

Q. 1) Consider the following statements regarding levels of biodiversity

1. Genetic diversity ensures the survival of the population.
2. Species diversity refers to variety of living and non-living things in a surrounding.
3. Ecosystem diversity is influenced by the nature of the ecosystem.

Choose the correct code:

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

Q.1) Solution: (c)

Explanation:

- Genetic diversity ensures the survival of the population as it ensures the survival of individuals. It aims to ensure that some species survive drastic changes and thus carry on desirable genes.
- It is concerned with the variation in genes within a particular species. It allows species to adapt to changing environments. **Hence statement 1 is correct.**
- Species diversity refers to the variety of living organisms on earth. Species differ from one another, especially in their genetic makeup, and do not interbreed in nature. It is the ratio of one species' population over the total number of organisms across all species in the given biome. Zero represents infinite diversity and one represents only one species present. **Hence statement 2 is incorrect.**
- Ecosystem diversity refers to different types of habitats.
- A habitat is the cumulative factor of the climate, vegetation, and geography of a region. Ex: Grasslands and Corals.
- Ecosystem diversity is influenced by the nature of the ecosystem because the climate changes are accompanied by the change in vegetation as well and each species adapts itself to a particular kind of environment. Hence, the diversity of species in the ecosystem is influenced by the nature of the ecosystem. **Hence statement 3 is correct.**

Q. 2) Consider the following statements

1. Species richness is the proportion of species at a given site.
2. Alpha diversity is a comparison of diversity between ecosystems.
3. Beta diversity is the diversity within a particular ecosystem.
4. Gamma diversity is the overall diversity of the different ecosystems in a region.

Choose the correct code:

- a) Only one statement is correct
- b) Two statements are correct
- c) Three statements are correct
- d) Four statements are correct

Q.2) Solution: (a)

Explanation:

- Species richness is the measure of the number of species found in a community.
- The species richness of an ecosystem is taken into account as one of the most popular methods for estimating biodiversity.
- Species richness is the measurement of all the species that are present in a given area.
- The ecosystem will be more stable if there are more species since more species mean more species richness.
- Increased species diversity will eventually boost biodiversity, which is a crucial component of preserving biodiversity.
- Species evenness is the proportion of species at a given site. **Hence statement 1 is incorrect.**
- Alpha diversity is a comparison of diversity between ecosystems.
- The number of species found in the area of concern is how alpha diversity is expressed.
- As a result, species richness in that particular ecosystem is provided by alpha diversity.
- Compared to beta and gamma diversity, alpha diversity is a small-scale indicator. **Hence statement 2 is incorrect.**
- Beta diversity is the diversity within a particular ecosystem.
- When species diversity varies between groups or ecosystems, it is referred to as beta diversity.
- Therefore, beta diversity enables the comparison of ecosystem biodiversity.
- The number of species that are particular to each system is measured in beta diversity. **Hence statement 3 is incorrect.**
- Gamma diversity is the overall diversity of the different ecosystems in a region.

- It is a measurement for assessing a large area's total biodiversity.
- As a result, it calculates the total diversity of all the ecosystems in that area.
- The average species diversity in an ecosystem and the variation in species diversity between those habitats are the two factors that determine total diversity.
- Geographic-scale species diversity is one sort of gamma diversity. **Hence statement 4 is correct.**

Q. 3) Which of the following forms the Supporting Services of Ecosystem provided by biodiversity?

1. Production of Atmospheric Oxygen
2. Recreation and tourism
3. Soil Formation
4. Food and wood products
5. Nutrient Cycling
6. Research and education

Choose the correct code:

- a) 1, 2 and 5
- b) 3, 4 and 5
- c) 4, 5 and 6
- d) 1, 3 and 5

Q.3) Solution: (d)

Explanation:

The Millennium Ecosystem Assessment (MA) has classified the ecosystem services in four categories as listed below

- **Provisioning services are:** The products obtained from ecosystems, including, for example, genetic resources, **food and fiber**, and fresh water.
- **Regulating services are:** The benefits obtained from the regulation of ecosystem processes, including, for example, the regulation of climate, water, and some human diseases.
- **Cultural services are:** The non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, **recreation and tourism**, and aesthetic experience, including, e.g., **knowledge systems(Research and Education)**, social relations, and aesthetic values.

- **Supporting services are:** Ecosystem services that are necessary for the production of all other ecosystem services. Some examples include biomass production, **production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provisioning of habitat**
- **Hence option d is correct.**

Q. 4) Consider the following statements about Mega Diverse Countries

1. It is identified by the United Nations Environment Programme.
2. The countries must have at least 5,000 of the world's plants as endemics.
3. The countries must have marine ecosystems within their borders.

Choose the correct code:

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

Q.4) Solution: (d)

Explanation:

- Mega Diverse Countries is identified by the World Conservation Monitoring Centre (WCMC) of the United Nations Environment Program to promote awareness of biodiversity conservation. Seventeen countries have been identified as megadiverse countries.
- They account for 70% of the total biodiversity present on Earth.
- These include most tropical rainforests, coral reefs, and other biodiversity-rich ecosystems.
- They are - Australia, the United States, India, China, South Africa, Brazil, Mexico, Madagascar, Congo, Indonesia, Malaysia, Ecuador, Philippines, Venezuela, Peru, Colombia, and Papua New Guinea. **Hence statement 1 is correct.**
- The major criterion is -
 - ✓ The countries must have at least 5,000 of the world's plants as endemics. **Hence statement 2 is correct.**

- ✓ The countries must have marine ecosystems within their borders. **Hence statement 3 is correct.**

Q. 5) Consider the following statements

1. Flagship species act as an icon for a defined habitat campaign or environmental cause.
2. Sentinel species are organisms used to detect risks to humans by providing advance warning of a danger.
3. Almost all examples of keystone species are plants that have a huge influence on food webs.

Choose the correct code:

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

Q.5) Solution: (a)

Explanation:

- **Flagship species** act as an icon for a defined habitat campaign or environmental cause. By conserving this species the status of many other species will improve.
✓ Ex: Bengal Tiger. **Hence statement 1 is correct.**
- **Sentinel species are organisms, often animals, used to detect risks to humans by providing advance warning of a danger. The terms primarily apply in the context of environmental hazards rather than those from other sources. Sentinel species are a sensitive indicator of environmental problems. Its presence or absence indicates a specific environmental condition.**
Ex: Lichens are sensitive to SO₂ pollution. **Hence statement 2 is correct.**
- A keystone species is an organism that helps define an entire ecosystem. Without its keystone species, the ecosystem would be dramatically different or cease to exist altogether.
- Keystone species have low functional redundancy. This means that if the species were to disappear from the ecosystem, no other species would be able to fill its ecological niche. The ecosystem would be forced to radically change, allowing new and possibly invasive species to populate the habitat.

- Any organism, from plants to fungi, may be a keystone species; they are not always the largest or most abundant species in an ecosystem. However, almost all examples of keystone species are animals that have a huge influence on food webs. The way these animals influence food webs varies from habitat to habitat.Ex: Wolves. **Hence statement 3 is incorrect.**

Q. 6) Consider the following statements about climate forcings

1. Human-caused positive forcings are what is pushing the climate to change is the major concern with global warming
2. Aerosols are categorised under negative climate forcing

Choose the correct code:

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

Q.6) Solution: (c)

Explanation:

- Climate forcing refers to the factors that affect the balance of energy in the Earth's climate system, causing it to either warm or cool. Human activities, such as the burning of fossil fuels, deforestation, and land-use changes, have significantly increased the concentration of greenhouse gases in the atmosphere, leading to a positive forcing that is causing the climate to warm. This is the major concern with global warming because it is causing a range of negative impacts, including sea-level rise, extreme weather events, and changes in precipitation patterns.
- **Hence statement 1 is correct.**
- The second statement is also correct. Aerosols, which are small particles suspended in the atmosphere, can either warm or cool the planet depending on their properties and concentrations. However, on average, they have a cooling effect, and therefore are classified as a negative forcing. This is because they reflect sunlight back into space and also increase the amount of clouds, which reflect more sunlight. The cooling effect of aerosols has partially offset the warming effect of greenhouse gases, but it is also causing

other environmental issues such as air pollution and acid rain. Hence statement 2 is correct .

Q. 7) Consider the following statements about modes of conservation

1. In-situ conservation is conservation in their natural habitat.
2. Ex-situ conservation is conservation outside their natural habitat.
3. Zoological parks are examples of in-situ conservation.
4. National parks are examples of ex-situ conservation.

Choose the correct code:

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

Q.7) Solution: (c)

Explanation:

- In-situ conservation is conservation in their natural habitat.
- It is the on-site conservation of genetic resources in natural populations of plant or animal species. **Hence statement 1 is correct.**
- Ex-situ conservation is conservation outside their natural habitat.
- In this approach, threatened animals and plants are taken out of their natural habitat and placed in a special setting where they can be protected and given special care. **Hence statement 2 is correct.**
- Zoological parks, botanical gardens, wildlife safari parks, and seed banks are examples of ex-situ conservation. **Hence statement 3 is incorrect.**
- **Biosphere reserves, national parks, sanctuaries, reserved forests, protected forests, and nature reserves** are examples of in-situ conservation. **Hence statement 4 is incorrect.**

Q. 8) Consider the following statements about the Biodiversity Hotspots

1. It must contain at least 15,000 species of vascular plants as endemics.
2. It has to have lost at least 70% of its original habitat.

3. The Western Ghats along with Sri Lanka are listed as biodiversity hotspots

Choose the correct code:

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

Q.8) Solution: (b)

Explanation:

- Biodiversity Hotspots are regions with high species richness and a high degree of endemism.
- The British biologist Norman Myers coined the term “biodiversity hotspot” in 1988 as a biogeographic region characterized both by exceptional levels of plant endemism and by serious levels of habitat loss.
- Conservation International (CI) adopted Myers’ hotspots and in 1996, the organization decided to undertake a reassessment of the hotspots concept.
- According to CI, to qualify as a hotspot a region must meet two strict criteria:
- **It must contain at least 1,500 species of vascular plants as endemics. Hence statement 1 is incorrect.**
- **It has to have lost at least 70% of its original habitat. Hence statement 2 is correct.**
- Biodiversity Hotspots of India -
- Himalaya: Includes the entire Indian Himalayan region (and that falls in Pakistan, Tibet, Nepal, Bhutan, China, and Myanmar).
- Indo-Burma: Includes entire North-eastern India, except Assam and Andaman group of Islands (and Myanmar, Thailand, Vietnam, Laos, Cambodia, and southern China)
- **Western Ghats and Sri Lanka:** Includes the entire Western Ghats (and Sri Lanka).
- **Sundalands:** Includes Nicobar group of Islands (and Indonesia, Malaysia, Singapore, Brunei, and the Philippines). **Hence statement 3 is correct.**

Q. 9) Consider the following statements about Project Tiger

1. It is a centrally sponsored scheme of the Ministry of Environment, Forests, and Climate Change.
2. It was launched when Morarji Desai was the Prime minister

Choose the correct code:

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

Q.9) Solution: (a)

Explanation:

- Project Tiger is a **centrally sponsored scheme of the Ministry of Environment, Forests, and Climate Change providing central assistance to the tiger States** for tiger conservation in designated tiger reserves. **Hence statement 1 is correct.**
- **Project Tiger is a tiger conservation programme launched in November 1973 by the Government of India during Prime Minister Indira Gandhi's tenure. The project aims at ensuring a viable population of the Bengal tiger in its natural habitats, protecting it from extinction, and preserving areas of biological importance as a natural heritage that represent the diversity of ecosystems across the tiger's range in the country. Hence statement 2 is incorrect.**

Q. 10) Consider the following statements

1. Wildlife Sanctuaries protect historical antics, plants, and animals under the complete ecosystem.
2. National Parks can be under the government or owned by private entities.
3. In core zones of Biosphere Reserves, human activities are strictly prohibited.

Choose the correct code:

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

Q.10) Solution: (c)

Explanation:

Wildlife sanctuary	Biospheres	National parks
The wildlife sanctuaries protect only wild animals.	Biospheres protect entire diversity, including the various plants and animals found in that area. It empowers the tribal habitat of a particular area.	The national parks protect historical antics, plants and animals under the complete ecosystem.
The boundaries of the wildlife sanctuaries are not fixed.	Biospheres have fixed boundaries.	The boundaries are fixed as per the government regulations.
These can be under the government or owned under private entities.	The government owns the biosphere.	Government has complete power over the national parks.
The wildlife sanctuaries own a small area.	Comparatively to both, they have a large area.	National parks cover small region.
Human activities are permitted with minor restrictions compared to the other two.	Human activities are strictly prohibited in core zone.	Partial restrictions are applied, and no activities are permitted in core regions of the national park.

Hence option c is correct.

Q. 11) Consider the following statements about Biochemical Oxygen Demand (BOD)

1. It is the amount of oxygen required to oxidise organic and inorganic compounds in the water.
2. It is expressed in milligrams of oxygen per litre of water.
3. Higher BOD indicates lower water quality.

Choose the correct code:

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

Q.11) Solution: (d)

Explanation:

- Biochemical Oxygen Demand (BOD) is the **amount of dissolved oxygen needed by bacteria** in decomposing the organic wastes present in water.
- Water pollution by organic wastes is measured in terms of Biochemical Oxygen Demand (BOD).
- BOD is **limited to biodegradable materials**.
- Chemical Oxygen Demand (COD) measures the amount of oxygen in parts per million required to oxidise **organic (biodegradable and non-biodegradable)** and **oxidizable inorganic** compounds in the water sample. **Hence statement 1 is incorrect.**
- It is expressed in milligrams of oxygen per litre of water. **Hence statement 2 is correct.**
- Higher BOD indicates more oxygen is required, which is less for oxygen-demanding species to feed on, and signifies lower water quality. Inversely, low BOD means less oxygen is being removed from the water, so water is generally purer. **Hence statement 3 is correct.**

Q. 12) Honolulu Strategy is related to

- a) Mercury pollution
- b) Plastic pollution
- c) Nitrogen pollution
- d) Water pollution

Q.12) Solution: (b)

Explanation:

- Honolulu Strategy is related to plastic pollution. National Oceanic and Atmospheric Administration (NOAA) in the United States and UNEP created the Honolulu Strategy—a planning tool to reduce plastic pollution and its impacts.
- The Honolulu Strategy is a framework for a comprehensive and global collaborative effort to reduce the ecological, human health, and economic impacts of marine debris worldwide. **Hence option b is correct.**

Q. 13) Consider the following statements regarding air pollutants

1. The primary air pollutants are directly emitted from the source to the atmosphere.
2. The secondary air pollutants are a result of chemical reactions of primary pollutants.
3. Primary pollutants are stable whereas secondary pollutants are unstable.
4. Acid rain is an example of a primary air pollutant.

Choose the correct code:

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

Q.13) Solution: (a)

Explanation:

- The primary air pollutants are directly emitted from the source to the atmosphere.
- They can be controlled by reducing anthropogenic emissions. **Hence statement 1 is correct.**
- The secondary air pollutants are a result of chemical reactions of primary pollutants.
- They are difficult to stop because of the interlinked chemical reactions. **Hence statement 2 is correct.**
- Primary pollutants are unstable whereas secondary pollutants are stable or inert. **Hence statement 3 is incorrect.**
- Acid rain is caused by a chemical reaction that begins when compounds like sulfur dioxide and nitrogen oxides are released into the air. These both are themselves secondary pollutants. These substances can rise very high into the atmosphere, where they mix and react with water, oxygen, and other chemicals to form more acidic pollutants, known as acid rain. **Hence statement 4 is incorrect.**

Q. 14) Consider the following statements regarding the provisions of Solid Waste Management Rules, 2016

1. The waste collectors are responsible to segregate waste into dry, wet, and domestic hazardous waste.
2. All manufacturers of disposable products shall provide necessary financial assistance to local authorities for waste management.

3. The bio-degradable waste should be treated through composting or bio-methanation.
4. New townships should develop in-house waste handling for biodegradable wastes.

Choose the correct code:

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

Q.14) Solution: (b)

Explanation:

- Solid waste **refers to** all non-liquid wastes that include Solid as well as semi-solid wastes, but excluding Human and Animal excreta.
- Solid waste can create very serious health problems and an unpleasant living environment if not disposed of properly and safely, such waste may then also provide breeding sites for insect vectors, pests, snakes, and vermin that increase the risk of disease transmission.
- The Solid Waste Management Rules, 2016 was announced by the Union Ministry of Environment, Forests, and Climate Change (MoEF&CC). These will replace the Municipal Solid Wastes (Management and Handling) Rules, 2000, which have been in effect for the previous 16 years. Its provisions are:
- **The waste generators are responsible** to segregate waste into dry, wet, and domestic hazardous waste. **Hence statement 1 is incorrect.**
- All manufacturers of **disposable products** shall **provide necessary financial assistance to local authorities** to establish waste management system. **Hence statement 2 is correct.**
- It has made it essential for the producers to supply a bag or wrapper for disposal whenever they sell their items to the consumer in order to handle sanitary waste like diapers and sanitary pads appropriately.
- The bio-degradable waste should be treated through **composting or bio-methanation** as much as possible on the premises. **Hence statement 3 is correct.**
- New townships should develop in-house waste handling for biodegradable wastes. **Hence statement 4 is correct.**
- It requires all industrial units that use fuel and are located within 100 kilometers of a solid waste-based Refuse-Derived Fuel (RDF) plant to make arrangements to replace at least 5% of their fuel requirement with RDF produced within six months of notification of these rules.

- The government also established the Central Monitoring Committee, chaired by the Secretary of the MoEF&CC, to oversee overall law enforcement. The Committee of various central and state government stakeholders will meet once a year to track the enforcement of these laws.

Q. 15) Consider the following statements regarding e-waste regulations

1. India's first e-waste clinic has been set up in Bengaluru, Karnataka.
2. The Nairobi Declaration of the Basel Convention is related to the management of electronic waste.

Choose the correct code:

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

Q.15) Solution: (b)

Explanation:

- India's first e-waste clinic has been set up in Bhopal, Madhya Pradesh. It is used for segregating, processing, and disposal of waste from household and commercial units.
- The Central Pollution Control Board will provide technical support at the unit and the collected hazardous waste will then be sent to Bengaluru for recycling.
- This would ensure the scientific handling and disposal of electronic waste generated from households and commercial establishments. **Hence statement 1 is incorrect.**
- The **Nairobi Declaration** of the Basel Convention is related to the management of electronic waste.
- It was adopted at COP9 of the Basel Convention on the Control of the Transboundary Movement of Hazardous Waste. It aimed at creating innovative solutions for the environmentally sound management of electronic waste. **Hence statement 2 is correct.**

Q. 16) Consider the following statements regarding Central Pollution Control Board (CPCB)

1. It is a statutory organization formed under the Water (Prevention and Control of Pollution) Act of 1974.
2. The CPCB is also entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

Choose the correct code:

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

Q.16) Solution: (c)

Explanation:

- The Central Pollution Control Board (CPCB) of India is a statutory organization under the Ministry of Environment, Forest and Climate Change (Mo.E.F.C.C.). It was established in 1974 under the Water (Prevention and Control of pollution) Act, 1974. The CPCB is also entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981. It serves as a field formation and also provides technical services to the Ministry of Environment and Forests under the provisions of the Environment (Protection) Act, 1986. It coordinates the activities of the State Pollution Control Boards by providing technical assistance and guidance and also resolves disputes among them. It is the apex organization in country in the field of pollution control, as a technical wing of MoEFCC. **Hence Both Statement 1 and 2 are correct**

Q. 17) Consider the following statements about Apis Karinjodian

1. It is a honeybee endemic to the Western Ghats.
2. It is classified as endangered on the IUCN list.
3. It is found in Kerala, Karnataka, Goa, and Tamil Nadu.

Choose the correct code:

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

d) 1, 2 and 3

Q.17) Solution: (a)

Explanation:

- Apis Karinjodian has evolved from Apis cerana morphotypes that got acclimatised to the hot and humid environment of the Western Ghats.
- Its common name is Indian Black Bee.
- Indian black honeybees can produce thicker honey which allows for increased honey production.
- To date, only a single species, Apis cerana was noted across the plains of central and southern India and Sri Lanka as a 'fairly uniform population' in the Indian subcontinent.
- It is a honeybee endemic to the Western Ghats. **Hence statement 1 is correct.**
- It is classified as near threatened on the IUCN list. **Hence statement 2 is incorrect.**
- The distribution of Apis karinjodian ranges from the central Western Ghats and Nilgiris to the southern Western Ghats, covering the States of Goa, Karnataka, Kerala, and parts of Tamil Nadu. **Hence statement 3 is correct.**

Q. 18) Consider the following statements about algal bloom

1. They occur when colonies of algae grow out of control and produce toxins.
2. They are not influenced by temperature and turbidity.
3. Nitrogen testing & modeling helps in mitigating it.

Choose the correct code:

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

Q.18) Solution: (b)

Explanation:

- Algal bloom occurs **when colonies of algae grow out of control and produce toxins.**
- They produce extremely dangerous toxins that can sicken or kill people and animals.

- Fish contaminated with the algae and eaten by other organisms, including humans, can be harmful to them.
- Algal blooms can also impact aquaculture or the farming of marine life.
- There have also been complaints of respiratory distress in humans due to it. **Hence statement 1 is correct.**
- They are influenced by temperature, turbidity, and eutrophication.
- Blooms are more likely to happen in summer or fall but can occur at any time of year.
- Turbidity is caused by the presence of suspended particles and organic matter in the water column.
- When turbidity is low, more light can penetrate through the water column. This creates optimal conditions for algal growth.
- Nutrients promote and support the growth of algae and Cyanobacteria. The Eutrophication i.e. nutrient enrichment of waterways is considered a major factor. **Hence statement 2 is incorrect.**
- **Nitrogen testing & modeling helps in mitigating it.**
- N-Testing is a technique to find the optimum amount of fertilizer required for crop plants. It will reduce the amount of nitrogen lost to the surrounding area. **Hence statement 3 is correct.**

Q. 19) Consider the following statements about the Climate & Clean Air Coalition

1. It is committed to protecting the climate by reducing short-lived climate pollutants.
2. It is a unique initiative of the G-20 group of countries.

Choose the correct code:

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

Q.19) Solution: (a)

Explanation:

- The Climate & Clean Air Coalition is committed to protecting the climate by reducing short-lived climate pollutants.

- It is the only global effort that unites governments, civil society, and the private sector, committed to improving air quality and protecting the climate in the next few decades by reducing short-lived climate pollutants across sectors.
- The Coalition's initial focus is on methane, black carbon, and HFCs. **Hence statement 1 is correct.**
- It is an initiative of Bangladesh, Mexico, Sweden, Ghana, Canada, and the USA along with the UNEP. **Hence statement 2 is incorrect.**

Q. 20) Consider the following statements about Background radiation

1. It is a measure of the level of ionizing radiation present in the environment at a particular location which is not due to deliberate introduction of radiation sources.
2. For those who work in nuclear plants shouldn't be exposed to over 30 milli-Sievert of radiation every year

Choose the correct code:

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

Q.20) Solution: (c)

Explanation:

- Background radiation is the natural radiation that is always present in the environment. Background radiation is a measure of the level of ionizing radiation present in the environment at a particular location which is not due to deliberate introduction of radiation sources..
- It includes cosmic radiation which comes from the sun and stars, terrestrial radiation which comes from the Earth, and internal radiation which exists in all living things. **Hence statement 1 is correct.**
- Public exposure shouldn't exceed 1 milli-Sievert every year, those who work in nuclear plants or are by virtue of their occupation come contact with radiation shouldn't be exposed to over 30 milli-Sievert every year.
- Generally it is measured in nanogray per second. A (nGy/s) is a decimal fraction of the SI-derived unit of ionizing radiation absorbed dose rate.They can be emitted from monazite sands with thorium, granite, and basaltic volcanic rock. **Hence statement 2 is correct.**

Q.21) Consider the following statements about Swatch Sagar, Surakshit Sagar Campaign:

1. It is the longest running coastal cleanup campaign in the world with highest number of people participating in it.
2. A mobile app Eco Mitram has been launched to spread awareness about the campaign.

Choose the INCORRECT statements:

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

Q.21) Solution (d)

Explanation:

- It is the first-of-its-kind and **longest running coastal cleanup campaign in the world** with **highest number of people** participating in it. It is a 75-day citizen-led campaign for improving ocean health through collective action.
- A **mobile app “Eco Mitram”** has been launched to spread awareness about the campaign and also for the common people for voluntary registration for the beach cleaning activity.

Source: [CLICK HERE](#)

Q.22) INSPIRE Award, recently seen in news is aligned with which of the following initiative?

- a) SMILE
- b) Start-Up India
- c) Samarth Scheme
- d) Atal Innovation Mission

Q.22) Solution (b)

Explanation:

INSPIRE (Innovation in Science Pursuit for Inspired Research) Award is aligned with the ‘Start-up India’ initiative and is being executed by DST (Department of Science and Technology) with

National Innovation Foundation – India (NIF), an autonomous body of DST. Under this, the students are invited from all government or private schools throughout the country, irrespective of their educational boards (national and state).

Source: [CLICK HERE](#)

Q.23) Consider the following statements about Peatlands

1. Peatlands occur in every climatic zone and sequester more carbon than any other type of terrestrial ecosystem.
2. Cuvette Centrale peatlands, in Congo basin is the world's largest tropical peatland complex.
3. Brazzaville Declaration, implements coordination between different government sectors to protect the benefits provided by peatland ecosystems.

Choose the correct statements:

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

Q.23) Solution (d)

Explanation:

- Peatlands are terrestrial wetland ecosystems in which waterlogged conditions prevent plant material from fully decomposing. Consequently, the production of organic matter exceeds its decomposition, which results in a net accumulation of peat. **Peatlands occur in every climatic zone and continent.**
- **world's largest tropical peatlands is Cuvette Centrale region in Congo Basin**
- **Brazzaville Declaration aims to implement coordination and cooperation between different government sectors to protect the benefits provided by peatland ecosystems.** The agreement is the beginning of a deep collaboration between Indonesia, covered by vast expanses of peatlands, and the Congo Basin.

Source: [CLICK HERE](#)

Q.24) Consider the following statements about India Hypertension Control Initiative (IHCI)

1. It is a large-scale intervention under the National Health Mission (NHM).
2. IHCI is a collaborative initiative of the health ministry, Indian Council of Medical Research (ICMR), state governments and World Health Organization-India.
3. India won a United Nations award for its Hypertension Control Initiative.

Choose the INCORRECT statements:

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

Q.24) Solution (c)

Explanation:

- India won a UN award for its Hypertension Control Initiative. The initiative is a large-scale intervention under the National Health Mission (NHM). Under the initiative, 3.4 million hypertensive people were identified and put on treatment at various government health facilities.
- IHCI is a multi-partner initiative of the Ministry of Health and Family Welfare, Indian Council of Medical Research (ICMR), WHO Country Office for India and Resolve to Save Lives (Technical partner).
- The award comes at a time when the WHO has estimated that one in every four adults in India suffers from hypertension and only 12 per cent of these adults have hypertension under control.

Source: [CLICK HERE](#)

Q.25) Consider the following statements about Asia-Pacific Institute for Broadcasting Development (AIBD)

1. The Asia-Pacific Institute for Broadcasting Development (AIBD), established in 1977 under the auspices of UNESCO.
2. It is a unique regional inter-governmental organisation servicing members of the UNESCO in the field of electronic media development.

3. Currently India is heading the presidency of Asia-Pacific Institute for Broadcasting Development (AIBD).

Choose the correct statements:

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

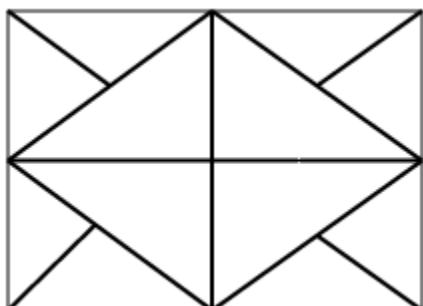
Q.25) Solution (c)

Explanation:

- The **Asia-Pacific Institute for Broadcasting Development (AIBD)** was established in **1977** under the aegis of **United Nations Educational, Scientific and Cultural Organization (UNESCO)**.
- It is a unique regional inter-governmental organisation **servicing countries of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) in the field of electronic media development**. Its secretariat is situated in Kuala Lumpur and is hosted by the Government of Malaysia.
- **India's Presidency of the prestigious Asia-pacific Institute of Broadcasting Development (AIBD) has been extended for one more year.**

Source: [CLICK HERE](#)

Q.26) How many triangles are there in the following figure?



- a) 10
- b) 12
- c) 16

d) 20

Q.26) Solution(d)

Explanation:

Number of smaller triangles = 12

Number of triangles formed with 2 triangles = 4

Number of larger triangles (combining triangles at the centre) = 4

Therefore, total triangles = $12 + 4 + 4 = 20$

Q.27) How many triangles are there in the given figure below



- a) 5
- b) 6
- c) 7
- d) 8

Q.27) Solution(b)

Explanation:

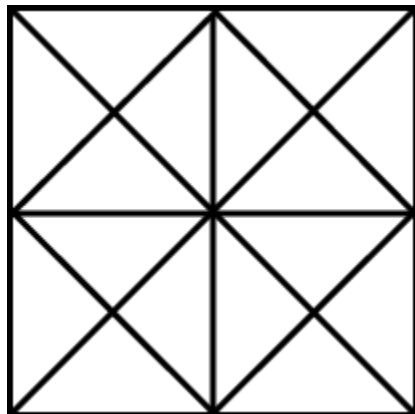


Number of larger triangles = 3

Number of triangles formed with color combination (blue+red) , (red) and (red+yellow) = 3

Therefore, total triangles = 3 + 3 = 6

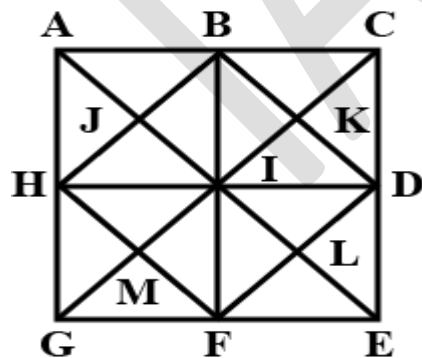
Q.28) How many squares are present in the figure given below



- a) 10
- b) 11
- c) 12
- d) 13

Q.28) Solution(a)

Explanation:



The squares composed of two components each are BKIJ,DLIK, FMIL and HJIM

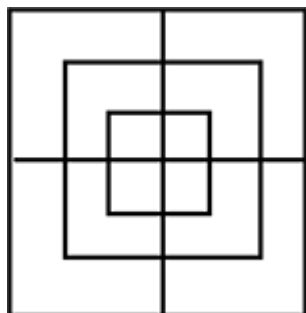
The squares composed of four components each are ABIH,BCDI, DEFI and GHIF

The squares composed of eight components each is BDFH

The squares composed of sixteen components each is ABEG

Therefore, Total number of squares = $4+4+1+1=10$

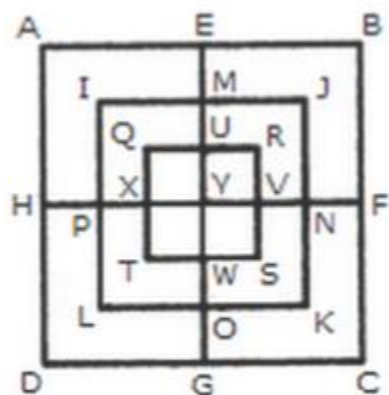
Q.29) Find the number of squares in the given figure below



- a) 9
- b) 12
- c) 15
- d) 18

Q.29) Solution (c)

Explanation:



The simplest squares are QUyx, URVY, YVSW and XYWT i.e. 4 in number.

The squares composed of two components each are IMYP, MJNY, YNKO and PYOL i.e. 4 in number.

The squares composed of three components each are AEYH, EBFY, YFCG and HYGD i.e. 4 in number.

There is only one square i.e. QRST composed of four components.

There is only one square i.e. IJKL composed of eight components.

There is only one square i.e. ABCD composed of twelve components.

Total number of squares in the given figure = $4+4+4+1+1+1=15$.

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

Passage

The first report presented by the Disinvestment Commission has all the ingredients of a well-researched policy document but its recommendations will be of little relief to the cash starved Government in mobilising additional resources from the selling of the equity shares of the public sector enterprises. The commission headed by Mr. GV Ramakrishna has proposed the setting up of a disinvestment fund constituted from the proceeds of sale of equity of profitable PSEs and the funds available with the National Renewal Fund. It has been stipulated that the amount thus collected could be utilised for turning around the loss-making units and restructuring the marginally profit-making undertakings. This is one way of reducing the budgetary support to loss-making PSEs while ensuring that they do not face closure due to paucity of funds. With the Government incurring expenditure of 2200 crore Rs in providing budgetary support to the loss-making PSEs, the United Front regime is in an unenviable position but at the same time the common minimum programme and the pressure from the Left parties have ruled out hard decisions on PSE restructuring and hence this roundabout way of withdrawal of budgetary support to the ailing PSEs.

Q.30) Why could the Government not restructure the loss-making PSEs?

- a) Because the government is giving budgetary support
- b) Because the government is going on setting up National Renewal Fund
- c) Because the government was compelled by Left parties not to take a hard step
- d) Because the government had already set up a committee to solve this problem

Q.30) Solution (c)

Explanation:

Refer to, “the United Front regime is in an unenviable position but at the same time the common minimum programme and the pressure from the Left parties have ruled out hard decisions on PSE restructuring....”

Hence, option c is the correct answer.