

**Q. 1) Consider the following statements about the tropical ozone hole**

1. It is about seven times smaller than the size of Antarctica.
2. It can be seen across all seasons, unlike the hole over Antarctica which is visible only in Spring.
3. It can lead to skin cancer and cataracts in the tropical population.

Which of the following statements is correct?

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

Q.1) Solution: (b)

**Explanation:**

- Context: According to a recent study, a new **ozone** hole has been detected over the tropics, at latitudes of 30 degrees South to 30 degrees North called the tropical ozone.
- The tropical ozone hole is about **seven times larger than Antarctica. Hence statement 1 is incorrect.**
- It also appears across all seasons, unlike that of Antarctica, which is visible only in the spring. **Hence statement 2 is correct.**
- The tropical ozone hole, which makes up 50% of Earth's surface, could cause a global concern due to the risks associated with it.
- It is likely to cause skin cancer, cataracts, and other negative effects on the health and ecosystems in tropical regions. **Hence statement 3 is correct.**

**Q. 2) Consider the following statements**

1. Nutrient leaching in soil
2. Increases the pace of decomposition

3. Discoloration and loss of foliar biomass
4. Upsets Food Web in the ecosystem
5. Chronic bronchitis in humans

Which of the given above are caused by acid rain?

- a) 1, 3 and 4
- b) 2, 3 and 5
- c) 1, 3, 4 and 5
- d) 1, 2, 3, 4 and 5

Q.2) Solution: (c)

**Explanation:**

- Acid Rain is the precipitation of acid in the form of rain in the most basic sense.
- Acid rain is made up of highly acidic water droplets that form as a result of air pollution, particularly the disproportionate amounts of sulfur and nitrogen produced by cars and manufacturing operations.
- In the soil, the interchange of hydrogen ions with nutritional cations such as potassium and magnesium causes nutrient leaching, leaving the soil infertile.
- This is accompanied by a decrease in soil organism respiration. **Hence statement 1 is correct.**
- The pace of decomposition is slowed by an increase in ammonia in the soil due to a decrease in other nutrients, and the nitrate level in the soil is also observed to be lower. **Hence statement 2 is incorrect.**
- Acidic fog and clouds at high elevations may remove nutrients from tree foliage, leaving brown or dead leaves and needles.
- As a result, the trees are less able to absorb sunlight, making them fragile and susceptible to freezing conditions.

- The most common growth-decreasing symptoms include discoloration and loss of foliar biomass. **Hence statement 3 is correct.**
- Acid rain has the potential to harm a wide range of animals and plants. As a result, the food web as a whole is disrupted.
- Acid rain, for example, can kill phytoplankton in lakes. Insects that consume phytoplankton have less food to eat now, and they start to perish as a result. **Hence statement 4 is correct.**
- Acid rain has a lot of negative effects on human health. The most evident are foul odors, impaired visibility, and skin, eye, and respiratory system irritation.
- Chronic bronchitis, lung emphysema, and cancer are some of the direct impacts. **Hence statement 5 is correct.**

**Q. 3) Consider the following statements about photochemical smog**

1. It is formed when sunlight reacts with nitrogen oxides and at least one volatile organic compound (VOC) in the atmosphere.
2. Stubble burning, vehicular pollution, and seasonal changes are the causes of its formation.

Choose the correct code:

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

Q.3) Solution: (c)

**Explanation:**

- When sunlight reacts with nitrogen oxides and at least one volatile organic compound (VOC) in the atmosphere, photochemical smog is formed.

- The chemical formation of airborne particles and ground-level ozone occurs in the presence of sunlight.
- This type of smog does not require smoke or fog.
- Automobiles, power plants, and industrial pollutants all release nitrogen oxides into the environment.
- VOCs are released into the atmosphere by paints, gasoline, and many cleaning solvents.

**Hence statement 1 is correct.**

- Stubble burning especially in the states of Punjab and Haryana is thought to be responsible for setting 35 million tonnes of the crop on fire each year. All of the airborne contaminants and dust particles are carried by the wind.
- Increase in the number of vehicles on the road - The National Environmental Engineering Research Institute (NEERI) and the Central Pollution Control Board (CPCB) have identified vehicular emissions as a major cause of Delhi's rising air pollution, which in turn fuels the growth of photochemical smog.
- Seasonal changes as the winter months approach, airborne dust, and contaminants become immobile.
- Smog develops as a result of these pollutants becoming trapped in the atmosphere by ineffective winds, which also impact weather patterns. **Hence statement 2 is correct.**

**Q. 4) Consider the following statements regarding the water pollution caused by detergents**

1. It leads to bioaccumulation of Nonylphenol.
2. It enhances the biodegradation of organic substances.
3. It destroys the external mucus layers of fish.
4. The Ecomark Scheme provides accreditation and labeling for detergents.

Choose the correct code:

- a) 1, 2 and 3
- b) 1, 2, and 4
- c) 2, 3 and 4

d) 1, 3 and 4

Q.4) Solution: (d)

**Explanation:**

- Context: Water **pollution caused by detergents** has become a big concern in the global context.
- Water pollution occurs when harmful substances—often chemicals or microorganisms—contaminate a stream, river, lake, ocean, aquifer, or other body of water, degrading water quality and rendering it toxic to humans or the environment.
- A detergent is a **surfactant or mixture of surfactants** that have cleaning properties in a dilute solution with water. A detergent is similar to soap.
- They tend to be more soluble in hard water than soap because the sulfonate of detergent doesn't bind calcium and other ions in hard water as easily as the carboxylate in soap does.
- It leads to **bioaccumulation of Nonylphenol**.
- Nonylphenol, a hazardous chemical present in detergents, is known to enter water bodies and food chains. It bio-accumulates and can pose serious environmental and health risks.
- It has been detected in human breast milk, blood, and urine, and is associated with reproductive and developmental effects in rodents. **Hence statement 1 is correct.**
- **It inhibits the biodegradation of organic substances.**
- Many laundry detergents contain approximately 35 to 75% phosphate salts.  
  
Phosphates can cause a variety of water pollution problems.
- For example, phosphate tends to inhibit the biodegradation of organic substances.
- Biodegradation is the process by which organic substances are broken down into smaller compounds by living microbial organisms. **Hence statement 2 is incorrect.**

- Detergents are capable of destroying the **external mucus layers that protect the fish from bacteria and parasites**, causing severe damage to the gills. **Hence statement 3 is correct.**
- **The Ecomark Scheme** is operating on a national basis and provides accreditation and labeling for household and other consumer products which meet certain environmental criteria along with quality requirements of the Indian Standards for that product.
- The Ecomark Scheme covers various product categories like Soaps and Detergents, paints, food items, etc. **Hence statement 4 is correct.**

**Q. 5) Consider the following statements about the Wild Life (Protection) Act, of 1972**

1. It provides a legal framework for the protection of various species of wild animals only.
2. Central Zoo Authority and Wildlife Crime Control Bureau are constituted under this act.
3. The act has been amended only thrice till today.

Which of the following statements is correct?

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

Q.5) Solution: (a)

**Explanation:**

- The Wild Life (Protection) Act, of 1972 provides a legal framework for the protection of various species of wild animals and plants, management of their habitats, regulation, and control of trade in wild animals, plants, and products made from them
- The act also lists schedules of plants and animals that are afforded varying degrees of protection and monitoring by the government. **Hence statement 1 is incorrect.**

- The Central Zoo Authority consists of a total of 10 members including the Chairperson and a Member-Secretary.
- The authority provides recognition to zoos and is also tasked with regulating the zoos across the country.
- It lays down guidelines and prescribes rules under which animals may be transferred among zoos nationally and internationally.
- The act provided for the constitution of the **Wildlife Crime Control Bureau (WCCB)** to combat organized wildlife crime in the country. **Hence statement 2 is correct.**
- **The act has been amended Nine times till today. Important ones being:**
- Wildlife (Protection) Amendment Act of 1991:
  - ✓ This amendment strengthened the penalties and fines for wildlife-related offences and also introduced provisions for the protection of endangered species.
- Wildlife (Protection) Amendment Act of 2002:
  - ✓ This amendment introduced the concept of community reserves and conservation reserves as protected areas.
- Wildlife (Protection) Amendment Act of 2006:
  - ✓ This amendment dealt with the issue of human-wildlife conflict and provided for the creation of a National Tiger Conservation Authority (NTCA) to manage and protect tiger reserves.
  - ✓ It also made provisions for the creation of a Tiger and Other Endangered Species Crime Control Bureau to deal with wildlife-related crimes.
- Wildlife (Protection) Amendment Act, 2022:
  - ✓ The Act seeks to increase the species protected under the law and implement CITES.
  - ✓ The number of schedules has been reduced to four:
    - ✓ Schedule I contains animal species enjoying the highest level of protection.
    - ✓ Schedule II for animal species subject to a lesser degree of protection.
    - ✓ Schedule III for protected plant species, and
    - ✓ Schedule IV for scheduled specimens under CITES.
  - ✓ The Act permits the use of elephants for 'religious or any other purposes'.

- ✓ The penalties have also been increased for general and specially protected animal violations.

**Hence statement 3 is incorrect.**

**Q. 6) Consider the following statements about the criteria for declaring heat wave in India**

1. If the maximum temperature of a station reaches at least 30°C or more for plains.
2. If the maximum temperature of a station reaches at least 40°C or more for hilly regions.

Choose the correct code:

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

Q.6) Solution: (d)

**Explanation:**

- Heat waves are prolonged periods of excessively hot weather that can cause adverse impacts on human health, the environment, and the economy.
- India, being a tropical country, is particularly vulnerable to heat waves, which have become more frequent and intense in recent years.
- **The criteria for declaring heat wave in India**
- If the **maximum temperature of a station reaches at least 40°C or more for plains.**  
**Hence statement 1 is incorrect.**
- If the **maximum temperature of a station reaches at least 30°C or more for hilly regions.** **Hence statement 2 is incorrect.**
- Heat waves are caused due to global warming and urbanisation.



- Global Warming is one of the primary causes of heatwaves in India is global warming, which refers to the long-term increase in Earth's average temperature due to human activities such as burning fossil fuels, deforestation, and industrial activities.
- Global warming can result in higher temperatures and changes in weather patterns, leading to heat waves.
- Rapid urbanisation and the growth of concrete jungles in cities can lead to the phenomenon known as the "urban heat island effect."
- Urban areas with high population density, buildings, and concrete surfaces absorb and retain more heat, leading to higher temperatures, particularly during heat waves.

**Q. 7) Consider the following statements about Under water noise emissions**

1. The under water noise pressure level is higher in Western coast of Indian Ocean as compared to eastern coast.
2. The under water noise can lead to better migration and mating patterns in marine animals.

Choose the correct code:

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

Q.7) Solution: (d)

**Explanation:**

- Rising man-made (anthropogenic) underwater noise emissions (UNE) from ships in the Indian waters are posing a threat to the life of marine mammals.
- Underwater sound pressure levels in the Indian waters are 102-115 decibels (dB). **The East Coast level is slightly higher than that of the West.**

**Impact of Underwater Noise Emissions on Marine Ecosystems**

- **Impact on mating and other activities:** Marine mammals like Bottlenose Dolphins, Manatees, Pilot Whale, Seal and Sperm whales use sound for mating, communal interaction, feeding, cluster cohesion and foraging. Long-term exposure to marine noise results in internal injuries, loss of hearing ability, change in behavioural responses and stress.
- **Marine noise frequencies overlap with communication frequencies of species.** This is called masking. It could have led to a change in the migration route of the marine species to the shallow regions and also made it difficult for them to go back to the deeper water.

**Q. 8) Consider the following statements about the International Conference on Human-Wildlife Conflict and Coexistence**

1. It was organized by the International Union for Conservation of Nature (IUCN) and the Food and Agriculture Organization (FAO).
2. It facilitates dialogue and peer-to-peer learning across sectors and actors in human-wildlife conflict.

Choose the correct code:

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

Q.8) Solution: (c)

**Explanation:**

- Human-animal conflict refers to situations where human activities, such as agriculture, infrastructure development, or resource extraction, come into conflict with wild animals, leading to negative outcomes for both humans and animals.

- Human-wildlife conflicts across the world are a major challenge to the conservation of species, making coexistence with nature difficult and hindering biodiversity protection.
  - Conflict-related killing affects more than 75% of the world's wild cat species, according to the United Nations Environment Programme (UNEP).
  - The Conference was organized by the International Union for Conservation of Nature (IUCN), the Food and Agriculture Organization (FAO), the UN Development Programme, and several other organizations together. **Hence statement 1 is correct.**
  - It facilitates dialogue and peer-to-peer learning across sectors and actors on the topic of partnerships and collaboration across people and institutions working on human-wildlife conflicts.
  - It generates an interdisciplinary and shared understanding of the latest insights, technologies, methods, ideas, and information from the field of human-wildlife conflict, coexistence, and interactions.
  - It mainstreams human-wildlife conflict as one of the top global priorities in biodiversity conservation and the Sustainable Development Goals for the next decade, catalysing opportunities for working together on national, regional, or global policies and initiatives.
  - It identifies and develops a collective way forward for addressing knowledge and implementation gaps for effective efforts to reduce and manage human-wildlife conflict.
- Hence statement 2 is correct.**

**Q. 9) Consider the following statements about Black Carbon (BC)**

1. It is a short-lived pollutant.
2. It is the largest contributor to warming the planet.
3. It gets emitted from gas and diesel engines and coal-fired power plants.

Which of the following statements is correct?

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3

d) 1, 2 and 3

Q.9) Solution: (c)

**Explanation:**

- Black Carbon (BC) is a short-lived pollutant.
- Unlike other greenhouse gas emissions, BC is quickly washed out and can be eliminated from the atmosphere if emissions stop.
- Unlike historical carbon emissions, it is also a localised source with greater local impact. **Hence statement 1 is correct.**
- It is the **second-largest contributor** to warming the planet behind carbon dioxide (CO<sub>2</sub>) and the primary marker to understand the adverse effects caused by air pollution.
- Black carbon absorbs solar energy, it warms the atmosphere. When it falls to earth with precipitation, it darkens the surface of snow and ice, reducing their albedo (the reflecting power of a surface), warming the snow, and hastening to melt. **Hence statement 2 is incorrect.**
- It gets **emitted from gas and diesel engines, coal-fired power plants**, and other sources that burn **fossil fuels**. It comprises a significant portion of particulate matter or PM, which is an air pollutant. **Hence statement 3 is correct.**

**Q. 10) Consider the following statements about the Environmental Impact Assessment (EIA)**

**Notification 2006**

1. It classified developmental projects into three categories.
2. It introduced four stages into EIA Cycle.
3. Projects such as mining and thermal power plants requires mandatory clearance.

Which of the following statements is correct?

- a) 1 and 2
- b) 2 and 3

- c) 1 and 3
- d) 1, 2 and 3

Q.10) Solution: (b)

**Explanation:**

- As per the UNEP (United Nations Environment Programme), EIA is a tool used to identify the environmental, social, and economic impacts of a project before decision-making.
- It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment, and present the predictions and options to decision-makers.
- The process of the EIA includes:
  - ✓ Screening: First stage of EIA, which determines whether the proposed project, requires an EIA, and if it does, then the level of assessment required.
  - ✓ Scoping: This stage identifies the key issues and impacts that should be further investigated. This stage also defines the boundary and time limit of the study.
  - ✓ Impact analysis: This stage of EIA identifies and predicts the likely environmental and social impact of the proposed project and evaluates the significance.
  - ✓ Mitigation: This step in EIA recommends actions to reduce and avoid the potential adverse environmental consequences of development activities.
  - ✓ Reporting: This stage presents the result of EIA in a form of a report to the decision-making body and other interested parties.
  - ✓ Public hearing: On completion of the EIA report, public and environmental groups living close to the project site may be informed and consulted.
  - ✓ Review of EIA: It examines the adequacy and effectiveness of the EIA report and provides the information necessary for decision-making.
  - ✓ Decision-making: It decides whether the project is rejected, approved, or needs further change.

- ✓ Post monitoring: This stage comes into play once the project is commissioned. It checks to ensure that the impacts of the project do not exceed the legal standards and implementation of the mitigation measures in the manner described in the EIA report.
- **It classified the developmental projects into two categories:**
  - ✓ Category A (national level appraisal): projects are appraised by Impact Assessment Agency (IAA) and the Expert Appraisal Committee (EAC).
  - ✓ Category B (state-level appraisal): State Level Environment Impact Assessment Authority (SEIAA) and State Level Expert Appraisal Committee (SEAC) provide clearance to the Category B projects.

**Hence statement 1 is incorrect.**

- The Amendment introduced four stages into EIA Cycle; Screening, Scoping, Public hearing, and Appraisal. **Hence statement 2 is correct.**
- Projects such as mining, thermal power plants, river valley, infrastructure (roads, highways, ports, harbors, and airports), and industries including very small electroplating or foundry units are mandated to get environmental clearance.

**Hence statement 3 is correct.**

**Q. 11) Consider the following statements about Biotransformation technology**

1. Plastics produced by this technology self-destruct and bio transforms into bioavailable wax once they expire.
2. The biodegradable wax is then consumed by microorganisms, converting waste into water, CO<sub>2</sub>, and biomass.
3. It is the world's first technology that produces no microplastics when polyolefins fully biodegrade in an open environment.

Which of the following statements is correct?

- a) 1 and 2
- b) 2 and 3

- c) 1 and 3
- d) 1, 2 and 3

Q.11) Solution: (d)

**Explanation:**

- Biotransformation technology is a novel approach to ensure plastics that escape refuse streams are processed efficiently and broken down.
- Plastics made using this technology are given a pre-programmed time during which the manufactured material looks and feels like conventional plastics without compromising on quality.
- Plastics produced by this technology **self-destruct and bio transforms into bioavailable** wax once they expire. **Hence statement 1 is correct.**
- The biodegradable wax is then consumed by microorganisms, converting waste into water, CO<sub>2</sub>, and biomass. **Hence statement 2 is correct.**
- It is the **world's first technology that produces** no microplastics when **polyolefins** fully biodegrade in an open environment. **Hence statement 3 is correct.**

**Q. 12) Consider the following statements**

1. The United Nations declared the years 2021 to 2030 as the International Decade of Forests.
2. World Forests Day is celebrated each year on March 21.
3. The theme for World Forests Day 2023 is 'Forests and Health.'

Which of the following statements is correct?

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

Q.12) Solution: (b)

**Explanation:**

- In 2011, the United Nations declared the years 2011 to 2020 as the International Decade of Forests.
- Its objective was to promote sustainable management, conservation, and development of all types of forests. **Hence statement 1 is incorrect.**
- In 2012, the International Day of Forests was established.
- The history of the International Day of Forests can be traced back to 1971 when the Food and Agriculture Organization of the United Nations (FAO) established World Forestry Day.
- The day was established to create and raise awareness of the importance of forests for people and the planet.
- The **International Day of Forests**, also known as **World Forests Day**, is celebrated each year on **March 21**. **Hence statement 2 is correct.**
- The theme for **World Forests Day 2023** is 'Forests and Health.' **Hence statement 3 is correct.**

**Q. 13) Consider the following statements about the World Air Quality Report**

1. It is developed by the United Nations Environment Programme.
2. Chad, Iraq, Pakistan, Bahrain, and Bangladesh are the five most polluted countries.
3. New Delhi is the second most polluted capital city in the world.

Which of the following statements is correct?

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



Q.13) Solution: (a)

**Explanation:**

- The **World Air Quality Report** prepared by IQAir.
- IQAir, a Swiss air quality technology company, prepares the annual world air quality reports based on data from monitoring stations operated by governments and other institutions and organisations across the world. **Hence statement 1 is incorrect.**
- The 2022 report is based on PM2.5 data from 7,323 cities and 131 countries.
- Chad, Iraq, Pakistan, Bahrain, and Bangladesh are the five most polluted countries. **Hence statement 2 is correct.**
- Lahore was the most polluted city in the world, followed by Hotan in China, and Bhiwadi in Rajasthan.
- **New Delhi is the second most polluted capital** city in the world, with N'Djamena in **Chad** topping the list. **Hence statement 3 is correct.**

**Q. 14) Consider the following statements about Myanmar Teak**

1. It is highly valued for its durability, and resistance to water and termites.
2. It is listed as critically endangered in the IUCN Red List of Threatened Species.

Choose the correct code:

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

Q.14) Solution: (a)

**Explanation:**

- Myanmar Teak is **highly valued for its durability, and resistance to water and termites.**

- It is commonly used for high-end furniture, veneers, and ship decking, especially in the luxury yacht industry. However, the forest cover and teak reserves in Myanmar are shrinking, which ironically increases the wood's value. **Hence statement 1 is correct.**
- Teak (*Tectona grandis*) is also known as sagon, sagwan, Indian oak, and teca. Its production covers 1% of global annual timber demand.
- Teak, is a large deciduous tree native to India, Myanmar, Laos, and Thailand. Teak is highly tolerant of a range of climate conditions and can be found in very dry to very moist regions. It is high resistance to decay and insect damage, and the heartwood changes from olive green to golden brown after exposure.
- It is **listed as endangered in the IUCN Red List of Threatened Species. Hence statement 2 is incorrect.**

**Q. 15) The Gross Domestic Climate Risk Report is released by the**

- a) World Health Organization
- b) United Nations Environment Programme
- c) Cross Dependency Initiative
- d) Forest Carbon Partnership Facility

Q.15) Solution: (c)

**Explanation:**

- The **Gross Domestic Climate Risk Report is released by Cross Dependency Initiative (XDI).**
- XDI is a global organisation specialising in climate risk analysis for regions, banks, and companies.
- The index calculated the 'Physical climate risk' to built environments such as buildings and properties across 2,600 States and provinces globally in 2050.

- The index assigned an Aggregated Damage Ratio (ADR) to each region, which signifies the total amount of damage a region's built environment would sustain in 2050. A high ADR signifies more peril.
- **India has nine states in the 50 high-risk states** including Punjab, Bihar, Uttar Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Gujarat, Kerala, and Assam.

**Hence option c is correct.**

**Q. 16) Consider the following statements about Green Steel**

1. It is the manufacturing of steel without the use of fossil fuels.
2. It increases the steel industry's carbon footprint.

Choose the correct code:

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

Q.16) Solution: (a)

**Explanation:**

- Green Steel is the manufacturing of steel without the use of fossil fuels.
- This can be done by using low-carbon energy sources such as hydrogen, coal gasification, or electricity instead of the traditional carbon-intensive manufacturing route of coal-fired plants. **Hence statement 1 is correct.**
- It eventually lowers greenhouse gas emissions, cuts costs, and improves the quality of steel.
- Low-carbon hydrogen (blue hydrogen and green hydrogen) can help reduce the steel industry's carbon footprint. **Hence statement 2 is incorrect.**

**Q. 17) Consider the following statements about Skyglow**

1. It is an omnipresent sheet of light across the night sky and is a part of light pollution.
2. It is caused because of streetlights, security floodlights, and outdoor ornamental lights.

Choose the correct code:

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

Q.17) Solution: (c)

**Explanation:**

- Skyglow is an **omnipresent sheet of light across the night sky and is a part of light pollution.**
- It takes place in and around cities that can block all but the very brightest stars from view. **Hence statement 1 is correct.**
- The brightening of the night sky over inhabited areas because of streetlights, security floodlights, and outdoor ornamental lights causes the Skyglow.
- This light floods directly into the eyes of the nocturnal (active at night) and also into the skies and misleads their path. **Hence statement 2 is correct.**

**Q. 18) Consider the following statements about the Arctic Council**

1. It was set up by the Ottawa Declaration.
2. Its Secretariat is located in Canada.
3. Canada and Finland are its members.

Which of the following statements is correct?

- a) 1 and 2
- b) 2 and 3

- c) 1 and 3
- d) 1, 2 and 3

Q.18) Solution: (c)

**Explanation:**

- The Arctic Council is a high-level intergovernmental body set up in 1996 by the Ottawa Declaration to promote cooperation, coordination, and interaction among the Arctic States together with the indigenous communities and other Arctic inhabitants.
- The Council has eight circumpolar countries as member states and is mandated to protect the Arctic environment and promote the economies and social and cultural well-being of the indigenous people whose organizations are permanent participants in the council. **Hence statement 1 is correct.**
- The standing Arctic Council Secretariat formally became operational in 2013 in Tromsø, Norway.
- It was established to provide administrative capacity, institutional memory, enhanced communication and outreach, and general support to the activities of the Arctic Council. **Hence statement 2 is incorrect.**
- The Council has members, ad hoc observer countries, and "permanent participants"
- Ottawa Declaration declares Canada, the Kingdom of Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden, and the United States of America as a member of the Arctic Council.
- Denmark represents Greenland and the Faroe Islands.
- Permanent participants:
  - ✓ Aleut International Association (AIA),
  - ✓ Arctic Athabaskan Council (AAC)
  - ✓ Gwich'in Council International (GCI)
  - ✓ Inuit Circumpolar Council (ICC)
  - ✓ Russian Association of Indigenous Peoples of the North (RAIPN)

- ✓ Saami Council
- Observer status is open to non-Arctic states, along with inter-governmental, inter-parliamentary, global, regional, and non-governmental organizations that the Council determines can contribute to its work. It is approved by the Council at the Ministerial Meetings that occur once every two years
- Arctic Council Observers primarily contribute through their engagement in the Council at the level of Working Groups.
- Observers have no voting rights in the Council.
- As of 2022, thirteen non-Arctic states have Observer status.
  - ✓ Germany, 1998
  - ✓ Netherlands, 1998
  - ✓ Poland, 1998
  - ✓ United Kingdom, 1998
  - ✓ France, 2000
  - ✓ Spain, 2006
  - ✓ China, 2013
  - ✓ India, 2013
  - ✓ Italy, 2013
  - ✓ Japan, 2013
  - ✓ South Korea, 2013
  - ✓ Singapore, 2013
  - ✓ Switzerland, 2017

**Hence statement 3 is correct.**

**Q. 19) Consider the following statements about the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**

1. It is an international agreement between governments.
2. It ensures that international trade in only wild animals does not threaten their survival.
3. It lists species in three appendices based on their threat levels.

Which of the following statements is correct?

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

Q.19) Solution: (c)

**Explanation:**

CITES is an international agreement between governments — 184 at present.

- The convention entered into force in 1975 and India became the 25th party — a state that voluntarily agrees to be bound by the Convention — in 1976.

States that have agreed to be bound by the Convention ('joined' CITES) are known as Parties. **Hence statement 1 is correct.**

- It ensures that international trade in wild animals and plants does not threaten the survival of the species. **Hence statement 2 is incorrect.**
  - Although CITES is legally binding on the Parties – in other words, they have to implement the Convention – it does not take the place of national laws.
  - All import, export, and re-export of species covered under CITES must be authorised through a permit system.
  - Every two to three years, the Conference of the Parties meets to review the implementation of the Convention.
  - It has three appendices:
    - Appendix I
      - ✓ It lists species that are the most endangered among CITES-listed animals and plants.
      - ✓ Examples include gorillas, sea turtles, most lady-slipper orchids, and giant pandas.
- Currently, 1082 species are listed.

- ✓ They are threatened with extinction and CITES prohibits international trade in specimens of these species except when the purpose of the import is not commercial, for instance for scientific research.
- Appendix II
  - ✓ It lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.
  - ✓ Most CITES species are listed in this Appendix, including American ginseng, paddlefish, lions, American alligators, mahogany, and many corals.
  - ✓ It also includes so-called "look-alike species", i.e., species whose specimens in trade look like those of species listed for conservation reasons.
- Appendix III
  - ✓ It is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation.
  - ✓ Examples include map turtles, walruses, and Cape stag beetles. Currently, 211 species are listed.
  - ✓ International trade in specimens of species listed in this Appendix is allowed only on presentation of the appropriate permits or certificates.
- Species may be added to or removed from Appendix I and II, or moved between them, only by the Conference of the Parties. **Hence statement 3 is correct.**

**Q. 20) Consider the following statements about the Red Crowned Roofed Turtle**

1. It is a marine turtle species endemic to India.
2. It is listed as critically endangered on the IUCN Red List.

Choose the correct code:

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



Q.20) Solution: (b)

**Explanation:**

- Red Crowned Roofed Turtle is one of the 24 species endemic to India and is characterised by bright colours such as red, yellow, white, and blue on the faces and necks of the males.
- It is a **freshwater turtle species** found in deep-flowing rivers with terrestrial nesting sites.
- It is native to India, Bangladesh, and Nepal.
- Historically, the species was widespread in the Ganga River, both in India and Bangladesh. It also occurs in the Brahmaputra basin.
- Currently in India, the National Chambal River Gharial Sanctuary is the only area with a substantial population of the species. **Hence statement 1 is incorrect.**
- It is listed in Schedule I of the Wildlife Protection Act (WPA) and Appendix II of CITES.
- It is listed as critically endangered on the **IUCN Red List**. **Hence statement 2 is correct.**

**Q.21) Consider the following statements with respect to 'The Energy Conservation (Amendment) Bill, 2022'**

1. The Bill empowers the government to require designated consumers to meet a minimum share of energy consumption from non-fossil sources
2. It adds a tradeable carbon credit certificate for reducing carbon emissions and also provides for its interchangeability between renewable energy certificates and carbon credits
3. The Bill expands the scope to include vehicles and vessels for which energy consumption standards may be specified

Choose the correct answer using the code given below

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

Q.21) Solution (c)

**Explanation:**

- The Bill adds that the **government may require certain designated consumers to meet a minimum share of energy consumption from non-fossil sources**. Different consumption thresholds may be specified for different non-fossil sources and consumer categories. Designated consumers include: (i) industries such as mining, steel, cement, textile, chemicals, and petrochemicals, (ii) transport sector including Railways, and (iii) commercial buildings, as specified in the schedule. **Statement 1 is Correct**
- The Bill adds **a tradeable carbon credit certificate for reducing carbon emissions**. The same activity may get covered under these schemes separately. For example, if a power generation company produces renewable energy, it earns a renewable energy certificate. By producing renewable energy, it may also be reducing carbon emissions, and hence, could be entitled to get carbon credits. Similarly, all energy saving measures could qualify as carbon emission reduction measures, as they reduce the amount of energy generation needed and hence, reduce carbon emissions. **The Bill does not specify whether these certificates will be interchangeable or not. Statement 2 is incorrect**
- Under the Act, the energy consumption standards may be specified for equipment and appliances which consume, generate, transmit, or supply energy. **The Bill expands the scope to include vehicles (as defined under the Motor Vehicles Act, 1988), and vessels (includes ships and boats). Statement 3 is correct**

Source: [CLICK HERE](#)

Q.22) 'Aeronomy' a term seen in news is related to

- a) Understanding the motion of air when affected by a solid object
- b) Stealth capability of aircrafts
- c) Creating zero pressure conditions
- d) Study of the upper atmospheric regions of the Earth

Q.22) Solution (d)

**Explanation:**

Aeronomy refers to the scientific study of the upper atmospheric regions of the Earth and other solar system bodies. It includes the distribution of temperature, density, and chemical constituents, and the chemical reactions that occur. It also includes the studies of aurora, airglow, the ionosphere, Van Allen radiation belts, cosmic rays, and radioactive and photochemical phenomena. It covers the chemistry, dynamics and energy balance of both neutral and charged particles.

Source: [CLICK HERE](#)

**Q.23) Consider the following statements**

1. A rise in levels of Nitrogen Oxide is directly related to the decrease of Methane levels in the troposphere
2. Methane has lesser warming power than carbon dioxide but has a higher life-span comparatively

Select the correct statement(s)

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

Q.23) Solution (a)

**Explanation:**

- Nitrogen oxide (NO<sub>x</sub>) can impact methane levels. **In the troposphere — the upper part of the atmosphere — NO<sub>x</sub> combines with ozone to form hydroxyl radicals. These radicals remove 85 per cent of methane annually from the atmosphere.** Nitrogen oxide enters the atmosphere from exhaust gases of cars and trucks as well as electrical power generation plants. Thus during the lockdown, **Nitrogen oxide pollution was reduced drastically increasing methane levels. Statement 1 is correct**
- Methane is **short-lived**, compared to carbon dioxide. **Methane has more than 80 times the warming power of carbon dioxide over the first 20 years** of its lifetime in the atmosphere. **Statement 2 is incorrect**

Source: [CLICK HERE](#)

**Q.24) Consider the following statements about Agni-5 Missile**

1. It is a nuclear capable missile with two-stage solid-fuelled engine.
2. Agni-5 can strike targets at ranges of 7,000 to 7,500 km.
3. The missile is operated by the Strategic Forces Command (SFC).

Choose the correct answer using the code given below

- a) 1, 2 and 3
- b) 1 and 2
- c) 3 only
- d) None

Q.24) Solution (c)

**Explanation:**

- The nuclear-capable missile, which uses a **three-stage solid-fuelled engine**, has been developed by DRDO. **Statement 1 is incorrect**
- Medium to Intercontinental versions of Agni missile systems 1 to 5 have varying ranges, starting from 700 km for Agni-1 to 5000 km and above for Agni-5. **Agni-5 can strike targets at ranges of 5,000 to 5,500 km. Statement 2 is incorrect**
- The missile is operated by the **Strategic Forces Command (SFC)**. **Statement 3 is correct**

**Q.25) With reference to 'Dokra Metal Crafts', consider the following statements**

1. Dokra is a form of ancient bell metal craft practiced in states like Jharkhand
2. The Dokra artifacts are made in brass and are unique in that the pieces do not have any joints

Select the INCORRECT statement(s)

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

Q.25) Solution (d)

**Explanation:**

- **Dhokra is a form of ancient bell metal craft** practiced by the Ojha metal smiths living in states like **Jharkhand, Chhattisgarh, Odisha, West Bengal and Telangana**. However, the style and also the workmanship of this artisan community varies in different states.
- **The Dokra artifacts are made in brass and are unique in that the pieces do not have any joints**. The method is combining metallurgical skills with wax techniques employing the lost wax technique, a unique form where mould is used only once and broken, making this art the only one-of-its-kind in the world.

Source: [CLICK HERE](#)

**Q.26) Vani who is the sister-in-law of Ashwin, is the daughter-in-law of Kavya. Dheeraj is the father of Sudhir who is the only brother of Ashwin. How Kavya is related to Ashwin?**

- a) Mother-in-law
- b) Aunt
- c) Wife
- d) Mother

Q.26) Solution (d)

**Explanation:**

Ashwin is the only brother of Sudhir and Vani is the sister-in-law of Ashwin. Hence Vani is the wife of Sudhir. Kavya is the mother-in-law of Vani. Kavya is the mother of Ashwin.

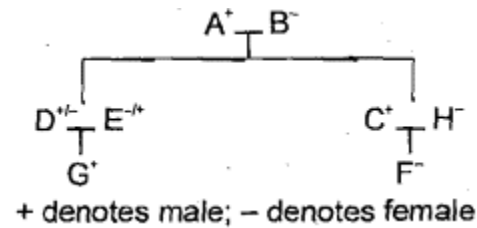
**Q.27) In a family of 8 persons viz A, B, C, D, E, F, G and H there are 3 couples and 4 females. All couples except one particular couple have 1 child each G and F are cousins, B is the grandmother of G and C is the son of A. If couple C - H has a daughter F then how is G related to E?**

- a) Grandson
- b) Granddaughter
- c) Son
- d) Daughter-in-law

Q.27) Solution (c)

**Explanation:**

Couple C - H has a daughter F, that means is the grandfather (A can't be the grandmother as B is the grandmother in the family) of F So G and F come out to be grandchildren from different sets of parents A and B form a couple There are 4 females in the family i.e. 1 each in three couples and F So G is a male who must be the son of E We can arrive at the following family tree

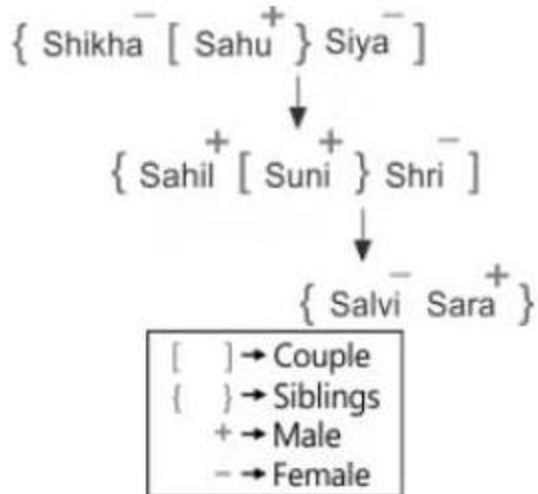


**Q.28) In a family of 8 members, there are only two married couples and only married couples can have child. Shikha is the elder sister of Sahu, who is married to Siya. Salvi is the only daughter of Sumi, who is the nephew of Shikha. Sahil is the brother-in-law of Shri, who does not belong to the first generation. It is to be assumed that the wife is younger than his husband. Siya is the grandmother of Sara. How is Sahil related to Shikha?**

- Uncle
- Nephew
- Son
- No direct relation

Q.28) Solution (b)

**Explanation:**



Sahil is Nephew to Shikha. Hence, the correct option is (b).

**Q.29) Abhishek said - "This girl is the wife of the grandson of my mother". How is Abhishek related to the girl?**

- a) Brother
- b) Grandfather
- c) Father in law
- d) Husband

Q.29) Solution (c)

**Explanation:**

The girl is the wife of grandson of Abhishek's mother i.e., the girl is the wife of son of Abhishek. Hence, Abhishek is the father-in-law of the girl.



**Read the following passage and answer the questions that follow each passage. Your answer to these questions should be based on passage only.**

Over the last few days, Delhi residents have been protesting against the government's approval for felling over 14,000 trees in south Delhi. Faced with severe criticism, the National Buildings Construction Corporation, tasked with redeveloping half a dozen south Delhi colonies, assured the Delhi High Court that no trees would be cut for the project till July 4, which is temporary relief. Many of the trees proposed to be felled are mature, local, fruit-bearing ones that provide clean air, shade and water recharge to humans and are homes to many birds. These areas of Delhi have served as the "lungs" of the city. However, the project reports overlook these qualities.

Large constructions have been difficult to manage in India. The sector has systematically lobbied to be excluded from the environmental norms of the country and has been successful in carving out special privileges for itself in the environment clearance process. From 2006, most construction projects have been approved based on an application form instead of detailed assessment reports. In 2014, schools, colleges and hostels for educational institutions were exempted from taking environment clearances as long as they followed specific sustainability parameters. In 2016, projects with areas of less than 20,000 sq m were permitted to proceed as long as they submitted a self-declaration ensuring adherence to environmental norms. As a result of these privileges, construction projects contribute significantly to urban air and noise pollution and high water consumption in cities. Compensatory afforestation taken up in lieu of trees felled by projects is a failure due to poor survival rates of saplings and no monitoring. Yet all regulatory bodies treat large constructions with kid gloves.

The Minister for Urban Development has stated that this public campaign is misinformed. But that is far from the truth. In a literate, urban society that has high access to the Internet, the lack of official information on urban development and its impacts can only be understood as an indirect form of public silencing. There are no public hearings held for urban construction projects, and governments assume that citizens have nothing to say about them. Since Delhi is ruled by so many agencies, you can run from pillar to post and still not have a clue about who is

in charge of what. The residents are now appealing to the government to embrace inclusive ways of redesigning the city. The governments could join hands by committing to review these projects.

**Q.30) Which of the following, if true, would strengthen the claim that compensatory afforestation has been a failure?**

1. Saplings planted have a poor survival rate.
2. There is inadequate monitoring of the afforestation done.
3. The funds provided are adequate to cover the areas as well as look after them.

Choose the correct code

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

Q.30) Solution (b)

**Explanation:**

Statement 3 is opposite of what is needed.

Statements 1 and 2 are correct and indicate reasons for compensatory afforestation failing.

Hence, option b is correct.