



PRELIMS MISSION TEST-20 (04-05-2024)

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1. Consider the following statements about Global Methane Initiative (GMI)

1. It is an initiative launched by USA during the CoP 26 held at Glasgow
2. It covers Agriculture, Oil and Gas and Coal mining sectors
3. India is a founding member of this initiative
4. Methane is a long-lived climate pollutant having a life span of 12 years

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: a (Only one)

Statement 1 is incorrect: The Global Methane Initiative (GMI) which was formed in 2004, is an international public-private partnership focused on reducing barriers to the recovery and use of methane as a valuable energy source. The main aim of the forum is to achieve a global reduction in anthropogenic methane emissions. GMI provides technical support to deploy methane-to-energy projects around the world that enable Partner Countries to launch methane recovery and use projects.

Statement 2 is incorrect: GMI focuses on three key sectors: Oil and Gas, Biogas, and Coal Mines not included the Agriculture sector which is a major contributor of Methane emissions.

Statement 3 is correct: Since the creation of the forum in 2004, India is one of the members and recently it has taken up Vice Chairmanship for the first time in the Steering Leadership along with the USA of GMI. But the forum has a partnership among developed and developing countries having economies in transition but not with underdeveloped countries.

Statement 4 is incorrect: Methane is a short lived climate pollutant that remains in the atmosphere for 12 years having a warming potential of 86 times more than Carbon dioxide over 20 years period. And globally over 60% of total Methane emissions are for human activities

2. Consider the following statements about National Air Monitoring System (NAMS)

1. NAMS is being implemented by Ministry of Environment, Forest and Climate Change
2. Eight pollutants are measured under the NAMP
3. NAMP help in achieving the Sustainable Development Goals of 13.2 and 13.3
4. Particulate Matter containing sulphur or nitrogen compounds has a warming effect on the local and global climate.

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: a (Only one)

Statement 1 is incorrect: Central Pollution Control Board is executing a nationwide programme of ambient air quality monitoring known as the National Air Quality Monitoring Programme (NAMP) but not the National Clean Air Programme. The National Clean Air Programme (NCAP) was launched in 2019, by the Ministry of Environment, Forest and Climate Change with targets to achieve a 20 to 40 % reduction in PM10 and PM2.5 concentrations by 2026.

Statement 2 is incorrect: Under N.A.M.P., four air pollutants viz ., Sulphur Dioxide (SO₂), Oxides of Nitrogen as NO₂, Respirable Suspended Particulate Matter (RSPM / PM₁₀) and Fine Particulate Matter (PM_{2.5}) have been identified for regular monitoring at all the locations.

Statement 3 is correct: Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts

13.2: Integrate climate change measures into national policies, strategies and planning

13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

Thus National Air Quality Monitoring Programme is implementing the SDG 13.2 and 13.3

Statement 4 is incorrect: Particulate matter is a complex pollutant. Depending upon its composition, it may have a cooling or warming effect on the local and global climate. For example, black carbon, one of the constituents of fine PM and a result of incomplete



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burning of fuels, absorbs solar and infrared radiation in the atmosphere and thus has a warming effect. Other types of PM containing sulphur or nitrogen compounds have the opposite effect. They tend to act as small mirrors, reflecting the sun's energy and thus leading to cooling. In simple terms, it depends on the colour of the particle. 'White' particles tend to reflect sunlight, while 'black' and 'brown' particles absorb it. Hence, Particulate Matter containing sulphur or nitrogen compounds gives a cooling effect on the local and the global climate rather than a warming effect.

3. Consider the following statements about London Convention on the Prevention of Marine Pollution

1. It covers deliberate disposal of all types of wastes into the marine environment
2. It has the Joint Group of Experts to advice on scientific aspects of Marine Environment Protection
3. The main objective of this convention is to Carbon capture and sequestration in marine environment.
4. India is a members to the convention and its 1996 protocol

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is incorrect: The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972, commonly called the "London Convention" or "LC '72" and also abbreviated as Marine Dumping, is an agreement to control pollution of the sea by dumping and to encourage regional agreements supplementary to the convention. It covers the deliberate disposal at sea of wastes or other matter from vessels, aircraft, and platforms. It does not cover discharges from land-based sources such as pipes and outfalls, wastes generated incidental to normal operation of vessels, or placement of materials for purposes other than mere disposal, providing such disposal is not contrary to aims of the convention.

Statement 2 is correct: It takes advice on issues needing multidisciplinary expertise from the Joint Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP) which is composed of specialised experts nominated by the IMO, FAO, UNESCO, IOC, WMO, WHO, IAEA, UN, and UNEP. A scientific group on dumping, composed of government experts from the parties to the convention a responsible to address any scientific requests from the consultative meeting, including the preparation of lists of hazardous substances, developing guide-lines on the implementation of the convention, and maintaining awareness of the impacts on the marine environments of inputs from all waste sources.

Statement 3 is correct: The Contracting Parties to the London Convention (LC) and London Protocol (LP) have taken groundbreaking steps to mitigate the impacts of increasing concentrations of carbon dioxide (CO₂) in the atmosphere and to ensure that new technologies with the potential to cause harm to the marine environment are effectively controlled and regulated. Thus the main objective of this convention is to carbon capture and sequestration in marine environment.

Statement 4 is incorrect: India is not a member of London convention and its 1996 convention.

4. Consider the pollutants behind the global climate change

1. Carbon dioxide
2. Black Carbon
3. Methane
4. Ground level ozone
5. Hydrofluorocarbons
6. Nitrous Oxide

How many of the above are short lived climate pollutants?

- (a) All the above except one
- (b) All the above except two
- (c) All the above except three
- (d) All the above except four

Ans: b (All the above except two)

Explanation: Short lived Climate Pollutants: Short-lived climate pollutants (SLCPs) are a group of greenhouse gases and air pollutants that have a near-



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term warming impact on climate and can affect air quality. SLCPs include black carbon, methane, ground-level ozone, and hydrofluorocarbons (HFCs). Long lived climate pollutants: Examples for Long Lived Climate Pollutants

- Carbon dioxide
- Nitrous Oxide
- Fluorinated gases
- Perchlorofluorocarbons

5. Consider the following statements about the impacts of climate change on Agriculture and Food security

1. Increase in the amount of Arable land
2. Increase in C4 plant's competition against C3 crops.
3. Reduction in Fertility and Milk Production in animals
4. Increase in productivity of pastures with a decrease in their quality

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Statement 1 is correct: As per recent research, climate change could expand the agricultural feasibility of the global boreal region that is, it may increase the area under the arable land by 44 percent by the end of the century. However, the scientists warn that the same climate trends that would increase land suitable for crop growth in that area could also significantly change the global climatic water balance which is negatively impacting agriculture in the rest of the world.

Statement 2 is correct: C3 plants are defined as a plant that does not consist of any photosynthetic adaptations to reduce photorespiration. Photorespiration refers to a process in plant metabolism where the enzyme RuBisCO oxygenates RuBP, wasting some of the energy produced by photosynthesis. The Photorespiration rate in C3 plants is very high, and hence these plants are less efficient in photosynthesis. On the other hand, C4 plants are more efficient in photosynthesis because

photorespiration is absent in these plants. Also, the optimum temperature for photosynthesis in C3 plants is very low, while in C4 plants, it is high. These are some factors that increase the C4 plant's competitiveness against C3 plants. Some examples of C3 plants include rice, wheat, soybeans and all trees. Examples of C4 plants include Maize, Sugarcane, Amaranthus etc.

Statement 3 is correct: Climate change could affect animals both directly and indirectly. For example, Drought may threaten pasture and feed supplies, and heat stress can increase livestock vulnerability to disease, reduce fertility, and reduce milk production.

Statement 4 is correct: Increases in carbon dioxide (CO₂) may increase the productivity of pastures but may also decrease their quality. Increases in atmospheric CO₂ can increase the productivity of plants on which livestock feed. However, the quality of some of the forage found in pasturelands decreases with higher CO₂. As a result, cattle need to eat more to get the same nutritional benefits.

6. Consider the following statements about Climate and Clean Air Coalition (CCAC)

1. The Climate and Clean Air Coalition (CCAC) is a voluntary partnership of governments and civil society organizations to reduce short-lived climate pollutants.
2. CCAC focuses on carbon dioxide, methane, chlorofluorocarbons, and tropospheric ozone
3. CCAC's vision is to stabilize the climate with warming limited to 1.5°C and drastically reduce air pollution

Which of the statements given above are correct?

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

Ans: b (1 and 3 only)

Statement 1 is correct: The Climate and Clean Air Coalition (CCAC) is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions, and civil society organizations committed to protecting the climate and improving air quality through actions to reduce short-lived climate pollutants. The Coalition brings



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hundreds of experienced and influential stakeholders worldwide to leverage high-level engagement and catalyze concrete actions in both the public and private sectors. This coalition operation is supported by a secretariat that sits within UN Environment in Paris, France.

Statement 2 is incorrect: CCAC focuses on the short-lived climate pollutants black carbon, methane, tropospheric ozone, and hydrofluorocarbons which are the most important contributors to the man-made global greenhouse effect after carbon dioxide, responsible for up to 45% of current global warming which is associated with refrigeration, diesel-fueled vehicles, and solid-fuel cooking fires. But the chlorofluorocarbons are not covered under this coalition and also Carbon dioxide is not covered as it is a long-lived pollutant.

Statement 3 is correct: This coalition aims for global efforts to decarbonize the economy, limit global temperature rise to 1.5°C to stabilise the climate, reduce air pollution drastically, and achieve the related Sustainable Development Goals. Methane emissions can be reduced by 40% and black carbon by 70% by 2030 (from 2010 levels).

7. Consider the following statements about “National Solar Mission”

1. “National solar mission” aims the development of large-scale and rooftop solar projects and trading of solar power.
2. Solar Energy Corporation of India (SECI) is a company under the Ministry of New and Renewable Energy to facilitate the implementation of the National Solar Mission (NSM).
3. One of the components of this mission is domestic production of critical raw materials and components
4. Viability gap funding of 20% or 2.5 Crore/MW per project will be provided for installation of Solar Power Projects

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is incorrect: The objective of the National Solar Mission is to establish India as a global leader in solar energy by creating the policy conditions for its diffusion across the country as quickly as possible. To create an enabling policy framework for the deployment of 20,000 MW of solar power by 2022. The cumulative target has been revised to 1,00,000 MW by 2022. The target will principally comprise of 40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects. However, it does not only include Large scale project but also medium and small scale projects

Statement 2 is correct: Solar Energy Corporation of India (SECI) is a Central Public Sector Undertaking (CPSU) under the administrative control of the Ministry of New and Renewable Energy (MNRE), set up on 20th September 2011 to facilitate the implementation of the National Solar Mission (NSM) and achievement of targets set therein. It is the only CPSU dedicated to the renewable energy sector.

Statement 3 is correct: Major components of this scheme include:

- Aggressive research and development
- Large scale deployment of solar projects
- Domestic production of critical raw materials, components and products, as a result, to achieve grid tariff parity by 2022.

Statement 4 is correct: Viability gap funding of 20% of the project cost or 2.5 crore/MW is provided for installation of solar projects.

8. Consider the following statements about the components of Enhanced Energy Efficiency

1. Perform Achieve and Trade Scheme (PAT)
2. Market Transformation for Energy Efficiency (MTEE)
3. Energy Efficiency Financing Platform (EEFP)
4. Framework for Energy Efficiency Economic Development (FEEED)

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three



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(d) All four

Ans: d (All four)

Explanation: The National Mission for Enhanced Energy Efficiency (NMEEE) is one of the eight national missions under the National Action Plan on Climate Change (NAPCC). NMEEE aims to strengthen the market for energy efficiency by creating conducive regulatory and policy regime and has envisaged fostering innovative and sustainable business models to the energy efficiency sector. The Mission is implemented since 2011.

NMEEE consist of four initiatives to enhance energy efficiency in energy intensive industries which are as follows:

- **Perform Achieve and Trade Scheme (PAT)** - Implementing a market assisted compliance mechanism to accelerate implementation of cost effective improvements in energy efficiency in large energy-intensive industries
- **Market Transformation for Energy Efficiency (MTEE)** - Accelerating the shift to energy efficient appliances in specific application through innovative measures to make the products more affordable.
- **Energy Efficiency Financing Platform (EEFP)** - Facilitating Financial Institutions to invest in Energy Efficiency Projects and Programmes
- **Framework for Energy Efficient Economic Development (FEEED)** - Developing fiscal instruments to leverage financing for Energy Efficiency through risk mitigation:
 - Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE) and
 - Venture Capital Fund for Energy Efficiency (VCFEE) to promote energy efficiency
 - National Energy Conservation Award and Painting Competition

9. Consider the following statements about Reduction of Emissions from Deforestation and Land Degradation (REDD)

1. It is a framework to reduce emissions and removal of greenhouse gasses applicable only in developing countries
2. REDD + is voluntary climate change mitigation framework developed under UN Framework Convention on Climate Change (UNFCCC)
3. Implementation of the REDD+ program will always strengthen the Rights of Forest Tribals and Other Traditional Dwellers
4. Implementation of REDD/+ will help us to achieve Sustainable Development Goals (SDG): 1 and 2

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Statement 1 is correct: REDD+ (or REDD-plus) is a framework to encourage **developing countries** to reduce emissions and enhance removals of greenhouse gases through a variety of forest management options, and to provide technical and financial support for these efforts.

Statement 2 is correct: REDD+ is a voluntary climate change mitigation framework developed by the United Nations Framework Convention on Climate Change (UNFCCC). REDD originally referred to "reducing emissions from deforestation in developing countries", which was the title of the original document on REDD. It was superseded by REDD+ in the Warsaw Framework on REDD-plus negotiations.

Statement 3 is correct: The Government of India has recognized the forest rights of the indigenous communities through the enactment of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. The Act bestows on the local indigenous communities the responsibilities and authority for the sustainable use of forests, conservation of biodiversity and maintenance of ecological balance.

Statement 4 is correct: The REDD+ mechanism contributes directly to achieving Sustainable Development Goals (SDGs) 13 and 15. Those address climate change, reducing deforestation and



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sustainable use of ecosystems. REDD+ can also contribute to achieving other SDGs – including those which address poverty reduction, health and well-being, hunger alleviation, and improving institutions.

10. Consider the following Fruits/Vegetables which are part of Environmental Working Groups’s “Dirty Dozen”

1. Apples
2. Grapes
3. Nectarines
4. Green beans
5. Bananas
6. Pears

How many of the statements given above are correct?

- (a) All the above except one
- (b) All the above except two
- (c) All the above except three
- (d) All the above except four

Ans: a (All the above except one)

Explanation: Since 1995, the EWG has released the Dirty Dozen — a list of conventionally grown fruits and vegetables with the highest levels of pesticide residues. To compile the Dirty Dozen list, the EWG analyzes over 46,569 samples of 46 fruits and vegetables, taken by the USDA and FDA to single out the worst offenders.

The EWG uses six measures to determine pesticide contamination of produce

- Percent of samples tested with detectable pesticides
- Percent of samples with two or more detectable pesticides
- Average number of pesticides found on a single sample
- Average amount of pesticides found, measured in parts per million
- Maximum number of pesticides found on a single sample
- Total number of pesticides found on the crop

The Dirty Dozen in the 2024 list include:

- Apple
- Grapes
- Strawberries
- Spinach
- Kale, collard& mustard green

- Peaches
- Cherries
- Pears
- Nectarines
- Bell and hot peppers
- Green beans.

11. Consider the following statements about Biological Diversity (Amendment) Bill: 2021

1. Codified Traditional Knowledge has been given legal protection
2. Both Indian and Foreign entities must obtain prior approval to secure Intellectual Property Rights (IPR)
3. Indian entities are mandated to pay Access and Benefit Sharing fees
4. It criminalized any violations to this act and increased the punishment

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: Codified Traditional Knowledge: The Act now recognises "codified traditional knowledge", ensuring protection of established practices. For sectors like AYUSH, this means that traditional practices documented in ancient texts are acknowledged and safeguarded, promoting their authentic use and preventing misappropriation. Thus it provided legal status to Codified Traditional Knowledge

Statement 2 is incorrect: The process for obtaining Intellectual Property Rights (IPR) on biological resources and associated traditional knowledge has been clarified as per Section 6. Foreign entities must obtain prior approval to secure IPR on Indian biological resources. In contrast, Indian entities need only register with the National Biodiversity Authority (NBA). However, if these entities intend to commercialize the IPR, NBA’s prior approval becomes necessary.

Statement 3 is correct: The State Biodiversity Boards (SBBs) have been empowered by the amendments under Section 7 which mandates Indian



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entities to pay Access and Benefit Sharing (ABS) fees. Section 20, concerning the transfer of research results, no longer requires dual approval for transferring biological resources or associated knowledge but maintains the prior approval requirement for the transfer of research results. However, the powers of the NBA and SBB have been further delineated. Section 23 clarifies the powers of the SBBs, especially regarding the Benefit Sharing Fee (ABS). Section 36A, a new addition, authorises the NBA to oversee and regulate access to biological resources from foreign countries.

Statement 4 is incorrect: Penalties have been revised under Section 55, shifting from imprisonment to increased financial penalties. Section 55A introduces the appointment of an adjudicating officer to oversee inquiries and impose penalties. This officer, along with authorities under Section 55B, has the authority to conduct searches, seizures, and collect evidence. Section 61 now permits any individual to file a complaint for potential infractions under the Act.

12. Consider the following statements BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)

1. The BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL) is a multilateral facility that promotes and rewards reduced greenhouse gas emissions.
2. BioCF Tranche 3, an arm of the International Monetary Fund, provides results-based finance through the purchase of verified emissions reductions.

Which of the statements given above are correct?

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

Ans: a (Only 1)

Statement 1 is correct: The BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL) is a multilateral facility that promotes and rewards reduced greenhouse gas emissions and increased sequestration through better land management, including REDD+ (Reduced Emissions from Deforestation and forest Degradation), climate smart

agriculture, and smarter land use planning and policies. The ISFL will pilot programs and interventions at a jurisdictional scale in order to test approaches and share lessons learned broadly. This Initiative was established in 2013 and is supported by Germany, the Kingdom of Norway, Switzerland, the United Kingdom, and the United States and being implemented till 2030.

Statement 2 is incorrect: The ISFL has two key funding instruments, the BioCFplus and BioCF Tranche 3 (T3), which have been designed specifically to operationalize the vision of the ISFL. BioCF Tranche 3 provides results-based payments for verified emission reductions through an Emission Reductions Purchase Agreement (ERPA). The ISFL is supported by donor governments and managed by the World Bank.

13. "Green Gigaton Challenge" is a initiative of?
- (a) United Nations Environment Programme (UNEP)
 - (b) United Nations Development Programme (UNDP)
 - (c) United Nations REDD Programme
 - (d) Climate and Clean Air Collision

Ans: c (United Nations REDD Programme)

Explanation: Green Gigaton Challenge is a global initiative by Emergent and the UN-REDD Programme, supported by the Environmental Defense Fund, Forest Trends and the Architecture for REDD+ Transactions - to catalyze funding for one gigaton of high-quality emissions reductions a year from forests by 2025. The Green Gigaton Challenge aims to break the stalemate on the contribution from forests to close the emission gap by 2030 and ensure biodiversity conservation and a green recovery from Covid-19. Green Gigaton Challenge brings together a coalition of public, private and philanthropic partners to channel funds into efforts led by national and subnational governments to reduce emissions from deforestation and forest degradation (REDD+).

14. Consider the following statements about 'Global Shield against Climate Risk' initiative

1. It is an initiative launched by USA along with other G7 countries



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2. It is insurance based financial mechanism to mitigate the adverse affects of climate change

Which of the statements given above are correct?

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

Ans: b (Only 2)

Statement 1 is incorrect: One of the important announcements from COP27 is that the G7 (Global 7) and the V20 (the Vulnerable Twenty) launched the Global Shield against Climate Risks, with new commitments of over USD 200 million as initial funding.

Statement 2 is correct: It is a social protection and insurance-based finance mechanism for loss and damage outside the UNFCCC process to mitigate the adverse effects of climate change.

15. Consider the following statements about effects of climate change on land

- 1. Climate change can convert land areas from one biome to another
- 2. Agriculture, forestry and other land use results in both emissions and removals of CO₂, CH₄ and N₂O to and from the atmosphere.
- 3. The decrease in the emissions of biogenic volatile organic compounds resulted in a negative radiative forcing.
- 4. Communication between phytophagous insect pests and their host plants would be affected

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: Climate change could convert whole land areas from one biome to another, alter global biogeochemical cycles and isolate a myriad of species to extinction. Forests, tundra's, and alpine areas are some of the world's most at-risk ecosystems for climate change.

Statement 2 is correct: Agriculture, forestry and other land use (AFOLU) is a significant net source of Green House Gas (GHG) emissions, contributing to about 23% of anthropogenic emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) combined as CO₂ equivalents in 2007–2016. The CO₂ and other non-CO₂ greenhouse gases (GHG), largely methane (CH₄) and nitrous oxide (N₂O), are in turn released to the atmosphere by plant respiration, by decomposition of dead plant biomass and soil organic matter, and by combustion.

Nitrous oxide is removed from the atmosphere when it is absorbed by certain bacteria or destroyed by ultraviolet radiation or chemical reactions. The main mechanism for removing methane from the earth's atmosphere is oxidation within the troposphere by the hydroxyl radical (OH). A hydroxyl radical is a negatively charged oxygen atom bonded to a hydrogen atom (OH). AFOLU activities lead to both sources of CO₂ (e.g., deforestation, peatland drainage) and sinks of CO₂ (e.g., afforestation, management for soil carbon sequestration) and to non-CO₂ emissions primarily from agriculture (e.g., CH₄ from livestock and rice cultivation, N₂O from manure storage and agricultural soils and biomass burning). Thus, AFOLU activities result in emissions of CO₂, Methane (CH₄) and NO₂ to the atmosphere and the removal of these gases from the atmosphere

Statement 3 is incorrect: All plants emit a wide range of volatile compounds such as nitric oxide, carbon monoxide, and nonmethane volatile organic compounds, the so-called biogenic volatile organic compounds (BVOC). BVOCs have an important, negative impact on the atmosphere because they play a major role in the production of tropospheric ozone and aerosols. BVOCs rapidly react with anthropogenic and natural compounds, particularly nitrogen oxides, in the atmosphere, forming tropospheric ozone and photochemical smog. Furthermore, BVOCs affect the residence time of other greenhouse gases (including methane) and may cause the formation of secondary aerosols, a component of PM₁₀, in the atmosphere. Biogenic volatile organic compounds mediate the relationship between the biosphere and the atmosphere. Alteration of this relationship by anthropogenically driven



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environmental changes, including global climate change, may perturb these interactions and lead to adverse and hard-to-predict consequences for the Earth system. Thus, It results in positive radiative forcing, in which the earth holds more energy (heat) than it releases to space. In contrast, negative radiative force leads to the cooling of the earth.

Statement 4 is correct: Insects depend highly on odor cues released into the environment to locate conspecifics or food sources. This mechanism is particularly important for insect predators that rely on kairomones released by their prey to detect them. In the context of climate change and, more specifically, modifications in the gas composition of the atmosphere, chemical communication-mediating interactions between phytophagous insect pests, their host plants, and their natural enemies are likely to be impacted.

16. Consider the following statements about Ocean Acidification

1. Ocean Acidification is referred to as the 'Evil Twin' of Global Warming.
2. Ocean acidification is an increase in the pH of the ocean, as carbonic acid increases due to the dissolving of carbon dioxide
3. Ocean acidification reporting incidents have been tripled since 2021
4. Sustainable Development Goal 14.3 has a target of addressing the impacts of ocean acidification

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: Ocean acidification is often called the "evil twin" of climate change due to its harmful consequence of absorbing excess carbon dioxide in the atmosphere, which is happening underwater. Because of the amount of CO₂ absorbed by the oceans, this increase in emissions is changing the ocean's acidity. At least one-quarter of the carbon dioxide (CO₂) released by burning coal, oil, and gas doesn't stay in the air but instead dissolves into the

ocean. Since the beginning of the industrial era, the ocean has absorbed some 525 billion tons of CO₂ from the atmosphere, presently around 22 million tons per day.

Statement 2 is incorrect: Ocean acidification refers to a reduction in the pH of the ocean over an extended period of time, caused primarily by the uptake of carbon dioxide (CO₂) from the atmosphere. Because of human-driven increased levels of carbon dioxide in the atmosphere, there is more CO₂ dissolving into the ocean. The ocean's average pH is now around 8.1 which is basic (or alkaline), but as the ocean continues to absorb more CO₂, the pH decreases and the ocean becomes more acidic. Water and carbon dioxide combine to form carbonic acid (H₂CO₃), a weak acid that breaks (or "dissociates") into hydrogen ions (H⁺) and bicarbonate ions (HCO₃⁻). This carbonic acid level increases as more dissolution of carbon dioxide happen in oceans, which in turn reduces the pH value of the ocean.

Statement 3 is correct: Ocean acidification incidents have been tripled worldwide since 2021

Statement 4 is correct: SDG 14: Conserve, and sustainably use the oceans, seas and marine resources for sustainable development.

SDG 14.3: Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

17. Consider the following statements about Methane emissions

1. Methane is the primary contributor to the formation of ground-level ozone, a hazardous air pollutant.
2. 'System of Rice Intensification (SRI)' of cultivation results in increased methane production
3. Methane increases the amount of hydroxyl radicals available to remove other types of air pollutants
4. Long term exposure to Methane can results into balance problems, memory loss and unconsciousness

How many statements given above are correct?

- (a) Only one
- (b) Only two



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(c) Only three

(d) All four

Ans: b (Only two)

Statement 1 is correct: A recent assessment from the United Nations Environment Programme (UNEP) and the Climate and Clean Air Coalition found that cutting farming-related methane emissions would be key in the battle against climate change because Methane is the primary contributor to the formation of ground-level ozone, a hazardous air pollutant, and greenhouse gas, exposure to which causes 1 million premature deaths every year. Methane is also a powerful greenhouse gas. Over 20 years, it is 80 times more potent at warming than carbon dioxide.

Statement 2 is incorrect: The System of Rice Intensification (SRI) is an agroecological methodology used to increase the productivity of irrigated rice by changing the management of plants, soil, water, and nutrients. Agricultural activities, including farming on inundated rice fields, release a huge amount of methane, a major greenhouse gas that is more impactful than carbon dioxide on global warming. In fact, rice is responsible for 10% of global methane emissions and as much as 25-33% of the total methane emissions of the world's major rice producer – Southeast Asia. The continuous flooding and inundating of fields deprive the soils of oxygen, which is conducive to producing methane. It is estimated that SRI can save at least one-third of methane emissions when flooded rice fields are drained at least once during the growing season. Thus, the effect of SRI methods is to reduce (not to increase) the net emission of Green House Gases, especially methane, from rice fields in terms of their global warming potential by 20-30%.

Statement 3 is incorrect: Hydroxyl radicals are highly reactive species that attack most organic molecules. They are highly oxidizing in nature which is attributed to their oxidation potential. When methane is emitted into the air, it reacts in several hazardous ways. For one, methane primarily leaves the atmosphere through oxidization, forming water vapor and carbon dioxide. So, not only does methane directly contribute to global warming but also indirectly through releasing carbon dioxide. Additionally, during the oxidization process, methane

reacts with hydroxyl radicals (OH). These naturally occurring molecules act as a “detergent,” cleaning methane and many other pollutants from the air. Thus, methane reduces the amount of hydroxyl radicals available to remove other types of air pollutants.

Statement 4 is correct: High levels of methane can reduce the amount of oxygen breathed from the air. This can result in mood changes, slurred speech, vision problems, memory loss, nausea, vomiting, facial flushing and headache. In severe cases, there may be changes in breathing and heart rate, balance problems, numbness, and unconsciousness.

18. Consider the following statements

1. Western Ghats is recognized as one of the world's ‘hottest hotspots’ of biological diversity
2. Hope spots are areas where enhanced conservation action is required because of its wildlife and significant underwater habitat
3. Cool spots are areas of the ocean that merits special protection because of it's wildlife and significant underwater habitats.

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) None

Ans: b (Only two)

Statement 1 is correct: Biodiversity hotspots are defined as areas with exceptional species richness and concentrations of endemic species, and the loss of >70 per cent of the original primary vegetation. For example, 20% of the world's plants are found on 0.5% of the earth's surface. The Western Ghats is a designated UNESCO World Heritage Site and recognized as one of the world's eight ‘hottest hotspots’ of biological diversity. Hottest' biodiversity hotspots is based on richness and endemism of plants with

- 12,000 species of vascular plants in which >90% endemic
- Vertebrates with >700 species in which 50% endemism in birds
- >98% in amphibians, reptiles and mammals



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- >90% of habitat loss

Statement 2 is correct: Hope Spots are new areas that need protection or existing marine protected areas where enhanced conservation action is needed. That is, it is an area of an ocean that needs special protection because of its wildlife and significant underwater habitats. The partnership between Mission Blue and IUCN on Hope Spots has great implications for community-sponsored conservation and will empower people to protect themselves, giving them a chance to be heard.

Statement 3 is incorrect: Cool spots refer to the areas where the world's last refuges with high numbers of threatened species still persist. Cool spots could be the result of protection or because of intact habitat that has not been cleared yet. Some of the "cool spots" identified include parts of the Amazon rainforest, Andes Mountains, and tundra and boreal forests of Russia and North America.

19. Consider the following pollutants

- Chlorofluorocarbons (CFC)
- Halons
- Methyl bromide
- Ammonia
- Methyl Chloroform
- Propane

How many of the above pollutants are covered under Montreal Protocol?

- All the above except one
- All the above except two
- All the above except three
- All the above except four

Ans: b (All the above except two)

Explanation: The Montreal Protocol is a global agreement to protect the Earth's ozone layer by phasing out the chemicals that deplete it. It regulates the production and consumption of nearly 100 man-made chemicals referred to as ozone-depleting substances (ODS). The substances controlled by the treaty are listed in Annex A, Annex B, Annex C, Annex E and Annex F of this Protocol.

Annex	Controlled Substances
A	CFCs, halons
B	Fully halogenated CFCs, Carbon tetrachloride, Methyl chloroform

C	Hydrochlorofluorocarbons(HCFC)
E	Methyl Bromide
F	Hydrofluorocarbons

Note:

- Ammonia doesn't deplete Earth's ozone layer or contribute to global warming like some fluorochemicals.
- Propane is a natural, nontoxic substance with no ozone-depleting properties and ultra-low global warming potential

20. Consider the impact of stratospheric ozone depletion

- Affects both orientation and motility in phytoplankton
- Synthetic polymers are adversely affected
- Snow blindness
- All Ultra Violent B and C are completely absorbed by Earth's atmosphere

How many statements given above are correct?

- Only one
- Only two
- Only three
- All four

Ans: c (Only three)

Statement 1 is correct: There are three types of UV light: UVA, UVB, and UVC. Reductions in stratospheric ozone levels will lead to higher levels of UVB reaching the Earth's surface. The physiological and developmental processes of plants are affected by UVB radiation. Phytoplankton forms the foundation of the aquatic food web, and its productivity is limited to the euphotic zone, the upper layer of the water column. Highly Exposure to solar UVB radiation affects both orientation mechanisms and motility in phytoplankton, resulting in reduced survival rates for these organisms.

Statement 2 is correct: Synthetic polymers are which are human-made polymers. Synthetic polymers, naturally occurring biopolymers (Biopolymers are polymers produced from natural sources either chemically synthesized from biological material or entirely biosynthesized by living organisms) and some other materials of commercial interest are adversely affected by UVB radiation.



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Statement 3 is correct: Ozone layer depletion increases the amount of UVB that reaches the Earth's surface. Ultraviolet radiation, UV-B radiation, can damage the cornea leading to photokeratitis or "snow blindness," and also causes cataracts through damage to the lens and the retina.

Statement 4 is incorrect: UVA rays have the longest wavelengths, followed by UVB, and UVC rays which have the shortest wavelengths. While UVA and UVB rays are transmitted through the atmosphere, all UVC and **some** (not all) UVB rays are absorbed by the Earth's ozone layer. So, most of the UV rays you come in contact with are UVA with a small amount of UVB.

21. Consider the following statements about World Heritage Committee

1. The World Heritage Committee is composed of 21 members elected by their General Assembly.
2. The Committee allocates financial assistance to the parties
3. WHC can decide on the inscription but cannot decide on the deletion of properties on the List of World Heritage in Danger.
4. India has not site on UNESCO World Heritage Sites in danger list

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: The United Nations Educational, Scientific and Cultural Organization (UNESCO) seeks to encourage the identification, protection and preservation of cultural and natural heritage worldwide considered to be of outstanding value to humanity, and this is embodied in an international treaty called the Convention concerning the Protection of the World Cultural and Natural Heritage, adopted by UNESCO in 1972. The World Heritage Committee consists of representatives from 21 state parties to the World Heritage Convention elected by their General Assembly.

Statement 2 is correct: The World Heritage Committee is responsible for implementing the World Heritage Convention, which defines the use of the World Heritage Fund and allocates financial assistance upon requests from States Parties.

Statement 3 is incorrect: The intergovernmental World Heritage Committee makes the final decision on its inscription and meets once a year to decide which sites will be inscribed on the World Heritage List. When a site loses the characteristics which determined its inscription on the world Heritage List, the World Heritage Committee may decide to delete the property from both the List of World Heritage in Danger and the World Heritage List. Therefore, World Heritage Committee can decide on the inscription and deleting properties on the List of World Heritage in Danger

Statement 4 is correct: Currently, there are 40 World Heritage Sites located in India. Out of these, 32 are cultural, 7 are natural, and one, the Khangchendzonga National Park, is of mixed type. However, no site is in UNESCOs Danger list as of 2023.

22. Consider the following statements about Environment Impact Assessment (EIA) process in India

1. EIA process is introduced in India in 1978 with respect to river valley projects
2. All category A project doesn't require screening step in the EIA process
3. Nuclear power projects are exempted from EIA process
4. Public Hearing process of a project should be completed within 45 days

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: EIA is a tool to anticipate the likely environmental impacts that may arise out of the proposed developmental activities and suggest mitigation measures and strategies. EIA was introduced in India in 1978, with respect to river valley projects. Later the EIA legislation was



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enhanced to include other developmental sections. EIA comes under Notification on Environmental Impact Assessment (EIA) of developmental projects 1994 under the provisions of Environment (Protection) Act, 1986.

Statement 2 is correct: All category projects shall require Environment Impact clearance before the project get started because of the extent of the project and impact on human health and on natural and man-made resources.

Statement 3 is incorrect: All projects that require clearance from central government can be broadly categorized into the following:

- Individual projects that need require clearance from central government,
- Nuclear power and related projects
- River valley projects including hydal power, major irrigation and flood control,
- Ports, harbours, airports (except minor ports and harbours), etc.

Statement 4 is incorrect: The draft EIA notification proposes to be an update to the EIA of 2006, which specifies a “minimum of 30 days” for people to respond. The current version of the update, which will likely become law in 60 days, gives a “minimum of 20 days” of notice period. It also requires that the public-hearing process be wrapped up in 40 days, as opposed to the existing norm of 45 days.

23. Consider the following statements about Accelerating to Zero Coalition (A2Z)

1. It was launched at the CoP 27 to the United Nations Framework Convention on Climate Change
2. It amplifies the progress in ZEVs (Zero Emission Vehicles) and promotes zero air pollution all over the earth.
3. India is a signatory to this coalition since its inception

Which of the statements given above are correct?

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

Ans: b (1 and 3 only)

Statement 1 is correct: Accelerating to Zero (A2Z) Coalition was launched at the conference of parties (COP27) as the next step to secure more ambitious commitments to zero-emission vehicles transition aligned with the Paris Agreement. The A2Z Coalition connects the world’s leading organizations on zero-emission transportation, creating a platform to support understanding, developing, and implementing ambitious zero-emission transportation policies and plans and showcasing leadership.

Statement 2 is incorrect: The A2Z Coalition will provide a platform to promote coordination between signatories to access, amplify the progress being made as well as the continued urgency to advance the transition from polluting vehicles to ZEVs.

Statement 3 is correct: India is a signatory to the Accelerating to Zero coalition (A2Z) under the category of Governments in Emerging Markets and Developing Economies.

24. Consider the following statements about Clean Development Mechanism (CDM)

1. CDM is one of the three flexible mechanisms defined in the Kyoto protocol.
2. It allowed the developed countries to claim the emission reductions in developing countries by financing the emission reduction projects
3. All member of UNFCCC are signatories to Kyoto protocol
4. CDM helps in achieving the Sustainable Development Goal (SDG) 13.a

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: The Clean Development Mechanism (CDM) is a United Nations-run carbon offset scheme allowing countries to fund greenhouse gas emissions-reducing projects in other countries and claim the saved emissions as part of their own efforts to meet international emissions targets. It is one of the three Flexible Mechanisms defined in the



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Kyoto Protocol. The other two are Joint Implementation and Carbon Trading mechanisms.

Statement 2 is correct: The CDM addressed the second objective by allowing the Annex I countries to meet part of their emission reduction commitments under the Kyoto Protocol by buying Certified Emission Reduction units from CDM emission reduction projects in developing countries.

Statement 3 is incorrect: Because several countries with high emissions, including the United States and China, either were not signatories of the Kyoto Protocol or were not required by it to reduce their emissions, most of the market for CDMs came from European countries.

Statement 4 is incorrect: Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts

13.a: Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible.

25. Consider the following statements about Low Emission Development Strategy (LEDS)

1. A LEDS (Low Emission Development Strategy) is a policy instrument that identifies the sources of a country's GHG emissions.
2. A LEDS helps to improve framework conditions for private sector investment in mitigation actions
3. Through LEDS some countries focus only on the mitigation aspect of climate change
4. India submitted its Long-Term Low Emission Development Strategy to the UNFCCC at COP27.

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Statement 1 is correct: A Low-Emission Development Strategy (LEDS) is a national, high-level, comprehensive, long-term strategy developed by domestic stakeholders aiming to decouple economic growth and social development from greenhouse gas (GHG) emissions growth. A LEDS is a policy instrument that identifies the sources of a country's GHG emissions and prioritizes options for their mitigation

Statement 2 is correct: A Low Emission Development Strategy helps to improve framework conditions for private sector investment in mitigation actions. The long-term strategies of LEDS framework will be a core tool to help productive sectors in business and industry identify the opportunities for economic growth in the low-carbon transition. It will also help achieve inclusive growth and other sustainable development goals.

Statement 3 is correct: A Low-Emission Development Strategy (LEDS) focuses on achieving development through mitigation actions. Through LEDS, some countries have included a full vulnerability analysis and a description of necessary adaptation measures in their LEDS. Other countries focused only on the mitigation aspect of climate change.

Statement 4 is correct: Long-term low emissions development strategies (LT-LEDS) are a policy tool that helps to place short-term actions in the context of the long-term structural changes required to transition to a low-carbon, resilient economy. Recently, India submitted its Long-Term low emission development strategy at the 27th United Nations Framework Convention on Climate Change (UNFCCC), Conference of Parties (COP27), which is aimed at the rational utilization of national resources concerning energy security.

26. Consider the following statements about Forest and Climate Leader's Partnership (FCLP)

1. At COP26, the Forest and Climate Leaders' Partnership (FCLP) was launched.
2. FCLP helps to scale up action to halt and reverse forest loss and land degradation by 2050



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- Supporting Indigenous Peoples' and local communities' initiatives is one of the action areas of FCLP.
- Sustainable Development Goal 15.2 is promoting the sustainable management of forests

How many statements given above are correct?

- Only one
- Only two
- Only three
- All four

Ans: b (Only two)

Statement 1 is incorrect: At the UN Climate Change Conference or Conference of the Parties, COP27 in Sharm el-Sheikh Forest and Climate Leaders' Partnership (FCLP) has been launched, which aims to unite action by governments, businesses and community leaders. World Leaders from 26 countries and the European Union (EU) have launched the Forests and Climate Leaders' Partnership (FCLP) at the inaugural Forest and Climate Leaders' Summit. The new Partnership will unite action by government, business and community leaders and shine a spotlight on global progress at COP27 and every year upto 2030

Statement 2 is incorrect: The Forest and Climate Leaders' Partnership (FCLP) has high ambition partnership of countries that will build on the Glasgow Leaders Declaration for Forests and Land Use made by 140+ countries to halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation.

Statement 3 is correct: Every member is committing to play a leadership role in driving forward at least one of the FCLP's action areas, which are:

- International collaboration on the sustainable land use economy.
- Mobilizing public and donor finance to support implementation.
- Shifting the private finance system.
- Supporting Indigenous Peoples' and local communities' initiatives.
- Strengthening and scaling carbon markets for forests.

- Partnerships and incentives for preserving high-integrity forests.

Statement 4 is correct: Sustainable Development Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

27. Consider the following countries which are part of Global Offshore Wind Alliance (GOWA)

- India
- USA
- Australia
- Japan
- China
- Russia

How many of the above countries are part of GOWA?

- All the above except one
- All the above except two
- All the above except three
- All the above except four

Ans: c (All the above except three)

Explanation:

The Global Offshore Wind Alliance (GOWA), founded by Denmark, the International Renewable Energy Agency (IRENA), and the Global Wind Energy Council (GWEC), was officially launched at COP27 in November 2022, where a large group of countries agreed to a rapid ramp-up of offshore wind. For the coming three years, the founders and Colombia will co-chair the Alliance.

The aim of GOWA is to contribute to achieving a total global offshore wind capacity of a minimum of 380 GW by 2030, with 35 GW on average each year across the 2020s and a minimum of 70 GW each year from 2030.

GOWA will facilitate knowledge exchange and peer-to-peer learning among the countries joining the Alliance, e.g., through thematic working groups, workshops, and capacity building. To support countries in their development of offshore wind,



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GOWA will address the major building blocks for offshore wind, such as framework conditions, financial de-risking, system integration, and socio-economic benefits.

Member countries:

- Australia
- Belgium
- Colombia
- Denmark
- Germany
- Ireland
- Japan
- Netherland
- Norway
- Portugal
- Spain
- UK
- USA

28. Consider the following statements about Initiative on Climate Action and Nutrition (I-CAN)

1. It is launched by Egypt along with Global Alliance on Improved Nutrition
2. The objective is to reduce the impacts of climate change on food, diet, health, social protection, water, sanitation and hygiene (WASH) systems
3. The implementation period of this programme is for 5 years
4. India is not a member of this initiative

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: The Initiative on Climate Action and Nutrition (I-CAN) was launched by the Government of **Egypt** in partnership with GAIN, World Health Organization (WHO), FAO, other UN agencies, and various stakeholders.

Statement 2 is correct: The Initiative on Climate Action and Nutrition (I-CAN) is an effort aimed at catalyzing, mobilizing, connecting, and advocating for integrated climate and nutrition actions. It recognizes the interconnections between climate

change, food systems, and nutrition, and seeks to address the challenges posed by these issues.

The I-CAN initiative emphasizes the importance of shifting towards sustainable, climate-resilient, and healthy diets. By promoting such diets, it aims to reduce health and climate change costs by up to US\$ 1.3 trillion while supporting food security, environmental sustainability, and public health.

Through knowledge sharing, policy advocacy, and resource mobilization, I-CAN strives to inform policymaking and promote actions that address the global prevalence of malnutrition and the impacts of climate change on food, diets, health, social protection, and water, sanitation, and hygiene (WASH) systems.

Overall, the Initiative on Climate Action and Nutrition (I-CAN) seeks to integrate climate and nutrition actions to create a more sustainable and resilient future for both people and the planet.

Statement 3 is correct: The Initiative on Climate Action and Nutrition (I-CAN) is planned to be implemented over a period of **five years**. This timeframe allows for the execution of various activities, projects, and initiatives aimed at addressing climate change, food systems, and nutrition challenges in the participating countries.

Statement 4 is incorrect: India is a member of the Initiative on Climate Action and Nutrition (I-CAN). The initiative involves collaboration among various countries, organizations, and stakeholders to address the interconnected challenges of climate change, food systems, and nutrition. India's participation in I-CAN reflects its commitment to promoting sustainable development, addressing climate change issues, and improving nutrition outcomes.

29. Consider the following statements about Methane Alert and Response System (MARS)

1. MARS is a first global satellite based Methane detection and response system
2. It was launched during the COP27 and being operational in January 2023
3. Major components of this system are Detection, Notification, Response and Tracking progress of action



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4. Major 3 emitters of Methane i.e USA, China and India are not part of this Initiative

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: The Methane Alert and Response System (MARS) is the first global satellite detection and notification system that provides actionable data on very large methane emissions. It is designed to be highly collaborative between the United Nations Environment Programme (UNEP), governments, and companies. MARS connects methane detection to notification processes, promoting transparent, on-the-ground mitigation efforts. It has a unique global database of methane emissions and can notify governments and stakeholders about methane plumes. The system has already notified governments of 127 plumes spanning four continents and identified 1,500 plumes in its database. More details about the MARS process can be found in the Frequently Asked Questions section on the UNEP website.

Statement 2 is correct: It is a data-to-action initiative with the mission to put open, reliable, and actionable data into the hands of individuals who can reduce methane emissions. It was announced at the Conference of Parties (COP 27) in November 2022 and began its initial pilot phase in January 2023.

Statement 3 is correct: MARS brings together four critical components to drive transparency and enable emission reductions:

- Detection of large sources of human-caused methane emissions.
- Notification of relevant countries and companies about these detected emissions.
- Response from notified stakeholders to address the emissions.
- Tracking progress of actions taken to reduce emissions and collaboration to prevent future methane.

Statement 4 is incorrect: The top 3 emitters of Methane i.e USA, China and India be a part of this initiative.

30. Consider the following statements about International Drought Resilience Alliance (IDRA)

1. It is joint initiative of Spain and Senegal launched during the COP27
2. The objective is to give political impetus to make the land's resilience to draughts and climate change a reality by 2030
3. A seed fund of five million was announced by India
4. India is a member of this initiative since its inception

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: Spain and Senegal led 30 countries and 20 organisations to launch the International Drought Resilience Alliance (IDRA) at the COP27 to the UNFCCC at Sharm El-Sheikh.

Statement 2 is correct: The International Drought Resilience Alliance (IDRA) is a global coalition that aims to address the impacts of drought on food, water, energy security, forced migration, and natural resource conflicts. It was launched by Spain at the 77th session of the UN General Assembly in 2022. The mission of the alliance is to give political impetus to make the land's resilience to drought and climate change a reality by 2030. The IDRA is the first global coalition creating political momentum and mobilizing financial resources to combat drought and build resilience.

Statement 3 is incorrect: Political commitments include a five million Euro (Rs 40.76 crore) seed fund by Spain. Kenya made a commitment to plant five billion trees in the next five years and 10 billion trees in 10 years.

Statement 4 is correct: India is a member of the International Drought Resilience Alliance (IDRA). The IDRA is a global coalition that aims to address the impacts of drought on food, water, energy security, forced migration, and natural resource conflicts. India's participation in this initiative demonstrates its commitment to combating drought and building resilience.



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31. Which of the following countries launched the Mangrove Alliance for Climate Change (MAC)

- (a) India + USA
- (b) India + Indonesia
- (c) Indonesia+ Egypt
- (d) Indonesia + UAE

Ans: d (Indonesia + UAE)

Explanation: Spearheaded by the UAE in partnership with Indonesia, MAC was launched at the COP27 Summit in Egypt to scale up and accelerate the conservation and restoration of the mangrove forests.

The Mangrove Alliance for Climate Change is an initiative that aims to amplify ecosystem services from mangroves to mitigate and combat climate change through innovation and research. It seeks to enhance the protection of mangrove forests and spread awareness worldwide about the role of mangroves in curbing global warming. Studies have shown that mangrove forests can absorb four to five times more carbon emissions than landed tropical forests. The alliance is intergovernmental and does not have any binding targets. India holds around 3 percent of South Asia's mangrove population. India is a active member of this alliance.

32. Consider the following statements about Wildlife Protection (Amendment) Act: 2021

1. It reduced the number of schedules for protected animals from 4 to 2
2. It created a scientific authority to grant export and import permits for trade in specimen
3. It empowers the central government to declare any area adjacent to protected area as conservation reserve
4. It provided incentive mechanism to surrender any captive animals/species

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: Rationalising schedules: Currently, the Act has six schedules for specially protected plants (one), specially protected

animals (four), and vermin species (one). Vermin refers to small animals that carry disease and destroy food. The Bill reduces the total number of schedules to four by: (i) reducing the number of schedules for specially protected animals to two (one for greater protection level), (ii) removes the schedule for vermin species, and (iii) inserts a new schedule for specimens listed in the Appendices under CITES (scheduled specimens).

Statement 2 is incorrect: Obligations under CITES:

The Bill provides for the central government to designate a: (i) Management Authority, which grants export or import permits for trade of specimens, and (iii) Scientific Authority, which gives advice on aspects related to impact on the survival of the specimens being traded. Every person engaging in trade of a scheduled specimen must report the details of the transaction to the Management Authority. As per CITES, the Management Authority may use an identification mark for a specimen. The Bill prohibits any person from modifying or removing the identification mark of the specimen. Additionally, every person possessing live specimens of scheduled animals must obtain a registration certificate from the Management Authority.

Statement 3 is correct: Conservation

reserves: Under the Act, state governments may declare areas adjacent to national parks and sanctuaries as a conservation reserve, for protecting flora and fauna, and their habitat. The Bill empowers the central government to also notify a conservation reserve.

Statement 4 is incorrect: Surrender of captive

animals: The Bill provides for any person to voluntarily surrender any captive animals or animal products to the Chief Wild Life Warden. No compensation will be paid to the person for surrendering such items. The surrendered items become property of the state government.

33. Which of the following statement is correct with respect to Aarhus convention

- (a) It aimed to address pollutants that cause acidification, eutrophication and groundlevel ozone



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- (b) It aimed to empower people with the rights to access information, participate in decision-making in environmental matters and seek justice
- (c) It aimed to protect human health and wellbeing through better water management
- (d) It aimed to reduce air pollution through the Convention on Long-range Transboundary Air Pollution

Ans: b (It aimed to empower people with the right to access information, participate in decision making in environmental matters and seek justice)

Explanation: The Aarhus Convention protects every person's right to live in a healthy environment. It guarantees the public three key rights on environmental issues.

- Access to information refers to the public's right to receive environmental information held by public authorities. This includes information on
 - ✓ The state of the environment
 - ✓ Policies or measures affecting the environment
 - ✓ Public health, and safety where these are affected by the state of the environment
- Public participation refers to the public's right to participate in environmental decision-making. Public authorities are required to allow the general public and environmental NGOs to meaningfully participate in decision-making regarding projects affecting the environment and plans and programs relating to the environment.
- Access to justice refers to the public's right to review by a court or another independent body to ensure that public authorities respect the rights to access to information and public participation and environment law in general.

34. Consider the following statements about reasons for land degradation

1. Over-grazing
2. Over irrigation
3. Growing thorny bushes
4. Mining and Quarrying

5. Mineral processing

6. Industrial effluents

How many statements given above are correct?

(a) All the above except one

(b) All the above except two

(c) All the above except three

(d) All the above except four

Ans: a (All the above except one)

Explanation: Land degradation is the deterioration or loss of the productive capacity of the soils for the present and future, and it is a global challenge that affects everyone through food insecurity, higher food prices, climate change, environmental hazards, and the loss of biodiversity and ecosystem services. Land degradation is happening at an alarming pace, contributing to a dramatic decline in the productivity of croplands and rangelands worldwide. The causes of land degradation, with a few examples, are,

- In states like Gujarat, Rajasthan, Madhya Pradesh, and Maharashtra, overgrazing is one of the main reasons for land degradation.
- In the states of Punjab, Haryana, and western Uttar Pradesh, over-irrigation is responsible for land degradation due to water logging leading to an increase in salinity and alkalinity in the soil.
- Mining and quarrying have contributed significantly to land degradation. Mining sites are abandoned after excavation work is complete leaving deep scars and traces of over-burdening. In states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha, deforestation due to mining has caused severe land degradation.
- Mineral processing, like the grinding of limestone for the cement industry and calcite and soapstone for the ceramic industry, generates huge quantities of dust in the atmosphere. It retards the process of infiltration of water into the soil after it settles down on the land.
- Industrial effluents as waste have become a major source of land and water pollution in many parts of the country in recent times.

But, measures such as afforestation and proper management of grazing can help to some extent to



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restore the land. Planting of shelter belts of plants, control of grazing, and stabilization of sand dunes by growing thorny bushes are some of the methods to check land degradation in arid areas. Proper management of waste lands, control of mining activities, and proper discharge and disposal of industrial effluents and wastes after treatment can reduce land and water degradation in industrial and suburban areas. Thus, growing thorny bushes will help to check the land degradation as a measure but not as a cause of it.

35. Consider the following statements about Food Safety and Standards Authority of India (FSSAI)

1. In India, food companies cannot manufacture or sell any food products or food ingredients derived from genetically modified organisms without prior approval of the Food Safety Authority of India.
2. Import of soybean and canola oils derived from genetically modified soybean and canola is not allowed in India

Which of the statements given above are correct?

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

Ans: a (Only 1)

Statement 1 is correct: The Food Safety and Standards Authority of India (FSSAI) has proposed Food Safety and Standards (Genetically Modified Foods) Regulations, 2022 will apply to Genetically Modified Organisms (GMOs) intended for food use and also proposed a mandatory prior approval from the regulator to manufacture, sell and import food or ingredients produced from genetically-modified organisms. In India, Food companies cannot manufacture or sell any food products or food ingredients derived from genetically modified organisms (GMOs) without prior approval of the Food Safety and Standards Authority of India (FSSAI).

Statement 2 is incorrect: India imports about 55,000 metric tonnes of canola oil, largely from GM canola seeds, and nearly 2.8 lakh tonnes of soybean oil, largely composed of GM soybean oil. India has

approved only Bt cotton (*Bacillus thuringiensis*) biotech crop for commercial cultivation. However, importing soyabean and canola oils derived from GM soyabean and canola, besides some food ingredients from microbial biotechnology, has been allowed.

36. Consider the following statements about Genetic Engineering Appraisal Committee

1. It is a statutory body constituted under the rules made under Environment Protection Act: 1986
2. Clearance of the Genetic Engineering Appraisal Committee is mandatory for the environmental release of Genetically Modified crops.
3. Secretary to the Department of Atomic Energy shall be a member of it
4. State Biotechnology Coordination Committee has the power inspect, investigate and take punitive action for any violation of this rules

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Statement 1 is correct: The Genetic Engineering Appraisal Committee (GEAC) is the statutory committee that functions under the Ministry of Environment, Forests & Climate Change and is constituted under the “Rules for the Manufacture, Use/Import/Export and Storage of Hazardous Micro Organisms/Genetically Engineered Organisms or Cells (Rules, 1989)” framed under Environment (Protection) Act, 1986.

Statement 2 is correct: Clearance of the Genetic Engineering Appraisal Committee (GEAC) is mandatory for the environmental release of Genetically Modified (GM) crops and the Approval of the GEAC is mandatory for commercial cultivation. Bt cotton is the only GM crop that has been approved for commercial cultivation in India.

Statement 3 is correct: (4) Genetic Engineering Approval Committee (GEAC)



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This committee shall function as a body under the Department of Environment Forests and Wildlife for approval of activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle. The Committee shall also be responsible for approval of proposals relating to release of genetically engineered organisms and products into the environment including experiment Field trials.

The composition of the Committee shall be

(i) Chairman-Additional Secretary Department of Environment Forests and Wild life Co-Chairman Representative of Department of Bio-technology

(ii) Members: Representatives of concerned Agencies and departments namely Ministry of Industrial Development, Department of Biotechnology and the Department of Atomic Energy.

(iii) Expert members: Director General-Indian Council of Agricultural Research, Director General-Indian Council of Medical Research, Director General-Council of Scientific and Industrial Research, Director General Health Services, Plant Protection Adviser, Directorate of Plant Protection, Quarantine and storage, Chairman, Central Pollution Control Board and three outside experts in individual capacity.

(iv) Member Secretary: An official of the Department of Environment, Forest and Wildlife.

Statement 4 is correct: (5) State Biotechnology Co-ordination Committee (SBCC).

There shall be a State Biotechnology Coordination Committee in the States wherever necessary. It shall have powers to inspect, investigate and take punitive action in case of violations of statutory provisions through the Nodal Department and the State Pollution Control Board/Directorate of Health/Medical Services. The Committee shall review periodically the safety and control measures in the various industries/institutions handling genetically engineered Organisms/Hazardous microorganisms.

37. Consider the following statements about Cartagena Protocol

1. Each party to the Protocol is required to protect confidential information received under the Protocol
2. It does not address the obligations of Parties in relation to the transboundary movements of living modified organisms to and from non-Parties to the Protocol.
3. It covers living modified organisms that are pharmaceuticals for humans, even if they are covered by other international agreements.

Which of the statements given above are incorrect?

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

Ans: c (2 and 3 only)

Statement 1 is correct: Each Party in the Cartagena Protocol shall protect confidential information received, and any confidential information received in the context of the advance informed agreement procedure of the Protocol is also protected. It should also be noted that once information is made available to the Bio safety Clearing-House (BCH) under Article 20 and other provisions of the Protocol, it will not be considered confidential as the objective is to make this information publicly available.

Statement 2 is incorrect: The Protocol addresses Parties' obligations in relation to the transboundary movements of living modified organisms to and from non-Parties to the Protocol. The transboundary movements between Parties and non-Parties must be carried out consistent with the Protocol's objective.

Statement 3 is incorrect: The scope of the Protocol does not cover the Living modified organisms that are pharmaceuticals for humans if other international agreements or arrangements cover them. The Protocol applies to the transboundary movement, transit, handling and use of all living modified organisms that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health.

38. Which of the following projects are exempted from Forest (Conservation) Amendment Bill 2022

1. National Security projects
2. Boarder infrastructure projects



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3. Plantation on palm and oil bearing trees
4. Oil exploration
5. Wildlife tourism

How many statements given above are correct?

- (a) All the above
- (b) All the above except one
- (c) All the above except two
- (d) All the above except three

Ans: a (All the above)

Statement 1 is correct: The FCR is the principal legislation that regulates deforestation in the country. It prohibits the felling of forests for any “non-forestry” use without prior clearance by the central government. The Forest (Conservation) Act 1980 (FCA) has been amended with some proposed projects. Forest (Conservation) Rules, 2022, have been promulgated to implement the provisions of the Forest (Conservation) Act, 1980. Forest Conservation Rules prescribe the procedure to be followed for forest land to be used for nonforestry purposes. States may grant forest clearance for strategic / security projects with the proposed Section 2A may empower the central government to approve state government projects on forest land for strategic or security projects of national importance. The exemption is subject to terms and conditions laid down by the central government.

Statement 2 is correct: The Ministry of Environment, Forest and Climate Change has proposed to “grant exemptions of Border infrastructure projects like road construction and highway developments, railways. Land acquired by the railways for establishing a rail line or a road by a government agency before 1980 would be exempted from seeking a forest clearance if they put the land to the same use for which it was acquired. This provision is proposed under section 1A. The exemption is subject to terms and conditions that the central government will lay down through guidelines, which include planting trees to compensate for the loss of forests.

Statement 3 is correct: The Ministry of Environment, Forest and Climate Change has proposed to “grant exemptions under the new section 2 proposes to exempt plantation of native species of

palm and oil-bearing trees from the definition of “non-forest purpose.”

Statement 4 is correct: The Ministry of Environment, Forest and Climate Change has proposed to “grant exemptions with new section 1A, of FCA on forest land that is “used for underground exploration and production of oil and natural gas through Extended Reach Drilling (ERD) originating outside forest land.”

Statement 5 is correct: The proposed amendment claims to add “forest and wildlife training infrastructure” and the “establishment of zoos and safaris” managed by the government or any authority under the Wildlife Protection Act 1972. It may also add ecotourism facilities approved under the Forest Working Plan or Working Scheme approved by the central government. Therefore, The Ministry of Environment, Forest and Climate Change has proposed Exemptions to wildlife tourism and training infrastructure.

39. Consider the following pairs about the recently added Ramsar sites and their location

Ramsar Site	State/Location
Karaivetti bird sanctuary	Karnataka
Longwood Shola reserve forest	Tamil Nadu
Magadi Kere conservation reserve	Maharashtra
Ankasamudra Bird Conservation reserve	Andhra Pradesh

How many pairs given above are correctly matched?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: a (Only one)

Pair 1 is incorrectly matched: Karaivetti bird sanctuary is located in Tamil Nadu

Pair 2 is correctly matched: Longwood shoal reserve forest is located in Tamil Nadu

Pair 3 and 4 are incorrectly matched: Magadi Kere Conservation Reserve, Ankasamudra Bird Conservation Reserve and Aghanashini Estuary in Karnataka.



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40. Consider the following statements about World Wide Fund for Nature (WWF)

1. It is conceived to act as an international fund raising organisation to support the work of existing conservation organisations
2. Annual Living planet report is released by it
3. It organises the Earth Hour Movement globally
4. Debt for Nature Swap, provides the exemptions from all external debt liability of small island states in lieu of environment conservation

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: World-Wide Fund for Nature (WWF) is the world's largest independent conservation organization which works to sustain the natural world for the benefit of people and wildlife. WWF aims to "stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

The WWF was conceived to act as an international fundraising organisation to support the work of existing conservation groups, primarily the International Union for Conservation of Nature. Its establishment was marked with the signing of the Morges Manifesto, the founding document that sets out the fund's commitment to assisting worthy organizations struggling to save the world's wildlife.

Statement 2 is incorrect: The Living Planet Report has been published by World-Wide Fund for Nature (WWF) since 1998. It is published every two years. World-Wide Fund for Nature's Living Planet Report has been tracking the state of nature globally.

Statement 3 is correct: Earth Hour is a global event that was Started in 2007 which was organized by the World-Wide Fund for Nature and is held on the last Saturday of March annually, is encouraged people around the world to turn off their non-essential lights and other electrical appliances for one hour to raise awareness towards the need to take action on climate change. Earth Hour engages supporters from more

than 190 countries, all taking action to ensure a brighter future for people and the planet.

Statement 4 is incorrect: Debt-for-nature swaps are financial transactions in which a portion of a developing nation's foreign debt is forgiven in exchange for local investments in environmental conservation measures.

41. Consider the following statements about International Union for Conservation of Nature (IUCN)

1. Its members meet every two years at the IUCN World Conservation Congress
2. IUCN Red list Provides Global risk status of animals, fungus and plant species
3. Restricted geographical area is one of the criteria to include any specie into IUCN list
4. Extinct in the wild is included under the Threatened category of IUCN

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is incorrect: IUCN convenes every four years for the IUCN World Conservation Congress, where its Members set the global conservation agenda by voting on recommendations and guide the Secretariat's work by passing resolutions and the IUCN Programme.

Statement 2 is correct: Established in 1964, the International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global extinction risk status of animal, fungus and plant species.

Statement 3 is correct: Species are assessed against five criteria based on geographic range, population size and population decline/increase, in addition to extinction probability analyses. These criteria determine which category is most appropriate for the species.

Statement 4 is incorrect: Vulnerable, Endangered and Critically Endangered are listed under Threaten category of IUCN.



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42. Consider the following statements about Convention on Conservation of Migratory Species (CMS)

1. It is the only global convention specialising in the conservation of migratory species, their habitats and migration routes.
2. The theme for the 2024 conference of parties to CMS is 'Nature knows No Borders'
3. Palla's cat has been included into the convention during the COP14 summit meeting

Which of the statements given above are correct?

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

Ans: d (1, 2 and 3)

Statement 1 is correct: Convention on Migratory species also called as Bonn Convention under the aegis of United Nation Environment Programme (UNEP). It is environmental treaty of the UN that provides a global platform for the conservation and sustainable use of migratory animals and their habitats. As the only global convention specializing in the conservation of migratory species, their habitats and migration routes, CMS complements and co-operates with a number of other international organizations, NGOs and partners in the media as well as in the corporate sector.

Statements 2 & 3 are correct: Among the measures agreed: the addition of 14 additional species to the coverage of the Convention, including the Eurasian Lynx, Pallas's Cat and Sand Tiger Shark. Other measures were adopted to safeguard species such as the chimpanzee and giraffe. CMS COP14 opens under the slogan, "Nature Knows No Borders".

43. Consider the following statements about Animal Welfare Board of India

1. It is constituted under Wildlife Protection Act 1972
2. All experiments on animals except for developing vaccines/medicines to any deadly disease are prohibited
3. Inspector General of Forest is an ex-officio member of Animal Welfare Board of India

4. Registration with the central government is mandatory to exhibit or to make a performance with any animal

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is incorrect: The Animal Welfare Board of India is a statutory body established in 1962 under Section 4 of the Prevention of Cruelty to Animals Act, 1960 (No. 59 of 1960), functioning under the aegis of the Ministry of Fisheries, Animal Husbandry and Dairying (MoFAH&D). The mandate of the Board is to promote animal welfare generally and to protect animals from being subjected to unnecessary pain or suffering.

Statement 2 is incorrect: Section 14 of Prevention of Cruelty to Animals Act: Experiments on animals.—Nothing contained in this Act shall render unlawful the performance of experiments (including experiments involving operations) on animals for the purpose of advancement by new discovery of physiological knowledge or of knowledge which will be useful for saving or for prolonging life or alleviating suffering or for combating any disease, whether of human beings, animals or plants.

Statement 3 is correct: 4. Establishment of Animals Welfare Board of India.—(1) For the promotion of animal welfare generally and for the purpose of protecting animals from being subjected to unnecessary pain or suffering, in particular, there shall be established by the Central Government, as soon as may be after the commencement of this Act, a Board to be called the 3 [Animal Welfare Board of India]. (2) The Board shall be a body corporate having perpetual succession and a common seal with power, subject to the provisions of this Act, to acquire, hold and dispose of property and may by its name sue and be sued. 5. Constitution of the Board.—(1) The Board shall consist of the following persons, namely:— (a) the Inspector-General of Forests, Government of India, ex officio; (b) the Animal Husbandry Commissioner to the Government of India, ex officio etc.



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Statement 4 is correct: Section 22 of Prevention of Cruelty to Animals act provides that Restriction on exhibition and training of performing animals.—No person shall exhibit or train— (i) any performing animal unless he is registered in accordance with the provisions of this Chapter; (ii) as a performing animal, any animal which the Central Government may, by notification in the Official Gazette, specify as an animal which shall not be exhibited or trained as a performing animal.

44. Consider the following statements about the characteristics of Ecological Succession

1. Increased niche development
2. Increased diversity of organisms
3. Increased complexity of food webs
4. Increased productivity

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Explanation: Succession is a universal process of directional change in vegetation, on an ecological time scale. It occurs when a series of communities replace one another due to large scale destruction either natural or manmade. It is a progressive series of changes which leads to the establishment of a relatively stable climax community. Succession is characterised by the following:

- ✓ Increased productivity
- ✓ The shift of nutrients from the reservoirs
- ✓ Increased diversity of organisms with increased niche development, and
- ✓ A gradual increase in the complexity of food webs.

Thus all of the above are characteristics of succession.

45. Consider the following statements about Ecological Succession

1. Pioneer species are those which dominate the ecosystem
2. Climax community is the final stage in the ecological succession

3. When primary succession starts from the wet land or hydric conditions it is known as Xerach

Which of the statements given above is/are incorrect?

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

Ans: b (1 and 3 only)

Statement 1 is incorrect: Pioneer species is one that first colonizes an area after disturbance. A community begins with the invasion of pioneer species. These pioneer species are succeeded by other advanced species giving rise to complex ecosystem

Statement 2 is correct: A climax community is the final stage in ecological succession. The climax community is characterised by dominant species. These species can't be replaced by any other species.

Statement 3 is incorrect: Depending on the place of origin, primary succession can be Hydrarch and many more types. Hydrarch, when succession starts form wet conditions or hydric conditions. And Xerarch when the succession starts from dry areas or xeric conditions

46. Consider the following pairs about the different zones in fresh water ecosystem

Name of the Zone	Spread/Zone
Littoral Zone	Very close to shore
Limnetic Zone	Open and well-lit area of freestanding water body
Profound Zone	Lowest Ecological zone
Benthic Zone	Located just below the range of effective light penetration

How many of the above pairs are correctly matched?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Pair 1 is correctly matched: The littoral zone, also called litoral or nearshore, is the part of a sea, lake, or river that is close to the shore. In coastal ecology, the littoral zone includes the intertidal zone extending from the high water mark (which is rarely inundated), to coastal areas that are permanently submerged

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known as the foreshore and the terms are often used interchangeably.

Pair 2 is correctly matched: The limnetic zone is the open and well-lit area of a freestanding body of freshwater, such as a lake or pond. Not included in this area is the littoral zone, which is the shallow, near-shore area of the water body.

Pair 3 is incorrectly matched: The profundal zone is a deep zone of an inland body of freestanding water, such as a lake or pond, located below the range of effective light penetration. This is typically below the thermocline, the vertical zone in the water through which temperature drops rapidly. The temperature difference may be large enough to hamper mixing with the littoral zone in some seasons which causes a decrease in oxygen concentrations. The profundal is often defined, as the deepest, vegetation-free, and muddy zone of the lacustrine benthal.

Pair 4 is incorrectly matched: The benthic zone is the lowest ecological zone in a water body, and usually involves the sediments at the seafloor. These sediments play an important role in providing nutrients for the organisms that live in the benthic zone.

47. Consider the following statements about the Layers of the Ocean

1. Epipelagic zone is the top most layer of the ocean
2. Mesopelagic zone is where temperature decrease rapidly with increasing depth
3. Abysspelagic zone is the bottom most layer of the ocean
4. Hadalpelagic zone is the zone where no organism is found

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

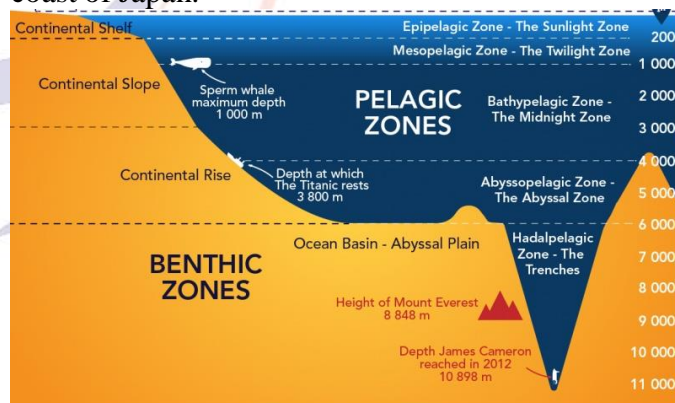
Statement 1 is correct: This surface layer is also called the sunlight zone and extends from the surface to 200 meters (660 feet). It is in this zone that most of the visible light exists. With that sunlight comes heat from sun, which is responsible for wide

variations in temperature across this zone, both with the seasons and latitudes - sea surface temperatures range from as high as 97°F (36°C) in the Persian Gulf to 28°F (-2°C) near the North Pole.

Statement 2 is correct: Below the epipelagic zone is the mesopelagic zone, extending from 200 meters (660 feet) to 1,000 meters (3,300 feet). The mesopelagic zone is sometimes referred to as the twilight zone or the midwater zone, as sunlight at this depth is very faint. Temperature changes are the greatest in this zone because it contains the thermocline, a region where water temperature decreases rapidly with increasing depth, forming a transition layer between the mixed layer at the surface and deeper water.

Statement 3 is incorrect: The Abyssopelagic Zone (or abyssal zone) extends from 4,000 meters (13,100 feet) to 6,000 meters (19,700 feet). It is the pitch-black bottom layer of the ocean. The water temperature is constantly near freezing, and only a few creatures can be found at these crushing depths.

Statement 4 is incorrect: The deepest zone of the ocean, the hadalpelagic zone extends from 6,000 meters (19,700 feet) to the very bottom, 10,994 meters (36,070 feet) in the Mariana Trench off the coast of Japan.



48. Consider the following statements about Nitrifying process

1. This process involves conversion of soil ammonia into nitrates
2. Nitrosomonus bacteria converts the ammonia into nitrite
3. Nitrite components are toxic to plants



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4. Nitrites are converted into Nitrate by Nitrobacter bacteria

How many of the above statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Statement 1 is correct: Nitrifying bacterium, any of a small group of aerobic bacteria (family Nitrobacteraceae) that use inorganic chemicals as an energy source. They are microorganisms that are important in the nitrogen cycle as converters of soil ammonia to nitrates, compounds usable by plants.

Statement 2 is correct: The nitrification process requires the mediation of two distinct groups of bacteria one such is Nitrosomonas that convert ammonia to nitrites.

Statement 3 is correct: Nitrite components are toxic for plants because nitrite instability usually does not allow conversion of ammonia into nitrate by forming another layer of conversion.

Statement 4 is correct: Nitrobacter is used to convert the Nitrite into Nitrate.

49. Prosopis juliflora, Lantana Camera and Cassia Uniflora are recently seen news are?

- (a) Invasive alien species
- (b) New variant of zoonotic viruses
- (c) New mangrove species found in India
- (d) Rare bird species

Ans: a (Invasive alien species)

Explanation: Some of the invasive species found in India are: Alternanthera philoxeroides, Cassia uniflora, Chromolaena odorata, Eichhornia crassipes, Lantana camara, Parthenium hysterophorus, Prosopis juliflora and others.

50. Consider the following statements about the biodiversity hotspots

1. The term bio-diversity hotspot was first coined by Norman Myers in 1988
2. The region should have at least 1500 endemic species of vascular plants

3. It must have lost 70% of original native habitat

4. India is a home to 6 bio-diversity hotspots

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: The term 'biodiversity hotspot' was coined by Norman Myers (1988) who recognized 10 tropical forests as "hotspots" according to the level of plant endemism and high level of habitat loss. It, however, did not have any quantitative criteria for designating a region's as ecological hotspot.

Statement 2 & 3 is correct: The Conservation International (CI) associated with Myers made the first systematic update of the hotspots.

CI then introduced the following two strict quantitative criteria, for a region to qualify as a hotspot:

- It should contain at least 1,500 species of vascular plants (> 0.5% of the world's total) as endemics.
- It must have lost $\geq 70\%$ of its original native habitat.

Statement 4 is incorrect: India is home to 4 bio-diversity hotspots. They are

- The Himalayas
- Indo-Burmese region
- The Western ghats
- Sundaland.

51. Consider the following statements about the Biodiversity

1. Simpson's diversity index take into account both species richness and evenness
2. Alpha diversity looks into species variety over whole geographical area
3. Beta diversity describe the species diversity between two communities or ecosystems
4. Gamma diversity specify the species uniqueness over a small habitat or ecosystem

How many of the above statements are correct?

- (a) Only one



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- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: Simpson’s diversity index: It is a measure of diversity which takes into account the number of species present and relative abundance of each species i.e as species richness and evenness increases diversity will always increase.

Species richness is a measure of the number of different types of species in an ecosystem. A large number of different species in a habitat represents a higher species richness, and an overall more diverse ecosystem. Species evenness is a measure of the relative abundance of each species.

Statement 2 is incorrect: It is calculated by counting the number of taxa (typically species) present in a given region, community, or ecosystem. Consider a mountain slope, there will be a variety of woodland and grassland areas on this hillside. Alpha diversity refers to the variety of species found in each forest or grassland area on the slope.

Statement 3 is correct: It is the number of species unique to each environment that is used to calculate species diversity between two nearby ecosystems. Considering the above slope example, the species diversity between any two patches and their communities in that particular slope represents beta diversity.

Statement 4 is incorrect: Gamma diversity refers to the habitat variety over the whole landscape or geographical area. In the example of the slope, the species variety along the full range of the mountain slope is referred to as the gamma diversity of the landscape.

52. Consider the following statements about Biome

1. Biomes are large areas of land that is classified based on climate, temperature, precipitation etc
2. There are 8 terrestrial biomes in the world
3. Biome and Niche words can be used interchangeably
4. Tropical deciduous forest is the largest Biome in India

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: A biome is a large area of land that is classified based on the climate, plants and animals that make their homes there. **Biomes contain many ecosystems within the same area.** Land-based biomes are called terrestrial biomes. Water-based biomes are called aquatic biomes. Temperatures, precipitation amounts and prevalent organisms characterize the biomes of the world.

Statement 2 is incorrect: There are various types of biomes, the exact number of biomes in this world is still not known and keep on varying.

Statement 3 is incorrect: Biome represents the geographical area required for survival of specific organisms, whereas the Niche represents the function role played by each organism in an ecosystem

Statement 4 is correct: Being a tropical country (a country that lies in the zone between the Tropic of Cancer and the Tropic of Capricorn), the tropical deciduous forest is the most widespread in India; around 65.6% of the total forests in India is covered with tropical deciduous forests.

53. Consider the following statements about the Hydroponic cultivation

1. It completely eliminate the requirement of soil for plants growth
2. The growing media would be vermiculite, coconut coir and perlite etc
3. Sunlight or artificial light or combination of both can be used to promote the plants growth
4. Initial cost of installation is higher than that of conventional agriculture

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Statement 1 is correct: Hydroponic crops are based on a practice that does away with soil and in its place uses a solution of water enriched with nutrients,



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among other alternatives. By using few resources, and it is seen as more sustainable solution than traditional agriculture

Statement 2 is correct: In hydroponic crops, the plants draw the nutrients from the solution, but they still need a support and the roots have to be sufficiently aerated. Some of the most widely-used substrates are:

Perlite, pumice or vermiculite: very light and porous stones that retain water but allow air to circulate through the roots.

Rice husk, wood fibre or wool: these break down slowly, but they are very efficient in keeping the roots aerated.

Rock wool: this is obtained by melting basalt rock and obtaining filaments that form a kind of sponge that does not break down.

Statement 3 is correct: Lighting: Sunlight, artificial light, or a combination of both can be used to maximise yield. In recent years the use of LED lights has increased due to their low consumption.

Statement 4 is correct: The initial cost of the hydroponic crop installation is higher than that of conventional agriculture. Micro-organisms, such as bacteria and moulds, can contaminate the water and cause diseases that attack the plants. Furthermore, without soil as a barrier, these diseases can spread rapidly to the entire system through the water.

54. Consider the following statements about the National Live Stock Mission

1. It is started in 2014-15 by the Ministry of Agriculture
2. Employment generation and increasing per animal productivity are main objectives of the scheme
3. Self Help Groups are being promoted with incentives to set up breed development plants
4. Animal Husbandry Infrastructure Development Fund (AHIDF) as a central sponsored component to support animal husbandry industry

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three

(d) All four

Ans: b (Only two)

Statement 1 is incorrect: National Livestock Mission (NLM) launched in financial year 2014-15 seeks to ensure quantitative and qualitative improvement in livestock production and capacity building of all stakeholders. The scheme was implemented as a sub scheme of White Revolution - Rashtriya Pashudhan Vikas Yojana since April 2019. In view of the present need of the sector the NLM scheme has been revised and realigned from FY 2021-22. It is being launched and implementing by Department of Animal Husbandry and Dairying

Statement 2 is correct: Employment generation through entrepreneurship development in small ruminant, poultry and piggery sector & Fodder sector. Increase of per animal productivity through breed improvement are main objectives of this scheme

Statement 3 is correct: Sub-mission on Breed Development of Livestock and Poultry - Proposes to bring sharp focus on entrepreneurship development and breed improvement in poultry, sheep, goat and piggery by providing the incentives to the Individual, FPOs, FCOs JLGs, SHGs, Section 8 companies for entrepreneurship development and also to the State Government for breed improvement infrastructure.

Statement 4 is incorrect: Animal Husbandry Infrastructure Development Fund (AHIDF) is a central sector scheme and no state wise and UT wise allocation of funds is done for the scheme. The application is received online on ahidf.udyamimitra.in and the entire process from application to disbursement of loan is through online portal. Total funds allocated under the Animal Husbandry Infrastructure Development Fund in current year i.e., 2021-2022 is Rs 113.00 Crore and total funds utilized under the Animal Husbandry Infrastructure Development Fund in current year is Rs. 62.42 Crore till date

55. Consider the following statements about the criteria for designating an area as Biosphere Reserve

1. A site must have a protected and minimally disturbed core area
2. Core area must be large enough to support viable populations at all trophic level



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EXPLANATION

3. At least 100 rare and endangered species
4. Area with a potential to preserve traditional tribal or rural way of life for harmonious use of environment

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Explanation: Primary Criteria

- A site must have a protected and minimally disturbed core area of conservation value.
- It should include more land and water suitable for research and demonstration of sustainable research and management methods.
- The core area must be a bio-geographical unit large enough to support viable populations at all trophic levels.

Secondary Criteria

- Rare and endangered species habitats.
- Areas with a wide range of soil and microclimatic conditions, as well as indigenous biota.
- Participation of local communities and utilisation of their knowledge in biodiversity conservation.
- Areas with the potential to preserve traditional tribal or rural ways of life for the harmonious use of the environment.

56. Consider the following statements

1. Invertebrates have an exoskeleton
2. Generally vertebrates are comparatively larger than invertebrates
3. Around 95% of animal species are vertebrates

Which of the statements given above is/are correct?

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

Ans: a (1 and 2 only)

Explanation: Differences between invertebrates and vertebrates

Invertebrates	Vertebrates
---------------	-------------

Invertebrates do not possess a backbone not an internal skeleton	Vertebrates possess a backbone and an internal skeleton.
Invertebrates have an exoskeleton	Vertebrates do not possess an exoskeleton.
Body size varies but most are generally smaller than vertebrates. However, some invertebrates grow to gigantic proportions – such as the colossal squid (46 feet in length)	Generally, vertebrates are comparatively larger than invertebrates
Nearly all invertebrates possess an open circulatory system.	All vertebrates have closed circulatory systems.
A majority of invertebrates have compound eyes.	Vertebrates do not have compound eyes.
Includes radial or bilateral body symmetry.	All vertebrates have bilateral body symmetry.
Presence of a simple and unorganized nervous system.	Presence of complex and highly specialized organ systems with specific functions.
Mode of nutrition includes Autotrophic, Parasitic and Heterotrophic.	Mode of nutrition is usually heterotrophic.
95% of animal species are invertebrates.	5 % of animal species are vertebrates.
Flatworms, arthropods, sponges, insects are a few examples of Invertebrates.	Mammals, fish, reptiles, amphibians, and birds are examples of Vertebrates.

57. Consider the following pairs about the major/minor nutrients required for plants and their usage

Major/Minor Nutrient	Usage
Boron	Movement of sugar and energy into growing parts of plants
Potassium	Opening and Closing of Stomata



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EXPLANATION

Iron	Maintenance of Chloroplast structure and function
Phosphorous	Transfer of genetic characteristics from one generation to next generation

How many pairs given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Pair 1 is correctly matched: Boron plays a key role in a diverse range of plant functions including cell wall formation and stability, maintenance of structural and functional integrity of biological membranes, movement of sugar or energy into growing parts of plants, and pollination and seed set.

Pair 2 is correctly matched: The production of ATP can regulate the rate of photosynthesis. Potassium also helps regulate the opening and closing of the stomata, which regulates the exchange of water vapor, oxygen and carbon dioxide. If K is deficient or not supplied in adequate amounts, it stunts plant growth and reduces yield.

Stomata are the tiny openings present on the epidermis of leaves. We can see stomata under the light microscope. In some of the plants, stomata are present on stems and other parts of plants. Stomata play an important role in gaseous exchange and photosynthesis.

Pair 3 is correctly matched: In plants, iron is involved in the synthesis of chlorophyll, and it is essential for the maintenance of chloroplast structure and function.

A chloroplast is a type of plastid (a saclike organelle with a double membrane) that serves as the site of photosynthesis, the process by which energy from the Sun is converted into chemical energy for growth. Chloroplasts contain the pigment chlorophyll to absorb light energy.

Pair 4 is correctly matched: Phosphorus (P) is vital to plant growth and is found in every living plant cell. It is involved in several key plant functions, including energy transfer, photosynthesis, transformation of sugars and starches, nutrient

movement within the plant and transfer of genetic characteristics from one generation to the next.

58. Consider the following statements about Plants

1. Plants appear Green because their most abundant pigment is chlorophyll
2. In plants photosynthesis is reverse of cellular respiration
3. Algae, cyanobacteria produce their energy by photosynthesis process
4. All plants produce their own food through photosynthesis

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is correct: The most common molecule used for photosynthesis is chlorophyll. Plants are green because their cells contain an abundance of chlorophyll. Chlorophyll absorbs the solar energy that drives the reaction between carbon dioxide and water. The pigment appears green because it absorbs blue and red wavelengths of light, reflecting green.

Statement 2 is correct: Both photosynthesis and cellular respiration yield molecules used for energy. However, photosynthesis produces the sugar glucose, which is an energy storage molecule. Cellular respiration takes the sugar and turns it into a form both plants and animals can use.

Statement 3 is correct: Organisms that use light for the energy needed to make their own food are called producers. In contrast, consumers are creatures that eat producers to get energy. While plants are the best-known producers, algae, cyanobacteria, and some protists also make sugar via photosynthesis.

Statement 4 is incorrect: Only the plants containing chlorophyll can perform photosynthesis. There are a few plants which cannot prepare their own food and they live on other host plants as parasites and obtain their nutrients from them. Cuscuta is one such plant.

59. Consider the following statements about conservation and community reserves



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EXPLANATION

1. Conservation reserves are created for the preservation of land, sea and habitat of various flora and fauna
2. Even private property close to national park or wildlife sanctuary can be declared as part of conservation reserve
3. Community reserves are also take into customs, cultures and practises of local communities
4. No changes to the land use patterns are permitted in the community reserves

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: b (Only two)

Statement 1 is correct: It is a state-owned region close to National Parks and sanctuaries earmarked for the preservation of the land, sea, and habitat of fauna and plants.

Statement 2 is incorrect: No private property can be allowed to declared as conservation reserve, it is allowed in case of community reserve.

Statement 3 is correct: Any community or private land may be designated by the State Government as a Community Reserve provided the inhabitants of that community or the person concerned consent to provide such areas for the preservation of the local flora and fauna as well as their customs, cultures, and practises.

Statement 4 is incorrect: Within the Community Reserve, no changes to the way land is used are permitted unless they are authorised by a resolution that has been approved by both the State Government and the Management Committee.

60. Consider the following statements about the seagrasses and seaweeds

1. Seaweed transport nutrients through the internal transport system
2. Seagrasses lack stomata as like any other plant
3. Seagrasses grow in salty and brackish water where sun light levels are high
4. Antarctica is the only continent without seagrasses

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Statement 1 is incorrect: Algae or "seaweeds" differ from seagrasses in several ways. Algae on the seafloor have a holdfast and transport nutrients through the body by diffusion, while seagrasses are flowering vascular plants with roots and an internal transport system.

Statement 2 is correct: Veins of seagrasses transport nutrients and water throughout the plant, and **have little air pockets called lacunae** that help keep the leaves buoyant and exchange oxygen and carbon dioxide throughout the plant. Like other flowering plants, their roots can absorb nutrients. Unlike flowering plants on land, however, they lack stomata—the tiny pores on leaves that open and close to control water and gas exchange. Instead, they have a thin cuticle layer, which allows gasses and nutrients to diffuse directly into and out of the leaves from the water.

Statement 3 is correct: Seagrasses grow in salty and brackish (semi-salty) waters around the world, typically along gently sloping, protected coastlines. Because they depend on light for photosynthesis, they are most commonly found in shallow depths where light levels are high.

Statement 4 is correct: While most coastal regions are dominated by one or a few seagrass species, regions in the tropical waters of the Indian and western Pacific oceans have the highest seagrass diversity with as many as 14 species growing together. Antarctica is the only continent without seagrasses.

61. Consider the following statements

1. Shola grassland or forests can found only in south India
2. Nila kurinji is endemic to shoal forests
3. Lion tailed macaque is endemic to the northeast states

Which of the above statements is/are correct?

- (a) 1 and 2 only



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(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

Ans: a (1 and 2 only)

Statement 1 is correct: Sholas are the local name for patches of stunted tropical montane forest found in valleys amid rolling grassland in the higher montane regions of South India, largely in Kerala, Karnataka and Tamil Nadu. These patches of shola forest are found mainly in the valleys and are usually separated from one another by undulating montane grassland. The shola and grassland together form the shola-grassland complex or mosaic.

Statement 2 is correct: *Strobilanthes kunthiana*, known as Kurinji or Neelakurinji in Malayalam and Tamil and Gurige in Kannada, is a shrub of the bear's breeches family (Acanthaceae) that is found in the shola forests of the Western Ghats in Kerala, Karnataka and Tamil Nadu. The purplish blue flower blossoms only once in 12 years, and gave the Nilgiri Mountains range its name as nil (blue) + giri (mountains). The name Neelakurinji originates from the Malayalam language neela (blue) + kurinji (flower)

Statement 3 is incorrect: Lion tailed macaque is endemic to western ghats not to the NorthEast India.

62. Consider the following statements about the National parks and wild life sanctuary

1. No human activities are allowed in National park except agriculture and organic farming
2. A sanctuary can be upgraded to National park but not the vice versa
3. Apart from flora and fauna, a national park can have other objects that have historical/geographical significance
4. State government has the power to declare an area as a national park or wildlife sanctuary

How many of the above statements are correct?

(a) Only one

(b) Only two

(c) Only three

(d) All four

Ans: c (Only three)

Statement 1 is incorrect: Human activities are allowed to a limited extent in wildlife sanctuaries

such as agriculture and organic farming, extracting timber or collecting honey, fruits, berries, etc. However, no human activities are allowed in a national park

Statement 2 is correct: A sanctuary can be upgraded to a national park but the national park can't be degraded to wild life sanctuary

Statement 3 is correct: A national park can include apart from flora and fauna any object of historical or geographical significance

Statement 4 is correct: Yes, State government has the power to declare an area as either a national park or wild life sanctuary.

63. Consider the following statements about Wetlands

1. They are aquatic environments that are covered only with saltwater
2. They are considered as planet's natural waste water treatment facilities and carbon storing facilities
3. Wetlands can physically and chemically breakdown the bacteria
4. Sunderbans is the largest wetland in India

How many of the above statements are correct?

(a) Only one

(b) Only two

(c) Only three

(d) All four

Ans: c (Only three)

Statement 1 is incorrect: A wetland is a place in which the land is covered by water—salt, fresh, or somewhere in between—either seasonally or permanently. It functions as its own distinct ecosystem. You can recognize wetlands from other types of land or bodies of water primarily by the vegetation that has adapted to wet soil.

Statement 2 is correct: They are the planet's natural waste-water treatment facilities and carbon-storing champions. And they're crucial for food security. Between 300 million and 400 million people live close to and depend on wetlands. They support the cultivation of rice, a staple in the diet of half the world's population. They also provide flood control, clean water, shoreline and storm protection, materials, medicines, and vital habitat.



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Statement 3 is correct: Wetlands trap pollutants such as phosphorus and heavy metals in their soils, transform nitrogen into a form that's easier for plants to take in, and physically and chemically break down bacteria.

Statement 4 is correct: The largest wetland in India is the Sunderbans. Sunderban Wetland is also a part of the largest mangrove forest in the world. It consists of hundreds of islands, a maze of rivers, creeks nestled in the delta of the Ganga River and Brahmaputra on the Bay of Bengal in India and Bangladesh.

64. Consider the following statements about biogeochemical cycles

Statement I: Gaseous cycles are quick and perfect and flow of nutrients is uniform

Statement II: Sedimentary cycles are slow and less perfect as the elements get locked in the reservoir pool and go out of circulation for longer period

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

Ans: b (Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I)

Statement 1 is correct: Gaseous cycles are quick and perfect as the flow of nutrients is uniform because the reservoir pool for this cycle is atmosphere or hydrosphere

Statement II is correct: Sedimentary cycles are slow and less perfect as the elements get locked in the reservoir pool and go out of circulation for long period. Sedimentary cycles are very slow. They take a long time to complete their circulation and are considered as less perfect cycles because the reservoir pool for this cycle is Earth Crust as it is enriched with

various types of elements. This is because during recycling, nutrient elements may get locked in the reservoir pool, thereby taking a very long time to come out and continue circulation.

65. Consider the following statements about Eutrophication

- 1. Rapid growth of algae and other planktons resulting in an algal bloom
- 2. They limit the light penetration in the water body
- 3. Eutrophication can lead to hypoxia or anoxia conditions
- 4. Dead zones are the results of Eutrophication

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: d (All four)

Statement 1 is correct: Eutrophication is the gradual enrichment of an entire body of water, or sections of it, with minerals and nutrients, typically nitrogen and phosphorus. Rapid growth of algae and other planktons resulting in an algal bloom.

Statement 2 is correct: Eutrophication leads to excessive growth of algae and planktons. They limit the light penetration in the water body.

Statement 3 is correct: When they die the dissolved oxygen is depleted to decompose them and creates a hypoxic or anoxic zone or dead zones.

Hypoxic: The condition of low oxygen is known as hypoxia.

Anoxia: Water devoid of oxygen is referred to as anoxic.

Statement 4 is correct: Dead zones are low-oxygen, or hypoxic, areas in the world's oceans and lakes. Because most organisms need oxygen to live, few organisms can survive in hypoxic conditions.

66. Consider the following statements about the criteria for Ramsar site tag

- 1. It regularly supports 10,000 or more waterbirds
- 2. It regularly supports 1% of wetland dependent non-avian animal species



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EXPLANATION

3. A rare or unique example of a natural or near natural wetland type
4. It supports the plants or animals in their critical stage of life cycle

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: c (Only three)

Explanation:

- Criterion 1: "it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region."
- Criterion 2: "it supports vulnerable, endangered, or critically endangered species or threatened ecological communities."
- Criterion 3: "it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region."
- Criterion 4: "it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions."
- Criterion 5: "it regularly supports 20,000 or more waterbirds."
- Criterion 6: "it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird."
- Criterion 7: "it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity."
- Criterion 8: "it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend."
- Criterion 9: "it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species."

67. Consider the following statements

1. Carbonate compensation depth is a depth at which rate of supply of calcium carbonate from the surface is equal to the rate of dissolution
2. Lysocline is the depth at which the dissolution of calcite begins

Which of the statements given above is/are correct?

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

Ans: a (Only 1)

Statement 1 is correct: The carbonate compensation depth, or CCD, is defined as the water depth at which the rate of supply of calcium carbonate from the surface is equal to the rate of dissolution. As long as the ocean floor lies above the CCD, carbonate particles will accumulate in bottom sediments, but below, there is no net accumulation.

Statement 2 is incorrect: The lysocline is the depth at which the rate of dissolution of calcite begins to increase dramatically. The water above the lysocline is supersaturated in calcite structures (CaCO_3), but as depth and pressure increase and temperature decreases, the solubility of calcite increases.

The position of the CCD is important to the global carbon cycle because it determines how much inorganic carbon is stored in deep ocean sediments. The amount of CO_2 in the atmosphere also is interdependent with ocean productivity and the saturation state of seawater.

68. Consider the following statements about Ocean Acidification

1. Ocean acidification refers to the reduction of ocean PH levels below 7 or more
2. Calcifying organisms feel is difficulty in form their shell and coral skeletons
3. Carbon dioxide dissolves more in cold waters
4. Acidification reduces the ability of certain fish to predate

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three



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(d) All four

Ans: c (Only three)

Statement 1 is incorrect: With an average pH value of 8.2 seawater is typically slightly alkaline. This figure has dropped to 8.1 over the past 200 years. Since pH values are logarithmically compressed, this corresponds to a decline of nearly 30 percent. By 2100 the pH value of the oceans will presumably drop by another 0.3 to 0.4 units and seawater will thus become 100 to 150 percent more acidic. That does not mean the oceans are actually acidic because even at values around 7.7 they remain alkaline, but are – in relative terms – more acidic than before.

Statement 2 is correct: Carbonate ions are an important building block of structures such as sea shells and coral skeletons. Decreases in carbonate ions can make building and maintaining shells and other calcium carbonate structures difficult for calcifying organisms such as oysters, clams, sea urchins, shallow water corals, deep sea corals, and calcareous plankton.

Statement 3 is correct: Carbon dioxide dissolves especially well in cold water. That is why ocean acidification is progressing primarily in the polar regions. Acidification of the Arctic Ocean could result in less availability of aragonite, an important building block for calcareous shells, as early as in the middle of this century.

Statement 4 is correct: These changes in ocean chemistry can affect the behaviour of non-calcifying organisms as well. Certain fish's ability to detect predators is decreased in more acidic waters. When these organisms are at risk, the entire food web may also be at risk.

69. Which of the following are part of basic pattern of flow in a sedimentary cycle?

1. Sedimentation
2. Erosion
3. Mountain Building
4. Earthquake
5. Volcanic activity

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three

(d) Only four

Ans: d (Only four)

Explanation: Phosphorus, Calcium and Magnesium circulate by means of the sedimentary cycle. The elements involved in the sedimentary cycle normally does not cycle through the atmosphere but follow a basic pattern of flow. They flow through, erosion, sedimentation, mountain building, volcanic activity and biological transport through the excreta of marine birds.

The elements of the sedimentary cycle which occur as mineral deposits in various forms on the Earth surface get through erosion and sedimentation through various means. They are also exposed through volcanic activities and mountain building processes. However sometimes, they get locked through the cycle in the form of deposits in mountain building processes. There is no direct relationship of earthquake and sedimentary cycles as it is not a regular phenomenon and the exposure of minerals to the atmosphere largely depends upon the destruction of deposit sources of the minerals which is uncertain in case of earthquakes.

70. Species evenness refers to

- (a) Measure of proportion of species at a given site
- (b) The Number of species found in a community
- (c) The variety of living organisms on the earth
- (d) The variation in gene within a particular species

Ans: a (Measure of proportion of species at a given site)

Explanation: Species evenness is how evenly spread the population is across the species in an area- if you have 100 elephants and 105 lions, the population has high evenness but if you had 200 lions and 5 elephants, even though the number of animals is the same, the population is not very even. So here, there is species unevenness. Species diversity is a measure of community complexity. It is a function of both the number of different species in the community (species richness) and their relative abundances (species evenness).

71. Consider the following statements.



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1. Golan Heights is a rocky plateau in south-western Syria.
2. It is bounded by the Jordan River.
3. Israel seized the Golan Heights from Syria in 1967.

How many of the above statements is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: C

Explanation:

Statement 1 is correct. Golan Heights is a rocky plateau in south-western Syria, about 60km (40 miles) south-west of the Capital, Damascus.

Statement 2 is correct. It is bounded by the Jordan River and the Sea of Galilee on the west, Mount Hermon on the north, the seasonal Wadi Al-Ruqqād River on the east, and the Yarmūk River on the south. The Golan extends about 44 miles (71 km) from north to south and about 27 miles (43 km) from east to west at its widest point. It is roughly boat-shaped and has an area of 1,150 square kilometres.

Statement 3 is correct. Israel seized the Golan Heights from Syria in the closing stages of the 1967 Six-Day War. Most of the Syrian Arab inhabitants fled the area during the conflict.

An armistice line was established, and the region came under Israeli military control. Almost immediately, Israel began to settle the Golan.

Syria tried to retake the Golan Heights during the 1973 Middle East War. Despite inflicting heavy losses on Israeli forces, the surprise assault was thwarted.

Both countries signed an armistice in 1974, and a UN observer force has been in place on the ceasefire line since 1974. Israel unilaterally annexed the Golan Heights in 1981.

72. Consider the following statements about Global Stocktake

1. Global Stocktake was established under the Article 15 of the Paris agreement
2. One of the objective is to building resilience to climate impacts
3. It is intended to evaluate the progress on climate action on regional level

Which of the statements given above is/are incorrect?

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

Ans: b (1 and 3 only)

Statement 1 is incorrect: Established under Article 14 of the Paris Agreement, the Global Stocktake is designed “to assess the collective progress towards achieving the purpose of the Paris Agreement and its long-term goals.

Statement 2 is correct: Those goals include cutting greenhouse gas emissions to limit global temperature rise to well below 2 degrees C (3.6 degrees F) and ideally 1.5 degrees C (2.7 degrees F); building resilience to climate impacts; and aligning financial support with the scale and scope needed to tackle the climate crisis.

Statement 3 is incorrect: The Global Stocktake is intended to evaluate progress on climate action at the global level — not the national level — and identify overall gaps to achieve the Paris Agreement as well as opportunities to bridge them.

73. Consider the following sea ports:

1. Chabahar Port
2. Deendayal Port (earlier known as Kandla port)
3. Bandar Abbas Port
4. Gwadar Port

Which of the following is the correct east to west arrangement of the above sea ports?

- (a) 2-4-3-1
- (b) 2-4-1-3
- (c) 4-2-3-1
- (d) 4-2-1-3

Answer: B

Explanation:

Deendayal Port (Kandla Port): Situated in Gujarat, India.

Gwadar Port: Located in Pakistan, it is the westernmost port.

Bandar Abbas Port: Located in Iran, to the west of Deendayal Port.



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Chabahar Port: Also situated in Iran, it is the furthest west among the given ports.

74. Consider the following statements about the creation of an All-India service

1. Council of states has the special power in creating a new all India service under Article 312
2. It shall pass a resolution with effective majority to allow parliament to create a new all India service
3. Under All India Services Act: 1951, 3 more new All India Services were created
4. Any amendment to the constitution to create a new All India Service shall not be deemed to be an amendment to the constitution

How many statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: a (Only one)

Context: President Murmu calls for All India Judicial Service

Statement 1 is correct: Under Article 312: Rajya Sabha has the power to create a new All India Service Rajya Sabha reserves the right to create one or more new All India Services. They can do it by passing a resolution supported by a two-thirds majority based on national interest. Similarly, Rajya Sabha can dissolve the existing services which are used all over India.

Statement 2 is incorrect: Article 312 (1): Notwithstanding anything in Chapter VI of Part VI or Part XI, if the Council of States has declared by resolution supported by not less than two-thirds of the members present and voting that it is necessary or expedient in the national interest so to do, Parliament may by law provide for the creation of one or more all India services (including an all-India judicial service) common to the Union and the States, and, subject to the other provisions of this Chapter, regulate the recruitment, and the conditions of service of persons appointed, to any such service.

Statement 3 is incorrect: The All India Services Act: 1951 provided for the creation of three more All India

Services, namely, the Indian Engineering Service, the Indian Forest Service, and Indian Medical and Health Service. Of these, only the Indian Forest Service was created under the All India Services Act, 1951 in 1966.

Statement 4 is incorrect: Article 312 (4): The law providing for the creation of the all-India judicial service aforesaid may contain such provisions for the amendment of Chapter VI of Part VI as may be necessary for giving effect to the provisions of that law and no such law shall be deemed to be an amendment of this Constitution for the purposes of article 368. Not all the All India Services.

75. Consider the following statements about the Preamble of Indian constitution

1. Preamble had been amended only once through the 44th constitutional amendment act: 1978
2. Socialist, Secular and Integrity are the new terms were added to the constitution

Which of the statements given above are correct?

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

Ans: b (Only 2)

Context: President Murmu calls for All India Judicial Service

Statement 1 is incorrect: The Preamble has been amended only once so far, in 1976, by the 42nd Constitutional Amendment Act, 1976.

Statement 2 is correct: The amendment added three new words: Socialist, Secular and Integrity

76. Consider the following statements about 'Virvovore'

1. Virovore is an organism that eats viruses.
2. It is highly toxic and human contact is not advisable
3. It can eat itself when needed
4. They populate fresh water throughout the world

Which of the above statements are correct?

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only



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(c) 1 and 4 only

(d) 2 and 3 only

Ans: C

Researchers claimed that the first known “virovore” has been found.

Virovore is an organism that eats viruses.

Scientists found a species of Halteria – which are microscopic ciliates that populate freshwater throughout the world.

They can eat huge numbers of infectious chloroviruses.

“They’re made up of really nucleic acids, a lot of nitrogen, and phosphorus.

These organisms can sustain themselves with viruses, consuming many and growing in size.

77. Consider the following about the ‘Nilgiri Biosphere Reserve’

1. It is the first biosphere in India.
2. It has been a UNESCO World Heritage Site since July 1, 2012.
3. It is in news due to dwindling strength of the Asiatic Elephants
4. It spreads across Tamil Nadu, Karnataka and Kerala
5. The word Nilgiri is derived from the Tamil word neelam meaning blue
6. Tribal groups such as Todas are native to this reserve

Which of the above statements are correct?

- (a) 1, 2, 3 and 4 only
- (b) 2, 3, 4, 5 and 6 only
- (c) 1, 3, 4, 5 and 6 only
- (d) All of the above

Ans: D

The Nilgiri Biosphere Reserve is a biosphere reserve in the Nilgiri Mountains of the Western Ghats in South India. It is the largest protected forest area in India, spreading across Tamil Nadu, Karnataka and Kerala

Recently, it has been observed that the Asian elephant has lost most of their optimal habitat in the Nilgiri Reserve.

It is a Biosphere Reserve in the Western Ghats and Nilgiri Hill ranges of Southern India.

It is the first biosphere in India.

The reserve encompasses a total of 5,520 km² in the states of Karnataka (1,527 km²), Kerala (1,455 km²), and Tamil Nadu (2,537 km²).

Biodiversity: The NBR is rich in biodiversity and has over 100 species of mammals, 350 species of birds, 80 species of reptiles, 31 species of amphibians, 39 species of fish, 316 species of butterflies, and numerous other invertebrates.

It is also home to around 3,300 plants and 175 orchid species of which 1,232 and 8 are endemic, respectively.

It has been a UNESCO World Heritage Site since July 1, 2012.

Tribal groups such as the Badagas, Toda, Kotas, Irulla, Kurumba, Paniya, Adiyan, Edanadan Chettis, Allar, and Malayan are native to the reserve.

78. Consider the following about Sant Ravidas and his followers

1. The Sikh scripture, Guru Granth Sahib, contains forty-one of his devotional songs and poems.
2. Dr Ambedkar was also inspired by Sant Ravidas
3. He was a mystic poet-saint of the Bhakti Movement from the 15th and 16th centuries.
4. The Ravidassias are a Dalit community

Which of the above statements are correct?

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only
- (c) All of the above
- (d) 2 and 3 only

Ans: C

About Sant Ravidas

He was a mystic poet-saint of the Bhakti Movement from the 15th and 16th centuries.

He was a great poet, social reformer, and spiritual figure.

He is also known as Raidas, Rohidas, and Ruhidas Contributions

His devotional songs and verses left an indelible mark on the Bhakti Movement.

He was a disciple of Sant Kabir and the founder of the Ravidassia religion. Mirabai was his pupil.

The Sikh scripture, Guru Granth Sahib, contains forty-one of his devotional songs and poems.



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The philosophy and values of Guru Ravidasji like social justice, equality, and fraternity have been imbued in our constitutional values.

The Chief Architect of our Constitution, Dr. B.R. Ambedkar embodied the Constitutional principles around the values expressed by Guru Ravidasji.

79. Consider the following about 'UN High Sea Treaty' and associated topics

1. Negligible per cent of global warming occurs in the ocean.
2. High Seas cover more than 40% of the Earth's surface and two-thirds of the ocean.
3. 2/3rd of the world's oceans are currently considered international waters/high seas.
4. The treaty is negotiated under (UNCLOS) of 1982

Which of the above statements are correct?

- (a) 1, 2 and 3 only
- (b) 2, 3 and 4 only
- (c) 1, 3 and 4 only
- (d) All of the above

Ans: B

The treaty is negotiated under the United Nations Convention on Laws of the Sea (UNCLOS) of 1982 which governs the rights of countries regarding marine resources.

2/3rd of the world's oceans are currently considered international waters/high seas. But until now only about 1% of these waters have been protected

It aims to create an updated framework to protect marine life in high seas, which are regions outside national boundary waters.

It will create a new body to manage the conservation of ocean life and establish marine protected areas on the high seas.

The treaty also establishes ground rules for conducting environmental impact assessments for commercial activities in the oceans.

Importance of High Seas:

Ninety per cent of global warming occurs in the ocean, deeply affecting Marine life.

Comprehensive protection of endangered species and habitats is not possible without High Seas which cover more than 40% of the Earth's surface and two-thirds of the ocean.

Several marine species — including dolphins, whales, sea turtles and many fish — make long annual migrations, crossing national borders and the high seas.

High seas are the crucial component in global efforts to bring 30% of the world's land and sea under protection by the end of the decade, a target known as "30 by 30".

The treaty can have benefits for society (pharmaceuticals and food) and will help reverse biodiversity losses and ensure sustainable development.

The high seas treaty has also been an important matter pertaining to the North-South divide between poor and rich. Those who had resources have always been at an advantage from the activities in the high seas.

80. Consider the following about 'Lord Mahavira'

1. He questioned Vedas' authority & emphasised on individual agency.
2. Jainism was supported mainly by Vaishyas (traders) in opposition to Brahmin-Kshatriya.

Which of the above statements are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None of the Above

Ans: C

Teachings and Contributions

Questioned Vedas' authority & emphasised on individual agency.

Added 1 more vow to already existing 4 vows (Ahimsa, Satya, Asteya, Aparigraha & Brahmacharya).

His 11 ganadhars (chief disciples) compiled Agamas (12 scriptures based on his teachings).

Used easy-to-understand Prakrit language.

81. Consider the following statements related to Pulses production in India

1. Pulses are grown in both Kharif and Rabi seasons
2. Gram is the most dominant pulse having a share of around 40 per cent
3. United Nations declared 2016 as "International Year of Pulses" (IYP)



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Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) All of the above
- (d) 1 and 3 only

Ans: C

Indian Pulses Sector

India is the largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world.

Pulses account for around 20 percent of the area under food grains and contribute around 7-10 per cent of the total foodgrains production in the country.

Though pulses are grown in both Kharif and Rabi seasons, Rabi pulses contribute more than 60 per cent of the total production.

Major pulses are grown chickpeas (gram), pigeon pea (tur or arhar), moong beans, urad (black matpe), masur (lentil), peas and various kinds of beans.

Gram is the most dominant pulse having a share of around 40 per cent in the total production followed by Tur/Arhar at 15 to 20 per cent.

Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka are the top five pulses producing States.

The United Nations declared 2016 as “International Year of Pulses” (IYP) to heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed at food security and nutrition.

82. Consider the following related Ambergris seen in news recently?

- 1. Ambergris means grey amber in French
- 2. It is a waxy substance that originates from the digestive system of sperm whales.
- 3. Ambergris is often called the ‘floating gold’ and ‘treasure of the sea’.
- 4. Ambergris is banned in India

Which of the above statements are correct?

- (a) 1, 3 and 4 only
- (b) 2, 3 and 4 only
- (c) 1, 2 and 4 only
- (d) All of the above

Ans: D

What is Ambergris?

Ambergris means grey amber in French, is a waxy substance that originates from the digestive system of sperm whales.

While it is incorrectly referred to as ‘whale vomit,’ one of the theories about its formation suggests that it is produced in the gastrointestinal tract of some sperm whales for the passage of hard, sharp objects that are ingested when the whale eats large quantities of marine animals.

The ambergris is said to be passed like faeces and has a very strong faecal odour combined with a strong marine odour.

Conservation Status: IUCN Vulnerable.

Sperm whales are a protected species under Schedule 2 of the Wildlife Protection Act and possession or trade of any of its by-products, including Ambergris and its byproducts, is illegal under provisions of the Wildlife Protection Act, 1972.

Sperm Whales are listed in Appendix I of the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). However, ambergris is not covered in CITES provisions as it is considered a naturally excreted waste product and trade of which is legal in many countries.

83. Consider the following about Chinkara ‘Indian Gazelle’

- 1. It is native to India, Pakistan, Afghanistan, and Iran.
- 2. Chinkara prefer to feed at nighttime
- 3. Its Conservation Status under IUCN is Least Concern (LC)
- 4. It is the state animal of Madhya Pradesh

Which of the above statements are correct?

- (a) 1, 3 and 4 only
- (b) 2, 3 and 4 only
- (c) 1, 2 and 3 only
- (d) All of the above

Ans: C

The chinkara (*Gazella bennettii*), also known as the Indian gazelle, is a gazelle species native to India, Pakistan, Afghanistan, and Iran.

State animal: Rajasthan.

Habitat: Arid plains and hills, deserts, dry scrub and light forests. They inhabit more than 80 protected areas in India.



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Diet: They are herbivores (folivores, frugivores). They feed on grasses, different leaves, and fruits (melon, pumpkin).

These gazelles can go without water for many days and can get fluids from plants they feed on and dew.

Most active time: Chinkara prefer to feed at nighttime and are most active just before the sunset and during the night.

Population: In India (in 2011) there were more than 100,000 animals with 80,000 animals living in the Thar Desert.

Threat: Over hunting for meat and habitat loss due to agricultural and industrial expansion, and overgrazing.

Conservation Status: IUCN – Least Concern (LC)

It is protected under Schedule-I of the Wildlife Protection Act, 1972.

84. In June 2023 Reserve Bank of India launched a Financial Inclusion Dashboard named?

- (a) Andardrishti
- (b) Gaurav
- (c) MISHTI
- (d) Utkarsh

Ans: A

In June 2023, the Reserve Bank of India (RBI) Governor launched a Financial Inclusion Dashboard, named Antardrishti.

Antardrishti

The dashboard will provide the required insight to assess and monitor the progress of financial inclusion by capturing relevant parameters.

The dashboard, presently intended for internal use in the RBI, will further facilitate greater financial inclusion through a multi-stakeholder approach.

85. Consider the following

1. Mangroves are salt tolerant plant communities
2. They are found in tropical and sub-tropical intertidal regions of the world
3. Mangrove forests can survive extreme weather conditions
4. They require low oxygen levels to survive.
5. The mangroves cannot survive freezing temperatures

6. Mangrove forests can store ten times more carbon per hectare than terrestrial forests.

Which of the above statements are correct?

- (a) 1, 2, 3, 4 and 5 only
- (b) All except 3 and 4
- (c) All except 1 and 2
- (d) All of the above

Ans: D

Mangrove Forests

A mangrove is a shrub or a small tree that lives in intertidal water in coastal areas and has roots in salty sediments, often underwater. They also grow in swamps.

Mangroves are salt tolerant plant communities found in tropical and sub-tropical intertidal regions of the world. Such areas are characterized by high rainfall (between 1,000 to 3,000 mm) and temperature (ranging between 26°C-35°C).

Mangrove forests can survive extreme weather conditions and require low oxygen levels to survive. The mangroves cannot survive freezing temperatures and thus are found mainly in tropical and subtropical latitudes.

In News

On the occasion of World Environment Day (June 5, 2023), PM Modi launched the MISHTI (Mangrove Initiative for Shoreline Habitats and Tangible Incomes). The scheme was first announced by the Union finance minister in the 2023-24 Union budget.

MISHTI (mangrove initiative for shoreline habitats and tangible incomes)

Targets: Initially the mangrove cover will be restored in nine states across the country. Overall, the scheme envisages the development of mangroves covering nearly 540 sq km, spreading across 11 states and two union territories over five years, starting from FY2023-24.

Expected benefits: This scheme will help in mitigating the threat to lives and livelihoods in coastal areas from rising sea levels and disasters like cyclones.

Strategy: It involves the sharing of best practices on plantation techniques, management practices, conservation measures and resource mobilization through the public-private partnership route.



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Funding: The Centre covers 80% of the project cost, while state governments contribute the remaining 20%.

86. Recently launched 'Malaviya Mission' is related to?

- (a) Youth Empowerment
- (b) Teacher Training
- (c) Women Education
- (d) Social Inclusion

Ans: B

News

The Union Minister for Education and Skill Development & Entrepreneurship launched the Malaviya Mission.

Malaviya Mission – Teacher Training Programme is organized by the University Grants Commission (UGC), in association with the Ministry of Education. The two-week online programme shall focus on various themes identified for course curriculum/content for capacity building of faculty members at higher educational institutions.

87. Consider the following statements about 'Lok Pal'

- 1. The Lokpal consists of a Chairperson and eight Members out of whom 50% are Judicial Members
- 2. A complaint can be made under the Prevention of Corruption Act, 1988
- 3. The Lokpal is vested with the power of search and seizure
- 4. Lokpal will have power of superintendence and direction over any central investigation agency including CBI

Which of the above statements are correct?

- a. 1, 2 and 3 only
- b. 2, 3 and 4 only
- c. 1 and 3 only
- d. All of the above

Ans: D

About The Lokpal of India

The Lokpal is the first institution of its kind in independent India, established under the Lokpal and Lokayuktas Act 2013 to inquire and investigate

allegations of corruption against public functionaries who fall within the scope and ambit of the above Act. The Lokpal consists of a Chairperson and eight Members out of whom 50% are Judicial Members.

A complaint under the Lokpal Act should be in the prescribed form and must pertain to an offence under the Prevention of Corruption Act, 1988 against a public servant. There is no restriction on who can make such a complaint.

jurisdiction : The Lokpal has jurisdiction to inquire into allegations of corruption against anyone who is or has been Prime Minister, or a Minister in the Union government, or a Member of Parliament, as well as officials of the Union Government under Groups A, B, C and D.

Also covered are chairpersons, members, officers and directors of any board, corporation, society, trust or autonomous body either established by an Act of Parliament or wholly or partly funded by the Union or State government. It also covers any society or trust or body that receives foreign contributions above ₹10 lakh (approx. US\$ 14,300/- as of 2019).

Power : The Lokpal is vested with the power of search and seizure and also powers under the Civil Procedure Code for the purpose of conducting preliminary inquiry & investigation and power of attachment of assets and taking other steps for eradication of corruption.

Lokpal will have power of superintendence and direction over any central investigation agency including CBI for cases referred to them by the Lokpal.

Status : According to the data provided by the Lokpal office to the panel on Department of Personnel and Training (DoPT), since 2019-20, the anti-corruption body received 8,703 complaints out of which 5,981 complaints were disposed of.

88. Consider the following related to 103rd Constitutional Amendment Act

- 1. The amendment introduced economic reservation by amending Articles 15 and 16.
- 2. EWS reservations will not apply to minority educational institutions.
- 3. It permits the government to reserve up to 18% of all government posts for the EWS.



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4. Whether or not to provide reservation to the EWS or appointment in States is to be decided by the State Government.

Which of the above statements are correct?

- 1, 2 and 4 only
- 2, 3 and 4 only
- 1 and 3 only
- All of the above

Ans: A

The Constitution (103rd Amendment) Act 2019 enables the State (i.e., both the Central and State Governments) to provide reservation to the Economically Weaker Sections (EWS) of the society. Whether or not to provide reservation to the EWS or appointment in States is to be decided by the State Government.

103rd Amendment Act

– About: The Parliament amended the Constitution of India (103rd Amendment) Act, 2019 to provide for a 10% reservation in education and government jobs in India for a section of the General category candidates.

– Introduction of Article 15 (6) and Article 16 (6):

A. The amendment introduced economic reservation by amending Articles 15 and 16. It inserted Article 15 (6) and Article 16 (6) in the Constitution to allow reservation for the economically backward in the unreserved category.

B. Article 15(6):

1. Up to 10% of seats may be reserved for EWS for admission in educational institutions. Such reservations will not apply to minority educational institutions.

C. Article 16(6):

1. It permits the government to reserve up to 10% of all government posts for the EWS.

89. Consider the following about R Venkatraman

- He participated in the Quit India Movement in 1942.
- He was also a member of the Constituent Assembly
- He was the 8th President of India
- He was awarded the Bharat Ratna posthumously
- He also served as the Minister of Finance and also as the Minister of Defense

Which of the above statements are correct?

- 1, 2 and 4 only
- 2, 3 and 4 only
- 1 and 3 only
- All of the above

Ans: D

90. Consider the following

- Clearance of Genetic Engineering Appraisal Committee (GEAC) is mandatory for the environmental release of Genetically Modified (GM) crops
- The GEAC consists of a panel of plant biotechnologists and is headed by a senior official of the Environment Ministry and co-chaired by the scientist of the DBT.
- GEAC functions in the Ministry of Environment, Forest and Climate Change (MoEF&CC).
- It is a statutory committee

Which of the above statements are correct?

- 1, 2 and 4 only
- 2, 3 and 4 only
- 1 and 3 only
- All of the above

Ans: D

About:

It is the statutory committee constituted under the “Rules for the Manufacture, Use/Import/Export and Storage of Hazardous Microorganisms/Genetically Engineered Organisms or Cells (Rules, 1989)” framed under Environment (Protection) Act, 1986.

Every set of applications has specific form and pre-requisite documents along with recommendations, wherever needed.

Clearance of Genetic Engineering Appraisal Committee (GEAC) is mandatory for the environmental release of Genetically Modified (GM) crops.

Ministry:

GEAC functions in the Ministry of Environment, Forest and Climate Change (MoEF&CC).

Members:

The GEAC consists of a panel of plant biotechnologists and is headed by a senior official of



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the Environment Ministry and co-chaired by the scientist of the DBT.

91. Consider the following about Sports in India

1. Sports is a State Subject
2. Khelo India is a Central Sector Scheme
3. The first of its kind All India Janjatiya Khel Mahotsav was organized in Jharkhand

Which of the above statements are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. All of the above

Ans: A

Recently the first Janjatiya Khel Mahotsav was organized at the Kalinga Institute of Social Sciences, Bhubaneswar.

About

It was a coordinated effort between the Ministry of Culture, the Odisha Government, and KIIT University.

It witnessed the assemblage of 5,000 tribal athletes and 1,000 officials from 26 states.

Indigenous Sports

'Sports' being a state subject, the responsibility to promote indigenous sports in the country and conduct special training programmes for the development and promotion of traditional sports rests primarily with the respective State/Union Territory Governments. The Union Government supplements their efforts.

Ministry of Youth Affairs and Sports runs a Central Sector Scheme, namely, the 'Khelo India – National Programme for Development of Sports' Scheme (Khelo India Scheme), of which one of the Components, namely, 'Promotion of rural and indigenous/tribal games', is specifically dedicated to the development and promotion of rural and indigenous/tribal games in the country.

92. Consider the following related to recently released NCD and Diabetes in India

1. The highest diabetes prevalence was found in Goa, Puducherry and Kerala.
2. Hypertension was highest in Punjab.
3. The lowest prevalence of NCDs was found in U.P., Mizoram, Meghalaya and Jharkhand.

Which of the above statements are correct?

- (a) 1, and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All of the above

Ans: D

Recently, the new national estimates for diabetes and other non-communicable diseases (NCD) were released.

About the study:

The decade-long nationwide study was funded by the Indian Council of Medical Research and Department of Health Research, Ministry of Health and Family Welfare and co-ordinated by the Madras Diabetes Research Foundation.

The results of the study are to be published in The Lancet Diabetes and Endocrinology journal.

Study highlights:

According to the study, in 2021, India has 101 million people with diabetes and 136 million people with prediabetes.

Additionally,

315 million people had high blood pressure; 254 million had generalised obesity, and 351 million had abdominal obesity.

213 million people had hypercholesterolaemia (wherein fat collects in arteries and puts individuals at greater risk of heart attack and strokes) and 185 million had high low-density lipoprotein (LDL) cholesterol.

Study sample:

The study is the first comprehensive epidemiological research paper which includes participants from 31 States and some Union Territories, with a large sample size of 1,13,043 individuals.

Interstate and inter-regional variations:

The highest diabetes prevalence was found in Goa, Puducherry and Kerala.

While prediabetes was prevalent in Sikkim,

Hypertension was highest in Punjab.

Generalised obesity and abdominal obesity were highest in Puducherry,

While Kerala had high hypercholesterolemia and high LDL cholesterol.

The lowest prevalence of NCDs was found in U.P., Mizoram, Meghalaya and Jharkhand.



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This cross-sectional, population-based survey of adults aged above 20 years, across the country uses a stratified, multistage sampling design in the study titled — “Metabolic non-communicable health report of India-the ICMR-INDIAB National Cross-sectional Study.”

93. Consider the following about the ‘Miyawaki Plantation Method’

1. It is the Japanese method of creating dense urban forests in a small area.
2. It is an ecological engineering work where native plants/ trees are planted in a scientific method
3. It involves planting two to four different types of indigenous trees within every square meter.
4. The plants used in the Miyawaki method don't require regular maintenance like manuring and watering.

Which of the above statements are correct?

- (a) 1, 2 and 4 only
- (b) 2, 3 and 4 only
- (c) 1 and 3 only
- (d) All of the above

Ans: D

In News

Prime Minister Narendra Modi during his latest ‘Mann ki Baat’ episode spoke about the Miyawaki plantation.

About the Miyawaki plantation method

It is the Japanese method of creating dense urban forests in a small area.

It is named after Japanese botanist Akira Miyawaki and it was developed in the 1970s, with the basic objective to densify green cover within a small parcel of land.

It is an ecological engineering work where native plants/ trees are planted in a scientific method to create an arrangement of fast-growing, dense, varied species of plants, 20 times faster than normal.

Features

It involves planting two to four different types of indigenous trees within every square meter.

Some of the common indigenous plants that are used for these forests include Anjan, Amala, Bel, Arjun, and Gunj.

In this method, the trees become self-sustaining and they grow to their full length within three years.

The plants used in the Miyawaki method don't require regular maintenance like manuring and watering.

94. Consider the following about ‘NATO Plus 5’

1. Australia
2. Japan
3. Israel
4. New Zealand
5. South Korea

Which of the above countries are part of the above grouping?

- (a) 1, 2, 3 and 4 only
- (b) 2, 3 and 4 only
- (c) 1, 3, 4 and 5 only
- (d) All of the above

Ans: D

What is NATO plus five?

NATO Plus, currently NATO Plus 5, is a security arrangement that brings together NATO and five aligned nations – Australia, New Zealand, Japan, Israel and South Korea – to boost defence cooperation and intelligence ties.

Benefit to India

Including India in NATO Plus security arrangements would facilitate seamless intelligence sharing between these countries and India would access the latest military technology without much of a time lag. It would build upon the US and India's close partnership to strengthen global security and deter the aggression of China across the Indo-Pacific region.

Concerns

Breaking India-Russia ties: If India joins the US-led NATO alliance which is backing Ukraine in the current war with Russia, it will directly impact India's relations with Russia.

Against the principle of NAM: The main aim of the Non-Aligned Movement (NAM) was that its members remain neutral and did not join any power block.

India's Stand

India refused to join NATO and stated that joining this Western alliance is not in India's favour.



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95. Consider the following statements

1. The chief of RAW is designated secretary (research) in the Cabinet Secretariat
2. R&AW founded mainly to focus on China and Pakistan
3. RAW reports directly to the prime minister instead of the Ministry of Defense.
4. R&AW has been organised on the lines of the CIA.

Which of the above statements are correct?

- (a) 1, 2 and 4 only
- (b) 2, 3 and 4 only
- (c) 1 and 3 only
- (d) All of the above

Ans: D

All the statements are correct

96. With reference to Lake Victoria, consider the following statements:

1. It is located in West Africa.
2. It is a source of the Congo River.

Which of the statements given above is/are correct?

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

Ans: D

Explanation: Recently, a new scientific report published in the journal Nature shows that significant precipitation changes and increasing extreme climate events affect the large human populations as well as the endemic biodiversity of Lake Victoria Basin.

It is the world's second-largest freshwater lake.

Location: It is located in East Africa, bordered by Tanzania, Uganda, and Kenya.

It is a source of the White Nile River which flows northward and eventually joins the Blue Nile in Sudan to form the Nile River.

97. Global Gender Gap Report, recently seen in the news, is released annually by which one following organisations?

- (a) World Bank
- (b) World Economic Forum
- (c) UNDP
- (d) IMF

Ans: B

Explanation: India was ranked at 127 out of 146 countries in terms of gender parity — an improvement of 8 places from last year, according to the recent annual Gender Gap Report, 2023.

Global Gender Gap Report is released annually by the World Economic Forum (WEF) since 2006.

It measures gender parity in 146 countries and across four areas: economic participation and opportunity, educational attainment, health and survival and political empowerment.

98. Consider the following statements regarding Lab-Grown Diamonds:

1. They are produced using specific technology which mimics the geological processes that grow natural diamonds.
2. The Diamond simulants such as Moissanite and White Sapphire are used to make them look like natural diamonds.

Which of the statements given above is/are correct?

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

Ans: C

Explanation: Prime Minister recently gifted an eco-friendly lab-grown 7.5 carat diamond, to the US First Lady Jill Biden.

Lab-grown diamonds are diamonds that are produced using specific technology which mimics the geological processes that grow natural diamonds.

The diamond simulants such as Moissanite, Cubic Zirconia (CZ), White Sapphire, YAG, and others are used to make them look like natural diamonds.

99. Consider the following statements regarding the Mineral Security Partnership:

1. It is an ambitious new initiative to bolster critical mineral supply chains announced by Australia.
2. The focus of the grouping would be on the supply chains of minerals such as Cobalt, Nickel, Lithium and also the 17 “rare earth” minerals.

Which of the statements given above is/are correct?



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

Ans: B

Explanation: India was recently inducted into the Mineral Security Partnership (MSP).

It is an ambitious new initiative to bolster critical mineral supply chains, announced by the United States and key partner countries in 2022.

The goal of the alliance is to ensure that critical minerals are produced, processed, and recycled in a manner that supports the ability of countries to realize the full economic development benefit of their geological endowments.

The focus of the grouping would be on the supply chains of minerals such as Cobalt, Nickel, Lithium and also the 17 “rare earth” minerals.

100. The Great Pyramid of Giza, recently seen in the news, is located in which country?

- (a) Iraq
- (b) Syria
- (c) Israel
- (d) Egypt

Ans: d

Explanation: Indian Prime Minister recently visited the Great Pyramid of Giza during his maiden State visit to Egypt.

The Great Pyramid of Giza, also called Great Pyramid and Great Pyramid of Khufu, is an ancient Egyptian pyramid that is the largest of the three Pyramids of Giza.

Location: It is located on the Giza plateau on the west bank of the Nile River near the modern city of Cairo in Egypt.