

1. Consider the following statements regarding the factors responsible for rainfall-induced landslides in mountainous regions:

Statement I: Persistent and high-intensity monsoon rainfall acts as a major trigger for rockfalls, boulder movement, and slope failures in geologically fragile hill terrains.

Statement II: Continuous rainfall increases groundwater pore pressure, thereby reducing soil strength and destabilizing slopes.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I.
- (c) Statement-I is correct but Statement-II is incorrect.
- (d) Statement-I is incorrect but Statement-II is correct.

Answer: (a)

Explanation:

Landslides are among the most common natural hazards in mountainous regions and are primarily influenced by geological, geomorphological, and hydrological factors.

Statement I is correct because prolonged and intense monsoon rainfall is one of the most significant triggers of landslides. Continuous rainfall saturates slopes, leading to rockfalls, debris flows, and boulder slips, especially along vulnerable hill roads and mountain corridors.

Statement II is also correct because rainfall infiltrates into soil and fractured rock layers, increasing groundwater pore pressure. The rise in pore pressure reduces the frictional resistance and cohesion between soil particles while simultaneously increasing the weight of the saturated material. Once the downslope shear stress exceeds the shear strength of the slope, failure occurs.

Therefore, **Statement II correctly explains the mechanism responsible for the phenomenon described in Statement I.**

2. Consider the following statements regarding the United Nations Guidelines for Consumer Protection (UNGCP):

1. The United Nations Guidelines for Consumer Protection constitute a legally binding international convention on consumer rights.
2. The Guidelines provide a framework to assist countries, particularly developing nations, in strengthening domestic consumer protection systems.
3. One of the objectives of the Guidelines is to address the imbalance in bargaining power between consumers and businesses.

Which of the following is correct?

- (a) All three statements are correct.
- (b) None of the statements is correct.

- (c) Only statements 2 and 3 are correct.
(d) Only statement 2 is correct.

Answer: (c)

Explanation:

The **United Nations Guidelines for Consumer Protection (UNGCP)** serve as the principal international framework promoting consumer welfare and fair market practices.

Statement 1 is incorrect because the UNGCP is a **non-binding soft law instrument**. It provides guidance and best practices to member states but does not have the status of an enforceable international treaty.

Statement 2 is correct because one of the primary objectives of the Guidelines is to assist governments, especially those of developing countries, in formulating effective consumer protection legislation and institutions.

Statement 3 is correct because the Guidelines recognize that consumers often face structural, informational, and economic disadvantages while dealing with producers and service providers. Accordingly, they seek to promote fairness and reduce these imbalances.

Hence, **only statements 2 and 3 are correct**.

3. Consider the following statements regarding the role of vegetation in maintaining slope stability:

1. Removal of vegetation from steep hill slopes helps protect topsoil from erosion.
2. Extensive tree root systems strengthen slopes by binding soil particles together.
3. Large-scale clearing of natural vegetation increases the susceptibility of hill slopes to landslides during the monsoon season.

Which of the following is correct?

- (a) Only statements 2 and 3 are correct.
(b) Only statements 1 and 3 are correct.
(c) All three statements are correct.
(d) Only statement 1 is correct.

Answer: (a)

Explanation:

Vegetation plays a crucial role in maintaining slope stability and preventing soil erosion in mountainous ecosystems.

Statement 1 is incorrect because removal of vegetation exposes the soil surface directly to rainfall, thereby increasing runoff, sheet erosion, and soil loss rather than preventing it.

Statement 2 is correct because deep and interconnected root systems bind soil particles together, improve slope strength, and reduce the likelihood of slope failure.

Statement 3 is correct because deforestation and commercial vegetation clearance remove the natural support provided by plant roots, making slopes more vulnerable to saturation, erosion, and landslides during heavy rainfall.

Therefore, **only statements 2 and 3 are correct.**

4. Consider the following statements relating to consumer protection:

1. The growth of digital commerce necessitates safeguards relating to online transactions and consumer data privacy.
2. Product recall mechanisms are intended to protect consumers from defective and unsafe products.
3. Promotion of sustainable consumption requires balancing consumer welfare with environmental conservation.

Which of the following inferences can be drawn from the above statements?

1. Expansion of digital markets requires continuous strengthening of consumer protection laws.
2. Governments have a responsibility to ensure accountability for unsafe products introduced into the market.
3. Consumer protection policies should also incorporate principles of sustainable development.

Select the correct answer using the code given below.

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (d)

Explanation:

Consumer protection has evolved significantly with technological advancements and changing patterns of production and consumption.

Inference 1 is correct because the expansion of e-commerce and digital platforms has created new challenges relating to online fraud, data privacy, and cross-border transactions, requiring updated consumer protection measures.

Inference 2 is correct because product recall systems ensure that manufacturers remain accountable for defective or hazardous products, thereby protecting public health and consumer interests.

Inference 3 is correct because modern consumer protection frameworks increasingly emphasize sustainable consumption, integrating environmental conservation with economic development and consumer welfare.

Hence, **all three inferences are correct.**

5. The term "Wallace Line", frequently mentioned in biogeography, refers to:

- (a) A tectonic boundary separating major lithospheric plates in the Pacific region.
- (b) A biogeographical boundary separating the faunal regions of Asia and Australia.
- (c) An atmospheric transition zone influencing the South Asian monsoon.
- (d) An international maritime boundary dividing Southeast Asia and Oceania.

Answer: (b)

Explanation:

The **Wallace Line**, proposed by the naturalist **Alfred Russel Wallace**, is one of the world's most important **biogeographical boundaries**. It passes through the Indonesian Archipelago, particularly between **Bali and Lombok** and **Borneo and Sulawesi**.

The line separates two distinct faunal regions:

- **West of the Wallace Line:** Species are predominantly of **Asian origin**, including elephants, tigers, rhinoceroses, and other placental mammals.
- **East of the Wallace Line:** Fauna exhibit strong **Australian affinities**, including marsupials and several endemic bird species.

The persistence of deep ocean channels along this boundary prevented animal migration even during periods of lower sea levels, making the Wallace Line a significant concept in **biogeography, evolution, and island ecology**.

Therefore, the Wallace Line represents a **biogeographical boundary separating Asian and Australian fauna**.

6. With reference to the Underwater Fiber Optic Sensing System (UFOSS), consider the following statements:

1. It employs a permanently deployed network of seabed acoustic sensors for continuous underwater surveillance.
2. The system converts underwater acoustic vibrations into optical signals for rapid transmission through fiber-optic cables.
3. Its robust wet-plant infrastructure is designed to function reliably for long durations under deep-sea conditions.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (b)

Explanation:

The **Underwater Fiber Optic Sensing System (UFOSS)** is an advanced underwater surveillance technology developed to strengthen maritime domain awareness and underwater threat detection.

Statement 1 is incorrect because UFOSS does not rely on a mobile or floating network of sensors. Instead, it consists of a fixed array of acoustic sensors permanently installed on the seabed, enabling continuous and reliable underwater monitoring.

Statement 2 is correct because the system detects underwater acoustic signals generated by submarines and vessels through seabed hydrophones. These sound waves are converted into optical signals and transmitted through high-speed fiber-optic cables for real-time analysis.

Statement 3 is correct because UFOSS incorporates a durable wet-plant architecture built to withstand deep-sea pressure, corrosion, and harsh marine conditions. This enables uninterrupted operation over several decades with minimal maintenance requirements.

Hence, **only statements 2 and 3 are correct.**

7. With reference to the Sub-Orbital Launch Vehicle for Experiments (SOLVE), consider the following statements:

1. It is a solid propellant-based sub-orbital launch vehicle developed for conducting flight experiments.
2. It is designed to validate atmospheric re-entry and parachute-based deceleration technologies.
3. The vehicle incorporates technology derived from the PSLV Strap-on Motor (PSOM).

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

Answer: (b)

Explanation:

The **Sub-Orbital Launch Vehicle for Experiments (SOLVE)** has been developed by ISRO as a dedicated experimental platform to support future human spaceflight missions.

Statement 1 is incorrect because although SOLVE is a sub-orbital launch vehicle, it is **not intended as a conventional multi-stage launch vehicle for deep-space missions**. Its purpose is to conduct sub-orbital flight experiments rather than orbital or interplanetary missions.

Statement 2 is correct because SOLVE serves as a test platform for validating atmospheric re-entry technologies and advanced deceleration systems, including parachute deployment mechanisms required for missions such as Gaganyaan.

Statement 3 is correct because the vehicle utilizes a modified version of the highly reliable PSLV Strap-on Motor (PSOM), reducing development costs and benefiting from proven launch vehicle technology.

Therefore, **only statements 2 and 3 are correct.**

8. With reference to the cultural interactions between India and Indonesia, consider the following statements:

1. Rabindranath Tagore introduced Javanese Batik techniques into the artistic traditions of Shantiniketan.
2. Tagore's educational philosophy influenced the establishment of Indonesia's Taman Siswa educational movement.
3. Indian epics such as the Ramayana continue to be preserved and performed through traditional Indonesian art forms.

Which of the statements given above are correct?

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Answer: (d)

Explanation:

India and Indonesia share centuries-old cultural links that continue to be reflected in art, education, literature, and performing traditions.

Statement 1 is correct because during his visit to Indonesia in 1927, **Rabindranath Tagore** was inspired by Javanese Batik craftsmanship and introduced the technique at Shantiniketan, giving rise to the distinctive Shantiniketan Batik tradition.

Statement 2 is correct because Tagore's educational ideals based on freedom, creativity, and learning in harmony with nature significantly influenced **Ki Hajar Dewantara**, the founder of Indonesia's **Taman Siswa** educational movement.

Statement 3 is correct because Indian epics such as the **Ramayana** and **Mahabharata** remain deeply embedded in Indonesian culture and are performed through traditional theatre, dance, and shadow puppet (Wayang) traditions.

Hence, **all three statements are correct.**

9. Consider the following pairs related to the Pandavani folk tradition:

Tradition	Description
1. Bhima	Principal hero featured in most Pandavani performances
2. Tambura	Musical instrument used symbolically to represent various objects and weapons during narration

Tradition	Description
3. Kapalik Shaili	Performance style based on strict adherence to written texts and fixed poetic compositions

Which of the pairs given above is/are correctly matched?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2 and 3

Answer: (c)

Explanation:

Pandavani is a celebrated folk storytelling tradition of **Chhattisgarh**, narrating episodes from the Mahabharata through music, drama, and narration.

Pair 1 is correctly matched because Pandavani performances primarily revolve around **Bhima**, who is portrayed as the central heroic figure in most narratives.

Pair 2 is correctly matched because the performer uses a **Tambura (or Ektara)** not only as a musical instrument but also symbolically to represent objects such as Bhima's mace, Arjuna's bow, or other dramatic elements during the performance.

Pair 3 is incorrectly matched because the **Kapalik Shaili** is characterized by improvisation, dramatic acting, and creative narration. The style that follows written texts and structured poetic compositions is known as **Vedamati Shaili**.

Therefore, **only pairs 1 and 2 are correctly matched**.

10. With reference to the Underwater Fiber Optic Sensing System (UFOSS), consider the following statements:

1. The system is capable of detecting low-noise submarines, including those equipped with Air-Independent Propulsion (AIP).
2. Acoustic data collected by seabed sensors are transmitted to shore-based naval monitoring facilities for analysis.
3. The system primarily depends on commercial communication satellites for transmitting underwater surveillance data.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a)

Explanation:

The **Underwater Fiber Optic Sensing System (UFOSS)** is designed to enhance India's underwater surveillance capabilities by continuously monitoring submarine activity in strategic maritime regions.

Statement 1 is correct because UFOSS is capable of detecting modern, low-noise submarines, including conventional submarines equipped with **Air-Independent Propulsion (AIP)** as well as nuclear-powered submarines through their acoustic signatures.

Statement 2 is correct because underwater acoustic signals recorded by seabed hydrophones are transmitted through secure fiber-optic cables to shore-based naval stations, where advanced processing systems compare the data with acoustic signature databases to identify underwater platforms.

Statement 3 is incorrect because UFOSS does **not** rely on commercial satellite networks for its primary communication. Instead, it uses secure underwater fiber-optic cable infrastructure, ensuring rapid, reliable, and protected transmission of surveillance data.

Hence, **only statements 1 and 2 are correct.**

11. Consider the following statements regarding Project Nimbus:

1. Project Nimbus is a cloud computing initiative undertaken by the Government of Israel in collaboration with leading global technology companies.
2. The project seeks to strengthen government digital infrastructure by providing cloud computing, artificial intelligence, and machine learning capabilities across various public institutions.

Which of the above statements are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: (b)

Explanation:

Project Nimbus is a large-scale cloud computing initiative aimed at modernizing Israel's digital infrastructure through advanced cloud technologies.

Statement 1 is incorrect because Project Nimbus is **not** an initiative of the **United States Department of Defense** or a diplomatic or cybersecurity programme in West Asia. It is a cloud services contract signed by the **Government of Israel** with **Google** and **Amazon Web Services (AWS)** to provide secure cloud infrastructure for government agencies.

Statement 2 is correct because the project is intended to accelerate the digital transformation of the Israeli public sector by migrating government data and applications to cloud-based platforms. It enables advanced services such as high-performance computing, artificial intelligence (AI), machine learning (ML), secure data storage, and cloud infrastructure across multiple levels of governance.

Hence, **only Statement 2 is correct.**

12. Match the following Indian Naval assets with their respective classes and primary operational roles:

Column I (Naval Asset)	Column II (Class)	Column III (Primary Operational Role)
A. INS Dunagiri	1. Sandhayak-class	X. Hydrographic Survey and Mapping
B. INS Sanshodhak	2. Arnala-class	Y. Blue-Water Maritime Operations
C. INS Agray	3. Project 17A	Z. Anti-Submarine Warfare in Coastal Waters

Which of the following combinations is correctly matched?

- (a) A-3-Z, B-2-X, C-1-Y
- (b) A-1-X, B-3-Y, C-2-Z
- (c) A-3-Y, B-1-X, C-2-Z
- (d) A-2-Y, B-1-Z, C-3-X

Answer: (c)

Explanation:

The Indian Navy operates a diverse fleet of warships and specialized vessels designed to perform distinct operational roles across maritime domains.

- **INS Dunagiri** is a **Project 17A** stealth guided-missile frigate. It is designed for **blue-water maritime operations**, enabling the Navy to project power and undertake combat missions in the open ocean. Therefore, the correct match is **A-3-Y**.
- **INS Sanshodhak** is a **Sandhayak-class Survey Vessel (Large)**. Its primary role is **hydrographic surveying**, including seabed mapping, oceanographic studies, and navigational chart preparation. Hence, the correct match is **B-1-X**.
- **INS Agray** belongs to the **Arnala-class Anti-Submarine Warfare Shallow Water Craft (ASW-SWC)**. It is specifically designed to detect, track, and neutralize enemy submarines operating in shallow coastal waters. Therefore, the correct match is **C-2-Z**.

Hence, the correct answer is **(c) A-3-Y, B-1-X, C-2-Z**.