ice".

- The fifth option is empty and cannot be evaluated.

Conclusion on the Idiom's Meaning

Based on the analysis, the phrase "walking on thin ice" idiomatically means being in a situation that is full of risk or potential danger, where one wrong step could lead to trouble. Therefore, "doing something risky" is the most appropriate meaning among the choices provided.

60. Answer: d

Explanation:

Understanding the Idiom 'Round Peg in a Square Hole'

This question asks for the meaning of the common English idiom: "Round peg in a square hole". Idioms are phrases where the words together have a meaning that is different from the dictionary definitions of the individual words. Understanding idioms is crucial for comprehending figurative language.

Literal Interpretation vs. Idiomatic Meaning

Imagine physically trying to fit a circular peg into a square-shaped hole. It simply wouldn't fit properly. It would be awkward, unstable, and ineffective. The idiom uses this visual concept to represent something more abstract.

Defining 'Round Peg in a Square Hole'

The phrase "Round peg in a square hole" refers to:

- A person who is not suited for a particular job, role, or social environment.
- Something that is incompatible with its surroundings or context.
- An individual whose skills, personality, or nature do not match the requirements or expectations of a situation.

Essentially, it signifies a lack of suitability or a mismatch.

Analyzing the Options

Let's examine the provided options in relation to the idiom's meaning:

- **Option 1: Untrustworthy** - This means someone cannot be relied upon or trusted. This meaning does not align with the idea of fitting in or suitability.
- **Option 2: Invalid** - This implies something is not legally or officially acceptable, or that something is incorrect. While a misfit might be considered ineffective, 'invalid' doesn't capture the core essence of incompatibility.
- **Option 3: In an unpleasant situation** - While being a "round peg in a square hole" often leads to an unpleasant situation for the individual, the idiom itself primarily describes the state of being unsuitable, not the resulting feeling or circumstance.
- **Option 4: A misfit** - This term directly describes someone or something that does not fit into a particular situation, place, or group. This perfectly matches the figurative meaning of the idiom.

Conclusion on the Idiom's Meaning

The idiom "Round peg in a square hole" clearly describes a situation where someone or something does not belong or fit properly. Therefore, the most accurate meaning among the choices provided is "A misfit". This option directly reflects the core concept of incompatibility inherent in the idiom.

61. Answer: a

Explanation:

Understanding Synonyms for 'Garner'

This question requires us to find a synonym for the word 'Garner'. A synonym is a word that has a meaning very close or identical to another word.

Meaning of the Word 'Garner'

'Garner' means to gather or collect something, often with effort or care. It usually refers to accumulating things like information, support, votes, or crops.

Examining the Options Provided

We need to evaluate each option to see which one best matches the meaning of 'Garner':

- **Collect:** This means to bring or gather things together. This is very similar to the meaning of 'Garner'. You can *collect* data, just like you can *garner* data.
- **Dispel:** This word means to make something, like a doubt or a problem, disappear. It is the opposite of gathering. For example, one might *dispel* a myth.
- **Disperse:** This means to scatter or spread out over a wide area. This is also the opposite of 'Garner'. Think of how seeds *disperse* in the wind.
- **Dissipate:** This word means to cause something to disappear or fade away, or to waste it. Similar to 'dispel' and 'disperse', it involves things becoming less or spreading out, not gathering. For example, fog can *dissipate*.

Choosing the Correct Synonym for 'Garner'

Based on the analysis:

- 'Collect' directly relates to the act of gathering or accumulating, making it a strong synonym for 'Garner'.
- 'Dispel', 'Disperse', and 'Dissipate' all relate to things spreading out or disappearing, which is the opposite of the meaning of 'Garner'.

Therefore, the most fitting synonym for 'Garner' among the choices is 'Collect'.

62. Answer: a

Explanation:

Understanding Prerogative and Finding Similar Meanings

This question asks us to identify the word from the given options that has a meaning most **SIMILAR** to the word **Prerogative**. Finding synonyms or words with similar meanings is a key part of expanding vocabulary.

Defining the Word: Prerogative

The word **Prerogative** refers to a special right or privilege that certain people have because of their rank, position, or status. It's something that only they are allowed to do or have.

For example, a king might have the prerogative to make laws, or a manager might have the prerogative to approve vacation requests.

Analyzing the Options for Similar Meaning

Let's look at each option to see how its meaning compares to **Prerogative**:

- **Privilege:** This means a special right or advantage that is available only to a particular person or group. It often implies something positive or exclusive, much like **Prerogative**.
- **Claim:** This usually means stating that something is true or that you have a right to something. While a prerogative involves a right, a 'claim' is more about asserting that right, not the right itself.
- **Grant:** This typically means to allow or give something. It's an action of giving a right or permission, rather than possessing the right itself.

- **Afford:** This means having enough money to pay for something or having the ability to do something without facing significant negative consequences. This is unrelated to the meaning of **Prerogative**.

Identifying the SIMILAR Word

Comparing the definitions, we can see that **Privilege** is the closest in meaning to **Prerogative**. Both words describe a special right or advantage held by a specific person or group due to their position or circumstances.

Therefore, the word that is most SIMILAR in meaning to **Prerogative** among the choices is **Privilege**.

Detailed Comparison

Word Comparison		
Word	Meaning	Similarity to 'Prerogative'
Prerogative	A special right or privilege due to rank or position.	Base word
Privilege	A special right or advantage granted to a person/group.	Very High
Claim	An assertion of a right.	Low
Grant	To give or allow a right.	Low (related to giving, not having)
Afford	To have the means (money/ability).	None

Based on this comparison, **Privilege** clearly emerges as the word with the most SIMILAR meaning to **Prerogative**.

63. Answer: b

Explanation:

- **Question Breakdown:** The question asks to identify the word that has the opposite meaning to the given word, which is 'Erratic'.
- **Identifying the Core Meaning:** The word 'Erratic' describes something that is unpredictable, irregular, inconsistent, or deviates from the usual course or standard. Think of it as something that doesn't follow a set pattern.

Understanding the Meaning of 'Erratic'

The term **Erratic** refers to behavior, movement, or patterns that are irregular, unpredictable, and inconsistent. Something erratic does not follow a steady or reliable course.

Analyzing the Options for the Opposite Meaning

Let's examine the meaning of each option provided to find the best opposite for 'Erratic':

- **1. Aberration:** An aberration is a departure from what is normal, usual, or expected, typically a way that is unwelcome or abnormal. While it involves a deviation, it often implies a deviation *from* normalcy, making it similar in some contexts to 'erratic', rather than its opposite.
- **2. Normal:** The word **Normal** means something that conforms to a standard; usual, typical, or expected. This is the direct opposite of something being irregular or unpredictable.
- **3. Arcade:** An arcade typically refers to a covered passageway with arches, or a place with coin-operated games. This word has no relation to the meaning of 'Erratic'.
- **4. Sarcastic:** Sarcastic means using irony in order to mock or convey contempt. This relates to tone and expression and is unrelated to the meaning of 'Erratic'.

- 5. (Option 5 is empty): This option does not provide a word to evaluate.

Determining the Antonym for Erratic

Comparing the definitions, we can see that:

- 'Erratic' means unpredictable and irregular.
- 'Normal' means predictable, regular, and usual.

Therefore, **Normal** is the word that is opposite in meaning to **Erratic**.

64. Answer: b

Explanation:

Understanding the Meaning of Wrath

The word "Wrath" signifies intense anger, fury, or extreme displeasure. It describes a powerful feeling of rage, often accompanied by a desire to harm or punish. Finding the word that is opposite in meaning requires understanding this core definition.

Analyzing Options Related to Wrath

Let's examine each option to determine which is opposite in meaning to **Wrath**:

- **Anger**: This term denotes a strong feeling of displeasure or hostility. While closely related to wrath, it's generally considered a less intense form of anger.
- **Happy**: This word describes a state of feeling or showing pleasure, contentment, or joy. This represents a positive emotion, directly contrasting with the intense negative emotion of wrath.
- **Rage**: This means violent, uncontrollable anger. It is a strong synonym for wrath, indicating a similar level of intense anger.
- **Fury**: Similar to rage, fury means wild or violent anger. This is also a synonym for wrath, describing extreme anger.

Determining the Opposite Word

Based on the analysis:

- Options 1 (Anger), 3 (Rage), and 4 (Fury) are all related to intense anger and are considered synonyms or near-synonyms of **Wrath**.
- Option 2 (Happy) describes a state of pleasure and joy, which is the direct antonym or opposite of the intense anger conveyed by **Wrath**.

Therefore, the word that is opposite in meaning to **Wrath** is **Happy**.

65. Answer: c

Explanation:

- The question asks to identify the correct word to fill in the first blank (blank 1) in the provided passage concerning India's economic growth forecast.
- The passage states that the Asian Development Bank (ADB) has adjusted India's economic growth forecast for the current financial year from 11% to 10%.
- This change represents a decrease in the projected growth rate.

Analyzing the Change in India's Economic Growth Forecast

The passage discusses a revision made by the Asian Development Bank (ADB) regarding India's economic growth prospects for the ongoing financial year. The key information provided is the shift in the forecast from an earlier projection of 11% down to 10%. This specific change is crucial for determining the correct word for the first blank.

Evaluating Options for Blank (1)

Let's examine the given options in the context of the passage:

- **uplifted:** This word means to raise or increase something. Since the forecast decreased from 11% to 10%, 'uplifted' is not appropriate.
- **projected:** This word means to estimate or forecast future events. While the ADB does project forecasts, the word here refers to the *action* of changing the existing projection, not the act of projecting itself. The sentence structure already uses 'projected' earlier ("previously projected"). Therefore, 'projected' is unsuitable for describing the downward revision.
- **downgraded:** This word means to reduce the value, quality, or importance of something, or in this context, to lower a forecast or rating. A change from 11% to 10% is a reduction, making 'downgraded' a suitable description for the action taken by the ADB.
- **upgraded:** This word means to improve or raise something to a higher level or standard. Since the forecast was lowered, 'upgraded' is incorrect.

Conclusion on Economic Growth Forecast Revision

Based on the analysis, the forecast for India's economic growth was reduced from 11% to 10%. The term that accurately describes this reduction is 'downgraded'. The passage explicitly mentions this change was made due to the "adverse impact of the second wave of the Coronavirus pandemic", further supporting the idea of a downward revision.

Therefore, the correct word for blank (1) is 'downgraded'.

66. Answer: a

Explanation:

The correct answer is 'into.'

★ Key Points

- The meaning of the phrase '**take into account**' is *to consider or remember something when judging a situation*. ('**Ta** ke into account' वाक्यांश का अर्थ किसी स्थिति को देखते हुए किसी चीज़ पर विचार करना या याद रखना है।)
 - **Example :** *A good architect **takes into account** the building's surroundings.*
- Therefore, the preposition 'into' should be used to make the sentence grammatically correct.
- Hence, the correct answer for the blank (2) is 'into.'
 - Correct phrase: *This downgrade was done taking **into** account the adverse impact.....*

★ Additional Information

Let us discuss some other phrases with '**take**' :

Phrase	Meaning	अर्थ
Take off	take time off from work; stop working temporarily, remove clothes.	काम से समय निकालना ; अस्थायी रूप से काम करना बंद करना , कपड़े हटाना।
Take for granted	take to be the case or to be true; accept without verification or proof.	मामला होना या सच होना; सत्यापन या प्रमाण के बिना स्वीकार करना।
Take it easy	settle into a comfortable sitting position.	बैठने की आरामदायक स्थिति में बैठना।

67. Answer: c

Explanation:

The correct answer is 'ended.'

★ Key Points

- As the second half of the given passage is in the Past Tense, therefore the first part must also be in the Past Tense.
- The option 'will end' is incorrect because it is in the Future tense.
- The option 'ends' is incorrect because it is in the Present tense.
- The option 'ended' is correct because it is in the Past tense.
- The option 'will ended' is incorrect because it is grammatically incorrect.
- Hence, the correct form of tenses, 'ended' should be used to make the sentence grammatically correct.
- Hence, the correct answer is 'ended.'
- Correct phrase:fiscal year which **ended** in March 2021ed, India's GDP growth recovered to 1.6%.

★ Additional Information

- We use 'can' and 'could' to talk about a skill or ability.
 - Example: *My grandfather could play golf very well.*
- We can use verbs such as 'must' or 'should' to say when something is necessary or unnecessary or to give advice.
 - Example: *Children must do their homework.*

★ Hinglish

- चूंकि दिए गए गद्यांश का दूसरा भाग Past Tense में है, इसलिए पहला भाग भी Past Tense में ही होना चाहिए।
- विकल्प 'will end' गलत है क्योंकि ये Future tense में है।
- विकल्प 'ends' गलत है क्योंकि ये Present tense में है।
- 'Ended' विकल्प सही है क्योंकि ये Past tense में है।
- विकल्प 'will ended' गलत है क्योंकि यह व्याकरणिक रूप से गलत है।
- इसलिए, काल के सही रूप, 'ended' का उपयोग किया जाना चाहिए, वाक्य को व्याकरणिक रूप से सही बनाने के लिए।
- हम एक कौशल या क्षमता के बारे में बात करने के लिए 'can' और 'could' का उपयोग करते हैं।
 - Example: *My grandfather could play golf very well.*
- हम कुछ आवश्यक या अनावश्यक है, कहने के लिए या सलाह देने के लिए 'must' या 'should' का उपयोग कर सकते हैं।
 - Example: *Children must do their homework*

68. Answer: d

Explanation:

Reasons for Mountain Climbing Difficulty Explained

This section explains why climbing mountains is considered difficult, based on the provided passage.

Understanding the Challenges of Mountain Climbing

The passage describes mountain climbing as a challenging activity. Let's analyze the reasons given:

- The passage states that mountains are not simply large hills, suggesting they present greater challenges than hills.
- It explicitly mentions that "Paths are usually very steep." This steepness makes the ascent physically demanding.
- The text also notes that "Some mountain sides are straight up and down." This implies vertical or near-vertical sections that require significant skill and effort to overcome.

- Because of the steepness and difficult terrain, the passage highlights that "it may take many hours to climb as little as one hundred feet." This indicates the time-consuming nature of climbing difficult mountain sections.
- The passage also mentions the inherent "danger that you may fall off and be killed or injured," adding another layer of risk associated with mountain climbing.

Analyzing the Options Provided

Let's evaluate each option in relation to the passage:

- **Option 1: Mountains are big hills**

The passage contradicts this by stating, "mountains are not just big hills." This implies mountains possess characteristics that make them significantly more challenging than hills.

- **Option 2: It consumes more time**

While the passage does mention that it can take many hours to climb short distances, this is presented as a consequence of the steepness and difficulty, rather than the primary reason for the difficulty itself.

- **Option 3: Prisoners often escape from camps and settle there**

This statement refers to the anecdote about Italian prisoners of war in Kenya. It is irrelevant to the general difficulty of mountain climbing as described in the main part of the passage.

- **Option 4: Paths are steep and uneven**

The passage directly supports this option by stating, "Paths are usually very steep." The description of some sides being "straight up and down" implies difficult, potentially uneven terrain. This option best captures the physical difficulties mentioned in the text.

Conclusion on Difficulty Factors

Based on the passage, the primary difficulties encountered while climbing mountains stem from the nature of the terrain itself, specifically the steepness and verticality of the paths and mountain sides.

69. Answer: a

Explanation:

Understanding the Prisoners' Motivation on Mount Kenya

The provided passage tells the story of two Italian prisoners of war who escaped from a camp in Kenya during wartime. Instead of attempting to return home, they chose to climb Mount Kenya. The passage explicitly states their reason:

- "They had wanted to get that feeling of freedom that one has, after climbing a difficult mountain."

This quote directly explains their motivation behind the climb. They sought the sense of liberation and accomplishment associated with conquering a challenging mountain, even if only temporarily.

Analyzing the Options

Let's examine why the other options are not the correct motivation according to the passage:

- **Option 2: To escape to Italy** – The passage clearly states they *did not* try to get back to their own country, ruling this out.
- **Option 3: To gain fame as mountaineers** – The text focuses entirely on the internal feeling of freedom and does not mention any desire for recognition or prestige as mountaineers.

- **Option 4: None of these** – Since Option 1 accurately reflects the prisoners' stated motivation, this option is incorrect.

Why Freedom Was the Goal

The act of climbing Mount Kenya was a deliberate choice made by the prisoners. They knew returning home was impossible, so they pursued an experience that offered a different kind of liberation. The passage emphasizes the "feeling of freedom" gained from climbing a difficult mountain, comparing it to the confinement they experienced as prisoners. Reaching the summit and subsequently returning to give themselves up highlights that the climb itself, and the feelings it evoked, were the primary objective, not a continued escape attempt or seeking status.

70. Answer: d

Explanation:

This question asks us to identify what the specific sentence, "It is a wonderful feeling to reach the top of a mountain after climbing for hours and may be, even days," refers to within the context of the provided passage about **mountain climbing**.

Analyzing the Sentence Context

The passage describes **mountain climbing** as a challenging activity, noting steep paths and dangers. However, it also emphasizes the significant emotional reward: "It is a wonderful feeling to reach the top of a mountain after climbing for hours and may be, even days." The text further illustrates this by mentioning Italian prisoners of war who climbed Mount Kenya specifically "to get that feeling of freedom that one has, after climbing a difficult mountain." This highlights that the sentence is focused on the profound emotional and psychological experience of achieving a summit after immense effort.

Evaluating the Options

Let's examine each option in relation to the sentence and the passage:

- **Option 1: Mountain**

This option is incorrect. The sentence does not refer to the mountain itself, but rather to the *feeling* experienced by a person upon reaching its peak.

- **Option 2: They were not treated well in the prison**

The passage does not mention the prisoners' treatment in the prison camp. Their motivation for climbing Mount Kenya was to experience the feeling of freedom associated with summiting a mountain, not necessarily as a direct response to poor prison conditions. Therefore, this option is irrelevant to the sentence in question.

- **Option 3: They liked climbing mountains**

While the prisoners did climb mountains, and one might infer they enjoyed it, the specific sentence is much more precise. It describes the *culmination* of a difficult climb – the "wonderful feeling" – which is a specific outcome or reward. Simply stating they "liked climbing mountains" is too general and does not capture the specific sentiment of exhilaration and accomplishment described in the sentence. The passage emphasizes the *feeling* as the goal.

- **Option 4: None of these**

Considering the analysis of the other options, this sentence refers specifically to the intense emotional reward and sense of accomplishment derived from the arduous process of **mountain climbing** and reaching the summit. None of the other provided options accurately and completely encapsulate this specific experience or feeling.

Conclusion on the Sentence Reference

The sentence vividly describes the profound emotional satisfaction and sense of achievement that comes from conquering a challenging mountain ascent. It captures a peak experience that transcends the mere act of climbing or the physical presence of the mountain. Since options 1, 2, and 3 do not fully represent this specific nuanced feeling or experience described, the correct interpretation is that none of these options adequately define what the sentence refers to.

71. Answer: a

Explanation:

Choosing the Correct Word for Exercise Description

The question asks us to select the most suitable word to describe **exercise** in the sentence: "Exercise can be a very ___ activity as long as you do not overdo it." We need a word that fits grammatically and makes sense in the context of describing an **activity** related to **exercise**.

Analyzing Grammatical Needs

The sentence structure requires an adjective to modify the noun 'activity'. An adjective describes the quality or state of a noun. We need to evaluate the given options to see which one functions correctly as an adjective in this context.

Evaluating the Options for Exercise

- **Option 1: beneficial**
'Beneficial' is an adjective meaning 'favorable or advantageous; resulting in good'. It fits perfectly into the sentence: "Exercise can be a very **beneficial** activity..." This describes the positive nature of exercise when done moderately.
- **Option 2: benefitial**
This is a misspelling of the word 'beneficial'. It is not the standard or correct English spelling.
- **Option 3: benefit**
'Benefit' is primarily a noun, meaning 'an advantage' or 'profit'. While it relates to the idea of good outcomes, it cannot be used as an adjective directly modifying 'activity' in this sentence structure ("a very benefit activity" is grammatically incorrect).
- **Option 4: benefited**
'Benefited' is the past tense or past participle of the verb 'benefit'. It can sometimes be used as an adjective (e.g., "the benefited group"), but it doesn't fit as smoothly here as 'beneficial'. 'Beneficial' specifically describes the quality of *causing* a benefit, which fits the context of describing the 'activity' itself.

Understanding Exercise and its Effects

The sentence highlights that **exercise** is generally positive ("very ___ activity") but cautions against excess ("as long as you do not overdo it"). The word '**beneficial**' accurately captures this positive quality, indicating that exercise yields good results or advantages when performed correctly. This aligns with the common understanding of the health advantages of physical activity.

Conclusion on the Correct Word

Based on the grammatical requirements (needing an adjective) and the meaning needed to describe the positive nature of moderate exercise, '**beneficial**' is the correct choice. It is the correctly spelled adjective that fits the sentence perfectly.

72. Answer: c

Explanation:

Identifying Sentence Errors in Comparative Structures

This question requires us to find a grammatical **error** within the provided **sentence**. We need to carefully examine each segment, focusing on the correct use of **comparative** forms, especially in structures comparing two related changes.

Sentence Part Breakdown and Analysis

Let's examine each part of the sentence:

- **Part (1): "The more you"** – This segment correctly starts the comparative structure.
- **Part (2): "work hard,"** – This part is grammatically correct and describes the action.
- **Part (3): "the more better you get"** – This segment contains the grammatical mistake.

Explanation of the Comparative Error

The sentence attempts to use the correlative comparative structure, often seen as "The + comparative..., the + comparative...". This structure indicates that as one thing increases or decreases, another thing increases or decreases proportionally.

In this case, the structure starts correctly with "The more you work hard...". However, the second part, "...the more better you get", is incorrect due to a common mistake: the double comparative.

Let's look at the word **"better"**:

- **"Better"** is the comparative form of the adjective **"good"**. The sequence is good (positive), better (comparative), best (superlative).
- Using **"more"** before an already comparative form like **"better"** results in a double comparative (**"more better"**). This is redundant and grammatically incorrect in standard English.
- Similarly, other comparative forms like "faster", "smarter", "happier" should not be preceded by "more".

The correct comparative structure requires only the comparative form. Therefore, the phrase should be **"the better you get"**, not "the more better you get".

Conclusion on the Sentence Error

The identified **error** is the use of the double comparative **"more better"** in Part (3). The correct phrasing maintains the parallel structure using the simple comparative form.

73. Answer: a

Explanation:

Identifying the Grammatical Error in the Sentence

This question asks us to identify a grammatical error within the given sentence. We need to examine each part of the sentence to find the mistake.

Understanding Modal Verbs and Verb Forms

A key rule in English grammar involves the use of **modal verbs**. Modal verbs include words like *will, would, can, could, may, might, shall, should, must*. These verbs are always followed by the **base form** of the main verb (also known as the infinitive without 'to').

- Example: You *can go*. (Correct)
- Example: You *can goes*. (Incorrect)
- Example: She *should study*. (Correct)
- Example: She *should studies*. (Incorrect)

Analyzing the Sentence Structure

Let's break down the sentence provided:

He would succeeds / in his efforts only / if he tried hard.

The sentence uses the modal verb 'would'.

Pinpointing the Grammatical Mistake

In the first part of the sentence, **He would succeeds**, we see the modal verb 'would' followed by the verb 'succeeds'.

According to the rule mentioned above, a modal verb like 'would' must be followed by the base form of the verb. The base form of 'succeeds' is 'succeed'.

Therefore, the phrase **He would succeeds** contains a grammatical error.

Determining the Correct Verb Form

The correct construction should use the base form of the verb after 'would'.

- Correct form: **He would succeed**

The rest of the sentence, **in his efforts only** and **if he tried hard**, follows standard grammatical rules.

Conclusion on the Error Location

The error lies in the first segment of the sentence, specifically the incorrect verb form used after the modal verb 'would'. The part **He would succeeds** is grammatically incorrect.

74. Answer: c

Explanation:

Error Analysis in the Sentence

The task is to identify if there is a grammatical error in the given sentence: "I would rather buy a scooter or a cycle." The sentence parts are implicitly labeled a) and b), with option c) representing 'No error' and option d) potentially also indicating 'No error' or being unused depending on interpretation. We need to check the underlined parts for correctness.

'Would Rather' Grammar Rule

The expression 'would rather' is commonly used in English to express a preference for one thing or action over another. A crucial grammar rule associated with this expression is that it must be followed by the **base form of the verb** (also known as the bare infinitive, i.e., the infinitive without 'to').

- **Correct Usage:** The structure should be 'Subject + would rather + base verb + ...'. For example, "I would rather read a book." Here, 'read' is the base form.
- **Incorrect Usage:** Structures like "I would rather to read" or "I would rather reading" are grammatically incorrect.

Parts a) and b) Correctness

Let's examine the specific parts mentioned or implied in the question:

Part a) (Implied): "rather buy a scooter" This segment contains the core preference structure. It correctly uses 'would rather' followed by the base verb 'buy'. The object of the preference, 'a scooter', is also included. This part is grammatically sound.

Part b) (Implied): "or a cycle ." This segment presents the alternative preference, 'a cycle', using the conjunction 'or'. This is the standard way to connect two options when expressing a preference with 'would rather'. This part is also grammatically correct.

Correct Option Identification

The sentence "I would rather buy a scooter or a cycle." correctly applies the grammar rule for 'would rather'. The base verb 'buy' is used appropriately, and the alternatives 'a scooter' and 'a cycle' are clearly presented.

Since there is no grammatical mistake in the sentence structure or word usage, the correct choice is the one indicating 'No error'. According to the provided answer key information, option c) signifies 'No error'.

75. Answer: a

Explanation:

Understanding the Idiom 'Make a Mention of'

This question tests the understanding of common English idioms, specifically phrases involving the word "mention". We need to identify the correct prepositional phrase to complete the sentence "He made _____." based on standard English usage.

Correct Usage of 'Make a Mention of'

The phrase "to make a mention of something" or "to make a mention of someone" is a widely accepted and standard idiomatic expression in English. It means to briefly refer to or talk about a particular person or subject.

- The structure is typically: *make a mention + of + [person/thing]*.
- Example: "During the presentation, she **made a mention of** the project's early success." Here, "made a mention of" correctly indicates she briefly talked about the success.

Analyzing Other Options

Let's look at why the other options are less suitable:

- **"a mention for you"**: Using "for" suggests the mention was intended as a favour or benefit directed towards the person. While context could potentially make this grammatically plausible in a rare situation, it's not the standard way to simply refer to someone. The idiom requires "of".
- **"a mention about you"**: While "about" is often used to indicate the topic of discussion (e.g., "We talked about the weather"), the specific idiom "make a mention" strongly collocates with "of". Using "about" here sounds unnatural and is considered less standard or incorrect in this fixed phrase. You might hear "There was a mention about the changes", but the active construction "He made a mention about you" is awkward compared to the established idiom.
- **"yours mention"**: This option is grammatically incorrect. "Yours" is a possessive pronoun, and it cannot be directly followed by a noun like "mention" in this way. The correct possessive form would involve "your" (e.g., "your mention"), but the idiomatic phrase uses "a mention of".

Conclusion on Phrasing

The most natural and grammatically correct way to express that someone briefly referred to you is by using the established idiom. Therefore, completing the sentence with "a mention of you" fits the standard structure perfectly.

Applying this to the sentence: "He made **a mention of you**." is the correct and idiomatic completion.

76. Answer: d

Explanation:

Idiom Selection for Contextual Fit

This question requires identifying the correct English idiom to fill in the blank in the sentence: "Hey, man, you are absolutely _____ here because I'm innocent." The key to solving this is understanding the meaning of each idiom and how it relates to the context provided, particularly the reason "because I'm innocent."

Analyzing Idiom Meanings

Let's examine the meaning of each option to determine the best fit:

- **a devil's advocate:** This idiom refers to someone who intentionally takes an opposing viewpoint to stimulate discussion or test an argument, even if they don't personally believe it. It doesn't fit the context of mistaken accusation.
- **an eye candy:** This phrase describes someone who is physically attractive but perhaps lacks substance or depth. It is not relevant to the scenario presented.
- **set the bar:** This idiom means to establish a standard or level of quality or performance. It is unrelated to wrongly accusing someone.
- **barking up the wrong tree:** This idiom means someone is pursuing a mistaken course of action, looking in the wrong place, or blaming the wrong person.

Evaluating Idioms in the Sentence Context

The sentence implies a situation where someone is confronting or accusing the speaker, but the speaker asserts their innocence. The phrase "because I'm innocent" serves as the justification for why the other person's actions or beliefs are incorrect.

Let's see how each idiom works:

- "You are absolutely **a devil's advocate** here..." - This doesn't make sense, as the reason given is innocence, not a desire for debate.
- "You are absolutely **an eye candy** here..." - This is irrelevant to the accusation or mistaken action implied.
- "You are absolutely **set the bar** here..." - This idiom relates to standards, not mistaken accusations.
- "You are absolutely **barking up the wrong tree** here..." - This fits perfectly. It means the person is mistaken in their accusation or assumption ("here") because the speaker is innocent. The accusation is misdirected.

Conclusion on Correct Idiom Usage

The idiom **barking up the wrong tree** accurately describes a situation where someone is mistaken in their pursuit or accusation, especially when the person they are targeting is innocent. The phrase "you are absolutely barking up the wrong tree here" effectively communicates that the person's actions are misguided in this specific context due to the speaker's innocence.

77. Answer: d

Explanation:

Defining the Expression of Spoken Sounds

The core task is to find a single word representing the concept: "The expression of spoken sounds by an alphabet." This means using written symbols (an alphabet) to represent the sounds we make when we speak.

Analyzing Options for Sound Expression

We need to carefully examine each option provided to determine which one best fits the definition:

- **Alphabet:** This term refers to the collection of letters or symbols used in writing, arranged in a specific sequence (e.g., A, B, C). It's the system itself, not the action of using it to express sounds.

- **Alphabetic:** This is an adjective used to describe something related to an alphabet, such as "alphabetic order." It modifies nouns but doesn't represent the act of expressing sounds.
- **Alphabetization:** This word does not appear to be a standard English term, especially in the context of representing spoken sounds with an alphabet. It's likely incorrect for this definition.
- **Alphabetism:** This word denotes the practice, system, or process of using an alphabet to express spoken sounds. It accurately describes the conversion of speech sounds into written form using letters.

Choosing the Correct Term: Alphabetism

Alphabetism is the most suitable word because it specifically relates to the representation of sounds using an alphabet. It encompasses the method or system involved in writing down the sounds of spoken language.

For example, learning to write words involves understanding how different letters or combinations of letters correspond to the sounds you hear and produce. This process is an example of **alphabetism**.

Final Summary on Sound Expression

Therefore, the single word that accurately describes "The expression of spoken sounds by an alphabet" is **Alphabetism**.

78. Answer: b

Explanation:

Understanding the Term for Pleasure-Seeking Doers

The question asks for a single word to describe a person who engages in an activity primarily for enjoyment and personal satisfaction, rather than for financial gain or professional reasons. This concept is fundamental to understanding different types of involvement in activities, hobbies, and professions.

Analyzing the Options for "One who does things for pleasure and not for money"

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

- **Magician:** A magician is someone who performs magic tricks, usually for entertainment. While some magicians might do it for pleasure, the term specifically refers to the act of performing magic, not necessarily the motivation behind it (which can often be professional).
- **Amateur:** An amateur is a person who engages in a pursuit, especially a sport, hobby, or art, on an unpaid basis. Their primary motivation is typically love, passion, or pleasure derived from the activity itself, rather than monetary compensation. This aligns perfectly with the definition "One who does things for pleasure and not for money."
- **Employee:** An employee is a person who is hired to work for an organization or another person, receiving payment (salary or wages) for their services. The core characteristic of an employee is working for money, which is the opposite of the description given.
- **Clown:** A clown is a comic performer who wears exaggerated makeup and colorful clothing and entertains people, often at circuses or parties. Like 'magician', this term describes a specific type of performer and doesn't inherently capture the motivation of doing something purely for pleasure over payment. A clown can be professional or amateur.

Identifying the Correct Term

Based on the analysis, the word that accurately describes someone who does things for pleasure and not for money is **Amateur**. The defining characteristic of an amateur is their non-professional, often voluntary, participation driven by interest and enjoyment.

Conclusion

The expression "One who does things for pleasure and not for money" is best represented by the single word **Amateur**.

79. Answer: c

Explanation:

Understanding the Idiom: Hold all the aces

The idiom "Hold all the aces" refers to a situation where an individual or entity possesses all the advantages or the best possible resources required to succeed. This expression originates from card games, such as Poker or Bridge, where the Ace is typically the highest-ranking card. Having all the highest cards in a game signifies a position of significant strength and a high probability of winning.

Meaning Elaboration for "Hold all the aces"

When someone "holds all the aces," it means they are in a highly advantageous position. They have secured all the best options, key resources, or opportunities available, which makes their success very likely. Essentially, it signifies having superior control and a decisive edge over others in a particular situation.

Analysis of Options for "Hold all the aces"

To determine the correct meaning, let's look at the provided options:

- **Keep abreast:** This phrase means to stay informed about the latest news or developments in a particular area. It doesn't relate to having advantages or control.
- **Have the floor:** This idiom means having the right to speak or lead a discussion, usually in a meeting or debate. This meaning is unrelated to possessing advantages.
- **Trump card:** This refers to a powerful advantage or resource that can be used to ensure success, especially when played at a crucial moment. This aligns perfectly with the concept of having all the best cards (aces), guaranteeing a significant advantage.
- **In the pickle:** This idiom describes being in a difficult, awkward, or troublesome situation. It represents the opposite scenario of holding all the advantages.

Identifying the Correct Meaning

Comparing the idiom's meaning with the definitions of the options, the most fitting meaning for "Hold all the aces" is having a superior advantage or resource, much like possessing a **trump card**. This option accurately reflects the situation of having all the best elements necessary for success.

80. Answer: b

Explanation:

Understanding the Famous Maxim: Bird in the Hand

The question requires completing a well-known English maxim: "A bird _____ the hand is worth two in the bush." This task involves understanding the meaning of this common proverb and identifying the correct preposition to fill the blank space. The maxim contrasts having something certain versus pursuing something potentially better but uncertain. It emphasizes the value of what one already possesses.

Analyzing the Options for the Maxim

Let's examine each option to see why it fits or doesn't fit the standard maxim:

- **Option 1: out**

If we insert 'out', the phrase becomes "A bird out the hand...". This does not form a grammatically correct or meaningful phrase in the context of the proverb.

- **Option 2: in**

Inserting 'in' results in "A bird **in** the hand...". This is the traditional and widely recognized wording of the proverb. The preposition 'in' correctly signifies possession – the bird is currently held within one's hand.

- **Option 3: of**

Using 'of' would make it "A bird of the hand...". This is grammatically incorrect for the intended meaning of the proverb, which focuses on possession.

- **Option 4: from**

Choosing 'from' results in "A bird from the hand...". This preposition suggests separation or origin, which contradicts the proverb's core message about holding onto something valuable and certain.

- **Option 5: (Empty)**

An empty option cannot complete the maxim.

The Meaning of "A Bird in the Hand"

The maxim "A bird **in** the hand is worth two in the bush" means that it is better to hold onto something you already have (the bird **in** your hand) than to risk losing it by trying to get something seemingly better, which you might not actually obtain (the two birds that might be in the bush). It advises caution and appreciation for current possessions over uncertain future gains.

Conclusion: Completing the Maxim

Based on the analysis of the options and the meaning of the proverb, the correct word to complete the maxim is 'in'. This forms the established phrase that teaches a valuable lesson about certainty and risk.

The completed maxim is: "A bird **in** the hand is worth two in the bush."

Option	Word	Resulting Phrase	Meaning/Correctness
1	out	A bird out the hand...	Incorrect grammar and meaning
2	in	A bird in the hand...	Correct; forms the known proverb
3	of	A bird of the hand...	Incorrect grammar
4	from	A bird from the hand...	Incorrect meaning in context

81. **Answer: b**

Explanation:

Understanding the Sentence Context

The sentence describes a situation where Ankit is going to assume the position of managing director after Rahul retires. We need to find a phrasal verb that correctly expresses this transition of responsibility.

Analyzing Phrasal Verb Meanings

Let's look at the meanings of the given phrasal verbs:

- **take away:** This means to remove something or to subtract a number. For example, "The waiter will *take away* the dirty dishes." This meaning doesn't fit the context of assuming a new job role.
- **take over:** This means to start doing a job or controlling a group or organization that another person was doing or controlling. For instance, "The new CEO will *take over* the company next month." This fits the sentence perfectly, as Ankit will assume the role and responsibilities of the managing director.
- **take up:** This phrasal verb has several meanings, such as starting a new hobby ("She decided to *take up* gardening") or accepting an offer ("He was offered the job and decided to *take it up*"). While it can relate to starting a job, *take over* is more specific to succeeding someone in a position.
- **take down:** This means to remove something, write something down, or defeat someone. For example, "Please *take down* the notes during the meeting." This meaning is completely unrelated to the sentence's context.

Selecting the Suitable Phrasal Verb

Comparing the meanings, the phrasal verb **take over** best describes the act of Ankit assuming the position and control of the managing director role previously held by Rahul.

Therefore, the completed sentence is: "Ankit will **take over** as managing director when Rahul retires."

Final Answer Explanation

The phrase **take over** accurately conveys the meaning of assuming control or responsibility for a position or task previously held by someone else, which is exactly what happens when Ankit becomes the managing director after Rahul's retirement.

82. Answer: b

Explanation:

Choosing the Correct Preposition for Introduction

This question requires selecting the appropriate preposition to complete the sentence: "I will introduce you _____ my boss this week." The key is understanding how the verb **introduce** is used in English sentences, specifically when connecting the person being introduced with the person they are being introduced to.

Understanding the Verb 'Introduce'

The verb **introduce** means to make someone meet someone else for the first time, usually by telling them each other's names.

- When you **introduce** someone (Person A) to someone else (Person B), you use the preposition **to** to connect Person A with Person B.
- The structure is typically: *introduce [Someone A] to [Someone B]*.

Analyzing the Options

Let's examine each option to see why it fits or doesn't fit the sentence:

- **1. on:** The preposition 'on' is usually used for location (e.g., "The book is **on** the table") or specific dates/days (e.g., "The meeting is **on** Monday"). It does not fit the context of introducing someone *to* another person. Using 'on' here would sound grammatically incorrect.
- **2. to:** This preposition correctly indicates the recipient or the person being introduced. The structure "introduce you **to** my boss" follows the standard grammatical pattern for this verb. It means the speaker will facilitate the meeting between "you" and the boss.

and "my boss".

- **3. too:** 'Too' is an adverb, meaning 'also' or 'excessively' (e.g., "I like that **too**," or "It is **too** hot"). It does not function as a preposition and cannot be used to connect 'you' and 'my boss' in this sentence structure.
- **4. for:** 'For' typically indicates purpose, benefit, or duration (e.g., "This is a gift **for** you," or "We waited **for** an hour"). It does not fit the specific meaning required by the verb **introduce** in this context.

Final Sentence Construction

Based on the analysis, the preposition **to** is the only option that correctly completes the sentence according to standard English grammar rules for the verb **introduce**.

The correct sentence is: "I will introduce you **to** my boss this week."

83. Answer: d

Explanation:

Calculating Average Score in Last Matches

This problem involves calculating the average score of a cricketer in the last 4 matches, given the overall average and the average for the first 6 matches. We need to determine the **average score in the last 4 matches**.

Understanding the Concept of Average

The average (or mean) is calculated by dividing the sum of all values by the number of values. In this context:

Average Score = Total Runs / Number of Matches

Therefore, we can also express Total Runs as:

Total Runs = Average Score × Number of Matches

Step 1: Calculate Total Runs in All 10 Matches

We are given that the cricketer's average score across 10 matches is 50 runs.

Using the formula:

Total Runs (10 matches) = Average Score (10 matches) × Number of Matches

Total Runs (10 matches) = 50×10

Total Runs (10 matches) = 500 runs.

Step 2: Calculate Total Runs in the First 6 Matches

We are also given that the average score in the first 6 matches is 40 runs.

Using the same formula:

Total Runs (first 6 matches) = Average Score (first 6 matches) × Number of Matches

Total Runs (first 6 matches) = 40×6

Total Runs (first 6 matches) = 240 runs.

Step 3: Calculate Total Runs in the Last 4 Matches

To find the runs scored in the last 4 matches, we subtract the total runs scored in the first 6 matches from the total runs scored in all 10 matches.

$$\text{Total Runs (last 4 matches)} = \text{Total Runs (10 matches)} - \text{Total Runs (first 6 matches)}$$

$$\text{Total Runs (last 4 matches)} = 500 - 240$$

$$\text{Total Runs (last 4 matches)} = 260 \text{ runs.}$$

Step 4: Calculate the Average Score in the Last 4 Matches

Finally, to find the average score in the last 4 matches, we divide the total runs scored in these 4 matches by the number of matches (which is 4).

$$\text{Average Score (last 4 matches)} = \text{Total Runs (last 4 matches)} / \text{Number of Matches}$$

$$\text{Average Score (last 4 matches)} = 260/4$$

$$\text{Average Score (last 4 matches)} = 65 \text{ runs.}$$

Summary of Calculations

Here's a breakdown of the key figures:

Matches Considered	Average Score	Total Runs
First 6 matches	40 runs	$40 \times 6 = 240$ runs
Last 4 matches	?	260 runs
All 10 matches	50 runs	$50 \times 10 = 500$ runs

The calculation shows that the average score in the last 4 matches is 65 runs.

84. Answer: d

Explanation:

Understanding Train Speed Calculation

This problem requires us to calculate the **speed of the train** by comparing its journey with that of a car. We are given the distance between two points, the relationship between their speeds, and the extra time the train spends stationary during its journey.

Identifying Key Information

Let's break down the information provided in the question:

- **Distance** between point P and point Q is 280 km.
- The **speed of the train** is 40% greater than the speed of the car.
- Both the train and the car start at the same time from P and reach Q at the same time.
- The train halts for 60 minutes, which is equal to 1 hour.

Establishing Speed and Time Relationships

We need to set up equations based on the given information.

Let the speed of the car be denoted by S_C (in km/hr).

Let the speed of the train be denoted by S_T (in km/hr).

According to the problem, the train's speed is 40% more than the car's speed:

$$S_T = S_C + (40\% \text{ of } S_C)$$

$$S_T = S_C + 0.40 \times S_C$$

$$S_T = 1.40 \times S_C$$

The relationship between distance, speed, and time is $\text{Time} = \frac{\text{Distance}}{\text{Speed}}$.

Time taken by the car (T_C) to travel 280 km:

$$T_C = \frac{280}{S_C} \text{ hours}$$

Time taken by the train for actual travel (T_{travel}) covering 280 km:

$$T_{\text{travel}} = \frac{280}{S_T} \text{ hours}$$

Analyzing the Total Journey Time

The total time the train takes for the journey includes its travel time and the time it stopped.

Total time for the train's journey (T_{total}):

$$T_{\text{total}} = T_{\text{travel}} + \text{Stop Time}$$

$$T_{\text{total}} = \frac{280}{S_T} + 1 \text{ hour}$$

Since both the car and the train reach point Q at the same time, their total journey times must be equal:

$$T_C = T_{\text{total}}$$

$$\frac{280}{S_C} = \frac{280}{S_T} + 1$$

Calculating the Speeds Step-by-Step

Step 1: Substitute the Speed Relationship

Substitute the expression for S_T (which is $1.4 \times S_C$) into the time equation:

$$\frac{280}{S_C} = \frac{280}{1.4 \times S_C} + 1$$

Step 2: Simplify the Equation

First, calculate the value of $\frac{280}{1.4}$:

$$\frac{280}{1.4} = \frac{2800}{14} = 200$$

The equation now looks like this:

$$\frac{280}{S_C} = \frac{200}{S_C} + 1$$

Step 3: Solve for the Car's Speed (S_C)

To find S_C , rearrange the equation:

$$\frac{280}{S_C} - \frac{200}{S_C} = 1$$

$$\frac{280 - 200}{S_C} = 1$$

$$\frac{80}{S_C} = 1$$

This implies:

$$S_C = 80 \text{ km/hr}$$

So, the speed of the car is 80 km/hr.

Step 4: Calculate the Train's Speed (S_T)

Now, use the relationship $S_T = 1.4 \times S_C$ to find the train's speed:

$$S_T = 1.4 \times 80$$

$$S_T = 112 \text{ km/hr}$$

Verifying the Solution

Let's check if these speeds fit the problem conditions:

- Car speed = 80 km/hr
- Train speed = 112 km/hr

Check speed difference: $112 = 80 \times 1.4$ (Correct)

Time for car = $\frac{280}{80} = 3.5$ hours

Time for train travel = $\frac{280}{112} = 2.5$ hours

Total time for train = Train travel time + Stop time = $2.5 + 1 = 3.5$ hours

The car's time (3.5 hours) equals the train's total time (3.5 hours). The calculations are correct.

Conclusion

The calculated speed of the train is 112 km/hr. This matches one of the options provided.

85. Answer: a

Explanation:

Calculating the Dishonest Seller's Gain Percent

This question involves calculating the percentage gain made by a seller who uses a faulty weight to cheat customers. The seller claims to sell goods at the cost price but uses a weight of 980 grams instead of the standard 1 kilogram (1000 grams).

Understanding the Seller's Deception

The core of the problem lies in understanding how the seller manipulates the weights:

- The seller purchases goods and incurs costs based on the actual weight they handle.
- The seller charges the customer based on the weight indicated by their scale, which is intentionally incorrect.

In this specific case:

- The seller uses a weight of 980 gms. This means the seller is actually giving only 980 gms of goods to the customer.

- The seller charges the customer for **1 kg (1000 gms)**.
- The seller's **actual cost** is for 980 gms of goods.
- The seller's **selling price** is calculated as if they sold 1000 gms.

Step-by-Step Calculation of Gain Percent

To find the gain percent, we need to compare the profit made to the actual cost incurred by the seller.

1. **Determine the actual weight given:** The seller uses a 980 gm weight, so the actual quantity sold is 980 gms.
2. **Determine the weight charged for:** The seller charges for 1 kg, which is 1000 gms.
3. **Calculate the difference in weight (Profit):** The extra weight the seller charges for but doesn't give is the profit in terms of weight.

$$\text{Difference} = \text{Weight Charged} - \text{Actual Weight Given}$$

$$\text{Difference} = 1000 \text{ gms} - 980 \text{ gms} = 20 \text{ gms}$$

4. **Calculate the Gain Percent:** The gain percentage is calculated based on the actual cost price (the cost of the weight actually given).

The formula for Gain Percent is:

$$\text{Gain Percent} = \frac{\text{Gain}}{\text{Cost Price}} \times 100$$

In this scenario, we can think of the 'Cost Price' as the cost equivalent to the actual weight given (980 gms) and the 'Gain' as the cost equivalent to the difference in weight (20 gms).

$$\text{Gain Percent} = \frac{\text{Difference in Weight}}{\text{Actual Weight Used}} \times 100$$

Substituting the values:

$$\text{Gain Percent} = \frac{20 \text{ gms}}{980 \text{ gms}} \times 100$$

5. **Simplify the expression:**

$$\text{Gain Percent} = \frac{20}{980} \times 100$$

$$\text{Gain Percent} = \frac{2}{98} \times 100$$

$$\text{Gain Percent} = \frac{1}{49} \times 100$$

$$\text{Gain Percent} = \frac{100}{49}$$

6. **Calculate the final percentage value:**

$$\text{Gain Percent} \approx 2.0408...\%$$

Rounding to two decimal places, the gain percent is 2.04%.

Conclusion on Seller's Gain

By using a weight of 980 gms instead of 1000 gms, the dishonest seller achieves a gain of approximately 2.04% on the transaction, despite claiming to sell at cost price.

86. Answer: b

Explanation:

Determining the Principal from Compound Interest Details

The question asks us to find the **simple interest** (SI) given information about the **compound interest** (CI) for the same **principal**, **rate**, and **time period**. First, we must calculate the principal amount (P). We are given:

- Compound Interest (CI) = Rs. 2100
- Time Period (T) = 2 years
- Rate of Interest (R) = 10% per annum
- Compounding Frequency = Annually

The formula to calculate compound interest when compounded annually is:

$$CI = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$$

Let's plug in the known values:

$$2100 = P \left[\left(1 + \frac{10}{100} \right)^2 - 1 \right]$$

Simplify the expression:

$$2100 = P \left[(1 + 0.1)^2 - 1 \right]$$

$$2100 = P \left[(1.1)^2 - 1 \right]$$

$$2100 = P [1.21 - 1]$$

$$2100 = P [0.21]$$

Now, we rearrange the equation to find the principal (P):

$$P = \frac{2100}{0.21}$$

To perform the division, we can write 0.21 as $\frac{21}{100}$:

$$P = \frac{2100}{\frac{21}{100}}$$

$$P = \frac{2100 \times 100}{21}$$

$$P = 100 \times 100$$

$$P = 10000$$

So, the principal amount is Rs. 10000.

Calculating Simple Interest for the Same Parameters

Now, we need to calculate the **simple interest** (SI) on this principal (P) for the same **time period** (T) and **rate** (R).

- Principal (P) = Rs. 10000
- Rate (R) = 10% per annum
- Time Period (T) = 2 years

The formula for simple interest is:

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

Substitute the values into the simple interest formula:

$$SI = \frac{10000 \times 10 \times 2}{100}$$

Calculate the result:

$$SI = \frac{200000}{100}$$

$$SI = 2000$$

The simple interest is Rs. 2000.

Final Answer Verification

The calculated simple interest is Rs. 2000. This matches one of the options provided.

87. Answer: b

Explanation:

Finding the Value of x in the Given Equation

This solution explains how to find the unknown value 'x' from the provided algebraic equation. We will break down the equation step-by-step to isolate and solve for 'x'.

Simplifying the Equation Step-by-Step

The given equation is:

$$5 \times 5 + 2 \times 5 \times x + 2 \times 2 = 49$$

Let's simplify the multiplication parts first:

- 5×5 equals 25.
- $2 \times 5 \times x$ simplifies to $10x$.
- 2×2 equals 4.

Substituting these simplified terms back into the original equation, we get:

$$25 + 10x + 4 = 49$$

Combining Constant Terms

Next, we combine the constant numbers (terms without 'x') on the left side of the equation:

$$25 + 4 = 29$$

The equation now becomes:

$$29 + 10x = 49$$

Isolating the Variable Term

To find the value of 'x', we need to get the term containing 'x' by itself. We do this by subtracting 29 from both sides of the equation:

$$10x = 49 - 29$$

Performing the subtraction:

$$10x = 20$$

Solving for x

Finally, to find the value of 'x', we divide both sides of the equation by the coefficient of 'x', which is 10:

$$x = \frac{20}{10}$$

Calculating the division:

$$x = 2$$

Verification

We can check our answer by substituting $x = 2$ back into the original equation:

$$\begin{aligned} 5 \times 5 + 2 \times 5 \times 2 + 2 \times 2 \\ = 25 + (2 \times 5 \times 2) + 4 \\ = 25 + 20 + 4 \\ = 45 + 4 \\ = 49 \end{aligned}$$

Since the result is 49, which matches the right side of the original equation, our calculated value for 'x' is correct.

Therefore, the value of x is 2.

88. Answer: b

Explanation:

Work and Time Problem: Calculating Total Completion Days

This solution explains how to calculate the total number of days required to complete a piece of work when individuals work together for a period and then one person continues alone. We will break down the problem step by step, focusing on work rates and the remaining work.

Understanding Individual Work Rates

First, let's determine how much work each person, A and B, can complete in a single day.

- Person A can complete the work in 10 days. So, A's work rate is $\frac{1}{10}$ of the work per day.
- Person B can complete the work in 30 days. So, B's work rate is $\frac{1}{30}$ of the work per day.

Calculating Combined Work

When A and B work together, their combined work rate is the sum of their individual rates.

Combined Rate = A's Rate + B's Rate

$$\text{Combined Rate} = \frac{1}{10} + \frac{1}{30}$$

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

$$\text{Combined Rate} = \frac{3}{30} + \frac{1}{30} = \frac{4}{30}$$

Simplifying the fraction, the combined rate is $\frac{2}{15}$ of the work per day.

Work Done in the First Two Days

A and B worked together for the first 2 days. The amount of work they completed during this time is:

Work Done = Combined Rate $\times$ Number of Days

Work Done = $\frac{2}{15} \times 2 = \frac{4}{15}$ of the total work.

Calculating Remaining Work

After 2 days, A leaves. We need to find out how much work is left to be done.

Remaining Work = Total Work - Work Done

Assuming the total work is represented by 1:

Remaining Work = $1 - \frac{4}{15} = \frac{15}{15} - \frac{4}{15} = \frac{11}{15}$ of the work.

Time Taken by B to Finish Remaining Work

B completes the remaining work alone. We know B's work rate is $\frac{1}{30}$ of the work per day.

Time Taken by B = $\frac{\text{Remaining Work}}{\text{B's Work Rate}}$

Time Taken by B = $\frac{11/15}{1/30}$

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

Time Taken by B = $\frac{11}{15} \times \frac{30}{1} = 11 \times 2 = 22$ days.

Total Days to Complete the Work

The total time taken to complete the work is the sum of the time A and B worked together and the time B worked alone.

Total Days = Days worked together + Days B worked alone

Total Days = 2 days + 22 days = 24 days.

Conclusion

The entire piece of work was completed in **24 days**.

89. Answer: c

Explanation:

Given:

$$\frac{P}{4} = \frac{Q}{5} = \frac{R}{7}$$

Calculation:

$$\text{Let } \frac{P}{4} = \frac{Q}{5} = \frac{R}{7} = k$$

Now, P = 4k, Q = 5k, R = 7k

Then, Q + R - P = 5k + 7k - 4k = 8k

$$\therefore \frac{Q+R-P}{P} = 8k/4k = 2$$

90. Answer: d

Explanation:

Understanding the Problem: This question involves calculating the final ratio between boys and girls in a school after a period of two years, given the initial total number of students, the initial ratio of boys to girls, and specific percentage increases in the number of girls over two consecutive years. We assume the number of boys remains constant.

Calculating Initial Number of Students

To find the final ratio, we first need to determine the initial number of boys and girls in the school.

- Total students = 820.
- The ratio of boys to girls is 22 : 19.
- Total parts in the ratio = 22 + 19 = 41.
- Number of boys = (Fraction of boys) $\times$ (Total students)
- Number of boys = $\frac{22}{41} \times 820$
- Number of boys = $22 \times \frac{820}{41}$
- Number of boys = $22 \times 20 = 440$.
- Number of girls = (Fraction of girls) $\times$ (Total students)
- Number of girls = $\frac{19}{41} \times 820$
- Number of girls = $19 \times \frac{820}{41}$
- Number of girls = $19 \times 20 = 380$.

So, initially, there are 440 boys and 380 girls in the school.

Tracking the Increase in the Number of Girls

The problem states that the number of girls increases over two consecutive years.

- **Year 1 Increase:** The number of girls increases by 10%.
- Number of girls after Year 1 = Initial number of girls + (10% of Initial number of girls)
- Number of girls after Year 1 = $380 + (0.10 \times 380)$
- Number of girls after Year 1 = $380 + 38 = 418$.
- Alternatively, Number of girls after Year 1 = $380 \times (1 + \frac{10}{100}) = 380 \times (1.10) = 418$.
- **Year 2 Increase:** The number of girls increases by 50% from the previous year's count.
- Number of girls after Year 2 = Number of girls after Year 1 + (50% of Number of girls after Year 1)
- Number of girls after Year 2 = $418 + (0.50 \times 418)$
- Number of girls after Year 2 = $418 + 209 = 627$.
- Alternatively, Number of girls after Year 2 = $418 \times (1 + \frac{50}{100}) = 418 \times (1.50) = 627$.

After two years, the number of girls becomes 627. The number of boys remains 440.

Determining the Final Ratio of Boys to Girls

Finally, we need to find the ratio of the present number of boys to the present number of girls.

- Number of boys = 440.
- Number of girls = 627.
- Ratio of boys to girls = Number of boys : Number of girls
- Ratio = 440 : 627.

To simplify the ratio, we find the greatest common divisor (GCD) of 440 and 627.

- Factors of 440: 1, 2, 4, 5, 8, 10, 11, 20, 22, 40, 44, 55, 88, 110, 220, 440.

- Factors of 627: 1, 3, 11, 19, 33, 57, 209, 627.
- The GCD of 440 and 627 is 11.

Divide both numbers by the GCD:

- Simplified ratio = $\frac{440}{11} : \frac{627}{11}$
- Simplified ratio = 40 : 57.

Therefore, the ratio of present boys and girls after 2 years is 40:57. This corresponds to option 3.

91. Answer: a

Explanation:

Given:

Simple interest in 3 years = Rs. 600

The simple interest on the sum is two times the sum after 5 years.

Formula used:

$$\text{Simple Interest} = (P \times R \times T)/100$$

$$\text{Amount} = \text{Sum} + \text{Interest}$$

Calculation:

Let the principal be Rs. 'x'.

$$\Rightarrow \text{Amount after 5 year} = 2x$$

So, the simple interest after 5 years is $(2x - x) = \text{Rs. 'x'}$.

$$\text{Simple Interest} = (P \times R \times T)/100$$

$$\Rightarrow x = (x \times R \times 5)/100$$

$$\Rightarrow R = 20x/x$$

$$\Rightarrow R = 20\%$$

$$\text{Simple Interest} = (P \times R \times T)/100$$

$$\Rightarrow 600 = (x \times 20 \times 3)/100$$

$$\Rightarrow x = (600 \times 100)/(60)$$

$$\Rightarrow x = \text{Rs. 1000}$$

$\therefore$ The sum is Rs. 1000.

92. Answer: c

Explanation:

This problem involves calculating the average speed of a person who travels a certain total distance, divided into three segments with different speeds. To find the average speed, we need to determine the total distance covered and the total time

taken.

Distance Segments Calculation

Let the total distance covered by the person be denoted by D . The journey is divided into three parts:

- **Part 1:** The person covers $\frac{1}{5}$ of the total distance. Distance $d_1 = \frac{1}{5}D$.
- **Part 2:** The person covers $\frac{1}{4}$ of the total distance. Distance $d_2 = \frac{1}{4}D$.
- **Part 3:** The person covers the remaining distance. Distance $d_3 = D - d_1 - d_2$.

To calculate the remaining distance (d_3):

$$\text{Fraction remaining} = 1 - \frac{1}{5} - \frac{1}{4}$$

The least common multiple (LCM) of 5 and 4 is 20.

$$\text{Fraction remaining} = \frac{20}{20} - \frac{4}{20} - \frac{5}{20} = \frac{20-4-5}{20} = \frac{11}{20}$$

So, the remaining distance is $d_3 = \frac{11}{20}D$.

Speed Segments Timing

The speeds for each part are given as:

- Speed for Part 1 (s_1) = 20 km/h
- Speed for Part 2 (s_2) = 10 km/h
- Speed for Part 3 (s_3) = 60 km/h

We can use the formula relating time, distance, and speed: $\text{time} = \frac{\text{distance}}{\text{speed}}$. Let's calculate the time taken for each part (t_1, t_2, t_3):

- Time for Part 1: $t_1 = \frac{d_1}{s_1} = \frac{\frac{1}{5}D}{20} = \frac{D}{5 \times 20} = \frac{D}{100}$ hours.
- Time for Part 2: $t_2 = \frac{d_2}{s_2} = \frac{\frac{1}{4}D}{10} = \frac{D}{4 \times 10} = \frac{D}{40}$ hours.
- Time for Part 3: $t_3 = \frac{d_3}{s_3} = \frac{\frac{11}{20}D}{60} = \frac{11D}{20 \times 60} = \frac{11D}{1200}$ hours.

We can summarize this information in a table:

Part	Distance Fraction	Distance (in terms of D)	Speed (km/h)	Time Taken (hours)
1	$\frac{1}{5}$	$\frac{1}{5}D$	20	$\frac{D}{100}$
2	$\frac{1}{4}$	$\frac{1}{4}D$	10	$\frac{D}{40}$
3	$\frac{11}{20}$	$\frac{11}{20}D$	60	$\frac{11D}{1200}$

Speed Average Computation

The formula for average speed is:

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

First, let's find the total time taken (T) for the entire journey:

$$T = t_1 + t_2 + t_3 = \frac{D}{100} + \frac{D}{40} + \frac{11D}{1200}$$

To add these fractions, we find the least common multiple (LCM) of the denominators (100, 40, 1200). The LCM is 1200.

$$T = \frac{12D}{1200} + \frac{30D}{1200} + \frac{11D}{1200}$$

$$T = \frac{(12+30+11)D}{1200} = \frac{53D}{1200} \text{ hours}$$

Now, we can calculate the average speed:

$$\text{Average Speed} = \frac{D}{T} = \frac{D}{\frac{53D}{1200}}$$

$$\text{Average Speed} = \frac{D \times 1200}{53D} = \frac{1200}{53} \text{ km/h}$$

Calculating the value:

$$\frac{1200}{53} \approx 22.64 \text{ km/h}$$

Therefore, the average speed of the person is approximately 22.64 km/h.

93. Answer: c

Explanation:

Calculating the Marked Price of an Article

This solution details the process of finding the **marked price** of an item, considering its purchase cost, repair expenses, a specified discount, and the desired profit margin (gain).

Understanding Key Pricing Concepts

To solve this problem, we need to understand the relationship between the cost price, selling price, marked price, discount, and gain.

- **Cost Price (CP):** The initial amount spent to acquire the article. Here, CP = 400.
- **Repair Cost:** Additional expenses incurred on the article. Here, Repair Cost = 110.
- **Total Cost Price (TCP):** The total investment made, including purchase and repairs. Calculated as TCP = CP + Repair Cost.
- **Gain Percentage:** The profit percentage the seller wants to achieve based on the TCP. Here, Gain% = 25%.
- **Selling Price (SP):** The price at which the article is sold. It includes the total cost and the desired profit. Calculated using the formula: $SP = TCP \times (1 + \frac{\text{Gain}\%}{100})$.
- **Discount Percentage:** The percentage reduction offered on the marked price. Here, Discount% = 15%.
- **Marked Price (MP):** The price initially set by the seller before applying any discount. The relationship between SP, MP, and discount is: $SP = MP \times (1 - \frac{\text{Discount}\%}{100})$.

Step-by-Step Calculation to Find Marked Price

Step 1: Determine the Total Cost Price (TCP)

Calculate the total cost involved by adding the purchase price and the repair expenses.

- Purchase Price = Rs. 400
- Repair Cost = Rs. 110
- Total Cost Price (TCP) = Purchase Price + Repair Cost
- TCP = 400 + 110
- TCP = 510

The Total Cost Price is Rs. 510.

Step 2: Calculate the Selling Price (SP) for the Desired Gain

The seller aims for a 25% gain on the total cost price. We calculate the selling price required to achieve this profit.

- Total Cost Price (TCP) = Rs. 510
- Desired Gain = 25%
- Using the formula $SP = TCP \times (1 + \frac{\text{Gain}\%}{100})$:
- $SP = 510 \times (1 + \frac{25}{100})$
- $SP = 510 \times (1 + 0.25)$
- $SP = 510 \times 1.25$
- $SP = 637.50$

The **Selling Price** required is Rs. 637.50.

Step 3: Calculate the Marked Price (MP)

A 15% discount is given on the marked price to achieve the calculated selling price. We can now find the marked price.

- Selling Price (SP) = Rs. 637.50
- Discount = 15%
- Using the formula $SP = MP \times (1 - \frac{\text{Discount}\%}{100})$:
- $637.50 = MP \times (1 - \frac{15}{100})$
- $637.50 = MP \times (1 - 0.15)$
- $637.50 = MP \times 0.85$
- Rearranging to solve for MP: $MP = \frac{SP}{0.85}$
- $MP = \frac{637.50}{0.85}$
- $MP = 750$

Therefore, the **Marked Price** of the article is Rs. 750.

Conclusion

By following these steps, we determine that the marked price should be Rs. 750. This ensures that after offering a 15% discount, the seller achieves the desired 25% gain on the total cost (Rs. 510) of the article.

94. Answer: a

Explanation: **Your Personal Exams Guide**

Understanding Men's Work Rate

The problem states that **6 men** can complete a piece of work in **10 days**. We need to figure out how much work they do together per day.

- The total effort required for the work is the number of men multiplied by the number of days they work. We can express this in "man-days".
- Total work = 6 men $\times$ 10 days = 60 man-days.
- This means the entire job requires 60 man-days of effort.
- The rate of work for 6 men is $\frac{1}{10}$ of the job completed each day.
- Another way to look at it is that 1 man's rate is $\frac{1}{60}$ of the job per day. So, 6 men working together have a combined rate of $6 \times \frac{1}{60} = \frac{6}{60} = \frac{1}{10}$ of the job per day.

Understanding Women's Work Rate

Similarly, the problem tells us that **10 women** can complete the same work in **15 days**.

- We can calculate the total effort in "woman-days".
- Total work = 10 women $\times$ 15 days = 150 woman-days.

- This tells us the job requires 150 woman-days of effort.
- The rate of work for 10 women is $\frac{1}{15}$ of the job completed each day.
- Looking at individual rates, 1 woman's rate is $\frac{1}{150}$ of the job per day. The combined rate for 10 women is $10 \times \frac{1}{150} = \frac{10}{150} = \frac{1}{15}$ of the job per day.

Calculating the Combined Work Rate

To find out how long it takes for **6 men and 10 women** to complete the work **together**, we need to add their individual daily work rates.

- The rate of 6 men is $\frac{1}{10}$ of the work per day.
- The rate of 10 women is $\frac{1}{15}$ of the work per day.
- Combined Rate = (Rate of 6 men) + (Rate of 10 women)
- Combined Rate = $\frac{1}{10} + \frac{1}{15}$

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

- Combined Rate = $\frac{1 \times 3}{10 \times 3} + \frac{1 \times 2}{15 \times 2} = \frac{3}{30} + \frac{2}{30}$
- Combined Rate = $\frac{3+2}{30} = \frac{5}{30}$
- Simplifying the fraction, we get: Combined Rate = $\frac{1}{6}$ of the work per day.

This result means that the group of 6 men and 10 women, working together, completes $\frac{1}{6}$ of the total work every day.

Calculating the Total Days Needed Together

Since we know their combined rate of work (how much they complete per day), we can find the total number of days needed to finish the entire job (which is 1 unit of work) by taking the reciprocal of the combined rate.

- Total Days = $\frac{1}{\text{Combined Rate}}$
- Total Days = $\frac{1}{\frac{1}{6}}$
- Total Days = 6 days

So, it will take 6 days for 6 men and 10 women working together to complete the piece of work.

95. Answer: c

Explanation:

Determining the Average of the First 40 Natural Numbers

This solution explains how to find the average value of the first 40 natural numbers. Natural numbers are positive whole numbers starting from 1. Therefore, the sequence of numbers we need to consider is 1, 2, 3, and so on, up to 40.

Understanding the Sequence as an Arithmetic Progression

The sequence of the first 40 natural numbers (1, 2, 3, ..., 40) is a special type of sequence called an **Arithmetic Progression (AP)**. An AP is characterized by a constant difference between consecutive terms. For this specific sequence:

- The first term (a) is 1.
- The last term (l) is 40.
- The total number of terms (n) is 40.
- The common difference (d) between any two consecutive numbers is 1 (e.g., $2-1=1$, $3-2=1$).

Method 1: Calculating the Average Using the Sum Formula

One way to find the average is to first calculate the sum of all the numbers in the sequence and then divide this sum by the total count of numbers (which is 40).

The formula to calculate the sum (S_n) of an Arithmetic Progression is:

$$S_n = \frac{n}{2}(a + l)$$

Let's substitute the values we identified for the first 40 natural numbers:

- $n = 40$ (number of terms)
- $a = 1$ (first term)
- $l = 40$ (last term)

Using these values in the sum formula:

$$S_{40} = \frac{40}{2}(1 + 40)$$

First, calculate the sum inside the parenthesis:

$$1 + 40 = 41$$

Now, substitute this back into the equation:

$$S_{40} = \frac{40}{2} \times 41$$

Simplify the fraction:

$$S_{40} = 20 \times 41$$

Calculate the final sum:

$$S_{40} = 820$$

Now that we have the sum of the first 40 natural numbers, we can calculate the average. The formula for the average is the sum of the terms divided by the number of terms:

$$\text{Average} = \frac{S_n}{n}$$

Substitute the sum we found ($S_{40} = 820$) and the number of terms ($n = 40$):

$$\text{Average} = \frac{820}{40}$$

Perform the division:

$$\text{Average} = 20.5$$

Method 2: Using the Property of Arithmetic Progression for Average Calculation

Arithmetic Progressions have a useful property regarding their average. The average of an AP is simply the mean (average) of the first and the last term in the sequence. This provides a quicker way to find the average.

The formula using this property is:

$$\text{Average} = \frac{\text{First Term} + \text{Last Term}}{2}$$

For the first 40 natural numbers, the first term (a) is 1 and the last term (l) is 40.

Applying this formula:

$$\text{Average} = \frac{1 + 40}{2}$$

Calculate the sum of the first and last terms:

$$\text{Average} = \frac{41}{2}$$

Perform the division:

$$\text{Average} = 20.5$$

Conclusion

Both methods demonstrate that the average of the first 40 natural numbers is 20.5. This value represents the central tendency of the sequence from 1 to 40.

96. Answer: d

Explanation:

This problem involves calculating the remaining portion of a job when two individuals, A and B, work together for a specific period. We need to determine the fraction of work left after they have collaborated for 3 days.

Calculating Individual Work Rates

First, let's determine the rate at which each person works. The rate is the fraction of the total work they can complete in one day.

- Person A can complete the entire work in 20 days. Therefore, A's work rate is $\frac{1}{20}$ of the work per day.
- Person B can complete the same work in 5 days. Thus, B's work rate is $\frac{1}{5}$ of the work per day.

Calculating Combined Work Rate

When A and B work together, their rates add up. We find their combined work rate by summing their individual rates:

$$\text{Combined Rate} = \text{A's Rate} + \text{B's Rate}$$

$$\text{Combined Rate} = \frac{1}{20} + \frac{1}{5}$$

To add these fractions, we find a common denominator, which is 20:

$$\text{Combined Rate} = \frac{1}{20} + \frac{4}{20}$$

$$\text{Combined Rate} = \frac{1+4}{20} = \frac{5}{20}$$

Simplifying the fraction, the combined rate is $\frac{1}{4}$ of the work per day.

Calculating Work Done Together

They work together for 3 days. To find the total amount of work done in these 3 days, we multiply their combined rate by the number of days:

$$\text{Work Done} = \text{Combined Rate} \times \text{Number of Days}$$

$$\text{Work Done} = \frac{1}{4} \times 3$$

$$\text{Work Done} = \frac{3}{4}$$

So, together they complete $\frac{3}{4}$ of the total work in 3 days.

Determining Fraction of Work Left

The total work is represented as 1 (the whole job). To find the fraction of work left, we subtract the work done from the total work:

Work Left = Total Work - Work Done

$$\text{Work Left} = 1 - \frac{3}{4}$$

Again, finding a common denominator:

$$\text{Work Left} = \frac{4}{4} - \frac{3}{4}$$

$$\text{Work Left} = \frac{4-3}{4} = \frac{1}{4}$$

Therefore, $\frac{1}{4}$ of the work is left after A and B work together for 3 days.

97. Answer: b

Explanation:

Solving the Work and Time Problem: C's Task Completion

This problem involves calculating the time taken to complete a task based on the individual work rates of people and their combined efforts. We need to determine how many days C took to finish the remaining part of the task after A and B stopped working.

Understanding Individual Work Rates

First, let's determine the rate at which each person works. The work rate is the fraction of the task completed per day.

- Person A completes the task in 75 days, so A's work rate is $\frac{1}{75}$ of the task per day.
- Person B completes the task in 150 days, so B's work rate is $\frac{1}{150}$ of the task per day.
- Person C completes the task in 125 days, so C's work rate is $\frac{1}{125}$ of the task per day.

We can represent these rates in a table:

Person	Days to Complete Task	Work Rate (Task per Day)
A	75	$\frac{1}{75}$
B	150	$\frac{1}{150}$
C	125	$\frac{1}{125}$

Calculating Combined Work of A and B

A and B worked together for 30 days. To find out how much work they completed, we first need their combined work rate.

Combined work rate of A and B = A's rate + B's rate

$$\text{Combined Rate (A+B)} = \frac{1}{75} + \frac{1}{150}$$

To add these fractions, we find a common denominator, which is 150:

$$\text{Combined Rate (A+B)} = \frac{2}{150} + \frac{1}{150} = \frac{3}{150}$$

Simplifying the fraction:

$$\text{Combined Rate (A+B)} = \frac{1}{50}$$

So, together, A and B complete $\frac{1}{50}$ of the task each day.

Work Done by A and B Together

They worked for 30 days. The total work done by them is:

$$\text{Work Done (A+B)} = (\text{Combined Rate}) \times (\text{Days Worked})$$

$$\text{Work Done (A+B)} = \frac{1}{50} \times 30$$

$$\text{Work Done (A+B)} = \frac{30}{50} = \frac{3}{5}$$

Thus, A and B completed $\frac{3}{5}$ of the total task in 30 days.

Calculating the Remaining Work

The task was left incomplete, meaning some portion of the work remains. The remaining work is the total task (1) minus the work already done by A and B.

$$\text{Remaining Work} = 1 - \text{Work Done (A+B)}$$

$$\text{Remaining Work} = 1 - \frac{3}{5}$$

$$\text{Remaining Work} = \frac{5}{5} - \frac{3}{5} = \frac{2}{5}$$

So, $\frac{2}{5}$ of the task still needs to be completed.

Determining Days Taken by C to Finish

Person C takes over to finish the remaining $\frac{2}{5}$ of the task alone. We know C's work rate is $\frac{1}{125}$ task per day.

The formula to find the number of days is:

$$\text{Days Taken} = \frac{\text{Work to be Done}}{\text{Work Rate}}$$

For C finishing the remaining work:

$$\text{Days for C} = \frac{\text{Remaining Work}}{\text{C's Work Rate}}$$

$$\text{Days for C} = \frac{2/5}{1/125}$$

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

$$\text{Days for C} = \frac{2}{5} \times \frac{125}{1}$$

$$\text{Days for C} = \frac{2 \times 125}{5}$$

$$\text{Days for C} = 2 \times \frac{125}{5}$$

$$\text{Days for C} = 2 \times 25$$

$$\text{Days for C} = 50$$

Conclusion

Therefore, C took **50 days** to finish the remaining part of the task alone.

98. Answer: b

Explanation:

Finding the Distance Between P and Q

This problem involves two trains traveling towards each other. We are given their speeds and a relationship between the distances they cover until they meet. Our goal is to find the total distance between the starting points, P and Q.

Understanding the Concepts

- When two objects move towards each other, they start covering the distance between them.
- The time taken for them to meet is the same for both objects, provided they start simultaneously.
- Distance = Speed $\times$ Time.

Analyzing the Given Information

- Speed of the train starting from P (let's call it Train P) = $S_P = 25$ km/hr.
- Speed of the train starting from Q (let's call it Train Q) = $S_Q = 30$ km/hr.
- Both trains start at the same time.
- When they meet, the train from Q (d_Q) has travelled 10 km more than the train from P (d_P). So, $d_Q = d_P + 10$ km.

Step-by-Step Solution

Step 1: Define Variables and Relationships

Let t be the time (in hours) taken for the two trains to meet after they start.

Distance covered by Train P is d_P . Using the formula Distance = Speed $\times$ Time:

$$d_P = S_P \times t = 25t$$

Distance covered by Train Q is d_Q . Using the same formula:

$$d_Q = S_Q \times t = 30t$$

Step 2: Use the Distance Difference Condition

We are given that Train Q travelled 10 km more than Train P:

$$d_Q = d_P + 10$$

Now, substitute the expressions for d_Q and d_P from Step 1 into this equation:

$$30t = 25t + 10$$

Step 3: Calculate the Time to Meet

Solve the equation for t :

$$30t - 25t = 10$$

$$5t = 10$$

$$t = \frac{10}{5}$$

$$t = 2 \text{ hours}$$

So, the trains meet after 2 hours.

Step 4: Calculate the Distance Covered by Each Train

Distance covered by Train P:

$$d_P = 25 \times t = 25 \times 2 = 50 \text{ km}$$

Distance covered by Train Q:

$$d_Q = 30 \times t = 30 \times 2 = 60 \text{ km}$$

We can check if the condition $d_Q = d_P + 10$ holds: $60 = 50 + 10$, which is true.

Step 5: Calculate the Total Distance Between P and Q

The total distance between P and Q is the sum of the distances covered by both trains until they meet.

$$\text{Total Distance} = d_P + d_Q$$

$$\text{Total Distance} = 50 \text{ km} + 60 \text{ km}$$

$$\text{Total Distance} = 110 \text{ km}$$

Conclusion

The total distance between the starting points P and Q is 110 km. The train from P covers 50 km, and the train from Q covers 60 km in the 2 hours it takes for them to meet.

99. Answer: b

Explanation:

Understanding the Hard Disk Profit Scenario

This problem involves calculating the **Cost Price (CP)** of a hard disk based on changes in its **Selling Price (SP)** and the corresponding increase in **profit percent**. We are given two selling prices and the percentage increase in profit when the selling price is raised.

Key Concepts

- **Cost Price (CP):** The price at which an item is bought.
- **Selling Price (SP):** The price at which an item is sold.
- **Profit:** The difference between the Selling Price and the Cost Price (Profit = SP - CP).
- **Profit Percent:** The profit expressed as a percentage of the Cost Price (Profit Percent =

$$\frac{\text{Profit}}{\text{CP}} \times 100$$

).

Analyzing the Given Information

Let's break down the information provided:

- Initial Selling Price (SPI) = Rs. 5,000

- New Selling Price (SP2) = Rs. 5,600
- Increase in Profit Percent = 15%

When the selling price increases, the profit also increases. The problem states that the **profit percent** increases by 15%. This means the difference between the new profit percentage and the old profit percentage is 15%.

Calculating the Cost Price of the Hard Disk

The difference in the selling prices directly corresponds to the difference in the profit earned, as the cost price remains constant.

Step 1: Calculate the Increase in Selling Price

The difference between the two selling prices is:

$$\text{Increase in SP} = \text{SP2} - \text{SP1}$$

$$\text{Increase in SP} = \text{Rs. } 5,600 - \text{Rs. } 5,000 = \text{Rs. } 600$$

Step 2: Relate Selling Price Increase to Profit Increase

Since the Cost Price (CP) is constant, the increase in Selling Price (SP) is equal to the increase in Profit.

$$\text{Increase in Profit} = \text{Increase in SP} = \text{Rs. } 600$$

Step 3: Use the Profit Percent Increase

The problem states that the **profit percent** increases by 15%. This increase of 15% in profit percentage is calculated based on the original Cost Price (CP). Therefore, this 15% increase in profit percentage accounts for the additional profit of Rs. 600.

Mathematically, this can be expressed as:

$$15\% \text{ of } CP = \text{Increase in Profit}$$

$$\frac{15}{100} \times CP = 600$$

Step 4: Solve for the Cost Price (CP)

To find the Cost Price, we rearrange the equation:

$$CP = \frac{600 \times 100}{15}$$

First, divide 600 by 15:

$$\frac{600}{15} = 40$$

Now, multiply the result by 100:

$$CP = 40 \times 100$$

$$CP = 4000$$

So, the **cost price** of the **hard disk** is Rs. 4,000.

Step 5: Verification (Optional)

Let's verify the result.

- CP = Rs. 4,000
- SP1 = Rs. 5,000

- Profit1 = SP1 - CP = 5000 - 4000 = Rs. 1,000
- Profit Percent1 =

$$\frac{1000}{4000} \times 100 = \frac{1}{4} \times 100 = 25\%$$

- SP2 = Rs. 5,600
- Profit2 = SP2 - CP = 5600 - 4000 = Rs. 1,600
- Profit Percent2 =

$$\frac{1600}{4000} \times 100 = \frac{16}{40} \times 100 = \frac{2}{5} \times 100 = 40\%$$

- Increase in Profit Percent = Profit Percent2 - Profit Percent1 = 40% - 25% = 15%

The calculated increase in profit percent (15%) matches the information given in the question, confirming our calculation.

Conclusion

The **cost price** of the **hard disk** is Rs. 4,000.

100. Answer: c

Explanation:

Determining the Age Ratio of Son to Wife

This problem requires us to first calculate the current ages of a father and his son using the provided information about their combined age and their age difference in the past. Once the son's current age is determined, we can find his wife's age and subsequently calculate the required ratio.

Key Information from the Question

- The **sum of ages** of the father and son is 86 years.
- 19 years ago, the father's age was exactly five times the age of his son.
- The son's wife is 6 years younger than the son.
- We need to find the **ratio** of the son's current age to his wife's current age.

Step 1: Setting Up the Equations for Father and Son Ages

Let's use variables to represent the current ages:

- Let F represent the father's current age.
- Let S represent the son's current age.

Based on the problem statement, we can establish two equations:

1. Sum of current ages:

$$F + S = 86 \quad (\text{Equation 1})$$

2. Relationship 19 years ago:

$$\text{Father's age 19 years ago} = F - 19$$

$$\text{Son's age 19 years ago} = S - 19$$

$$\text{The condition given is: } F - 19 = 5 \times (S - 19)$$

Simplifying this gives: $F - 19 = 5S - 95$

Rearranging, we get: $F = 5S - 95 + 19$

$$F = 5S - 76 \quad (\text{Equation 2})$$

Step 2: Solving for the Son's Current Age

Now we solve the system of linear equations (Equation 1 and Equation 2) to find the son's age (S).

Substitute the expression for F from Equation 2 into Equation 1:

$$(5S - 76) + S = 86$$

Combine the terms involving S :

$$6S - 76 = 86$$

Add 76 to both sides:

$$6S = 86 + 76$$

$$6S = 162$$

Divide by 6 to find S :

$$S = \frac{162}{6}$$

$$S = 27$$

So, the son's current age is 27 years.

Step 3: Calculating the Wife's Current Age

The problem states that the son's wife is 6 years younger than him.

Son's current age = 27 years.

Wife's current age = Son's age - 6 years

Wife's current age = $27 - 6 = 21$ years.

Step 4: Finding the Ratio of Son's Age to Wife's Age

The final step is to calculate the ratio between the son's current age and his wife's current age.

Ratio = Son's Age : Wife's Age

Ratio = 27 : 21

Step 5: Simplifying the Ratio

To simplify the ratio 27 : 21, we find the greatest common divisor (GCD) of 27 and 21.

The factors of 27 are 1, 3, 9, 27.

The factors of 21 are 1, 3, 7, 21.

The GCD of 27 and 21 is 3.

Divide both numbers in the ratio by 3:

$$\frac{27}{3} : \frac{21}{3}$$

$$9 : 7$$

The simplified ratio of the son's age to his wife's age is 9:7.

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