

Q.1) With reference to measurement of Biodiversity in the ecosystem, consider the following statements:

1. Species evenness measures the number of species found in a community.
2. Alpha diversity measures diversity within a particular area or ecosystem.
3. Gama diversity measures overall diversity for the different ecosystems within a region.

Which of the above statements are correct?

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

Q.1) Solution (b)

Statement analysis

Measurement of Biodiversity

Biodiversity is measured by two major components:

- Species richness, and
- Species evenness.

Species richness is the measure of number of species found in a community

1. **Alpha diversity** refers to the diversity within a particular area or ecosystem, and is usually expressed by the number of species (i.e., species richness) in that ecosystem. (So, statement 2 is correct.)
2. **Beta diversity** is a comparison of diversity between ecosystems, usually measured as the change in amount of species between the ecosystems.
3. **Gamma diversity** is a measure of the overall diversity for the different ecosystems within a region. (So, statement 3, is correct)

Species evenness measures the proportion of species at a given site, e.g. low evenness indicates that a few species dominate the site. (So, statement 1 is incorrect.)

Q.2) The term 'Evil Quartet' is associated with

- a) Cause of lower productivity of cultivable land.
- b) Role of Administrative machinery in impacting policy decisions.
- c) Causes of Human Animal conflict.
- d) Causes of rapid extinction of Biological diversity.

Q.2) Solution (d)

Explanation:

Causes of biodiversity losses: The accelerated rates of species extinctions that the world is facing now are largely due to human activities. **There are four major causes (‘ The Evil Quartet ’ is the sobriquet used to describe them).**

1. **Habitat loss and fragmentation:** This is the most important cause driving animals and plants to extinction. The most dramatic examples of habitat loss come from tropical rain forests. Once covering more than 14 per cent of the earth's land surface, these rain forests now cover no more than 6 per cent. They are being destroyed fast. Besides total loss, the degradation of many habitats by pollution also threatens the survival of many species. When large habitats are broken up into small fragments due to various human activities, mammals and birds requiring large territories and certain animals with migratory habits are badly affected, leading to population declines.
2. **Over-exploitation:** Humans have always depended on nature for food and shelter, but when 'need' turns to 'greed', it leads to over-exploitation of natural resources. Many species extinctions in the last 500 years (Steller's sea cow, passenger pigeon) were due to overexploitation by humans.
3. **Alien species invasions:** When alien species are introduced unintentionally or deliberately for whatever purpose, some of them turn invasive, and cause decline or extinction of indigenous species. The Nile perch introduced into Lake Victoria in east Africa led eventually to the extinction of an ecologically unique assemblage of more than 200 species of cichlid fish in the lake.
4. **Co-extinctions:** When a species becomes extinct, the plant and animal species associated with it in an obligatory way also become extinct. When a host fish species becomes extinct, its unique assemblage of parasites also meets the same fate. Another example is the case of a coevolved plant-pollinator mutualism where extinction of one invariably leads to the extinction of the other.

Q.3) There are different Modes of conservation of Biodiversity, which among the following are an example of Ex-situ conservation

- a) Reserved Forests
- b) Biosphere reserve
- c) Sanctuaries
- d) Horticultural Gardens

Q.3) Solution (d)

Explanation:

Some species are conserved at International level while some at National level. Conservation needs different strategies, they can be species based or ecosystem based or habitat based. There are different modes of conservation of Biodiversity. Conservation efforts can be largely grouped into the following two categories:

1. **Ex-Situ Conservation:** Conserving biodiversity outside the areas where they naturally occur is known as Ex-situ conservation.
 - Here, animals are reared or plants are cultivated like zoological parks or botanical gardens. Reintroduction of an animal or plant into the habitat from where it has become extinct is another form of ex -situ conservation.
 - **Seed banks, Cryopreservation, botanical, horticultural and recreational gardens are important centres for ex-situ conservation.**
2. **In- Situ Conservation:** it means “onsite conservation”. Conserving the animals and plants in their natural habitats is known as in-situ conservation. **The established natural habitats are: National parks, Sanctuaries, Biosphere reserves and Reserved forests and Protected forests.**

Q.4) Consider the following statements with reference to effects of Environmental pollution on Health:

1. Black foot disease is caused due to Arsenic leaching from soil.
2. Minamata disease is caused due to contamination of cadmium.
3. Sulphur oxide contamination from crude oil causes Yokkaichi Asthma.

Which of the statements given above is/are correct?

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

d) 1, 2 and 3

Q.4) Solution (c)

Explanation:

Statement 1: **Over exploitation of ground water may lead to leaching of arsenic from soil and rock sources and contaminate ground water.** Chronic exposure to arsenic causes **black foot disease**. It also causes diarrhoea, peripheral neuritis, hyperkerotosis and also lung and skin cancer.

Statement 2: **Minamata diseases was caused by the release of methyl mercury** in the industrial wastewater from the Chisso Corporation's chemical factory, which continued from 1932 to 1968. It is also referred to as Chisso-Minamata disease, is a neurological syndrome caused by severe mercury poisoning. **(Itai-itai disease is caused due to cadmium poisoning. Hence statement 2 is incorrect.)**

Statement 3: Yokkaichi Disease occurred in the city of **Yokkaichi** in Mie Prefecture, Japan between 1960 and 1972. **The burning of petroleum and crude oil released large quantities of sulfur oxide** that caused severe smog, resulting in severe cases of chronic obstructive pulmonary disease, chronic bronchitis, pulmonary emphysema, and bronchial asthma among the local inhabitants.

Q.5) Consider the following statements regarding Environmental Impact Assessment:

1. It is notified under Environmental Protection Act of 1986.
2. All projects or activities under category A and B shall require environmental clearance from the state government.
3. There is provision for Public hearing under EIA.

Which of the above statements are correct?

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

d) 1, 2 and 3

Q.5) Solution (c)

Explanation:

Statement 1: Under the Environment (Protection) Act, 1986, India notified its first EIA norms in 1994, setting in place a legal framework for regulating activities that access, utilise, and affect (pollute) natural resources. Every development project has been required to go through the EIA process for obtaining prior environmental clearance ever since.

An EIA notification is issued under Section 3 of the Environment Protection Act, 1986, to impose restrictions on setting up new projects or expansion or modernisation of existing projects. The section stipulates that such measures must benefit the environment. **Hence, Statement 1 is correct.**

Statement 2: Environment Impact Assessment Notification of 2006 has decentralised the environmental clearance projects by categorizing the developmental projects in two categories, i.e., Category A and Category B.

- All projects or activities included in **category 'A'** in the schedule require prior environmental clearances from central government in Ministry of Environment and Forest (MoE&F) on the recommendation of an Expert Appraisal committee (EAC) to be constituted by the central Government.
- While projects or activities under **Category 'B'** in the schedule requires prior environmental clearances from State/ Union territory Environmental impact assessment Authority (SEIAA). **Hence, statement 2 is incorrect.**

Statement 3: The Public Hearing shall be arranged in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site(s) or in its close proximity District -wise, by the concerned State Pollution Control Board (SPCB) or the Union Territory Pollution Control Committee (UTPCC). (Hence, statement 3 is correct.)

Q.6) Consider the following statements with reference to Solid Waste Management Rules of 2016?

1. Generator will have to pay 'User Fee' to waste collector and for 'Spot Fine' for Littering and Non-segregation.
2. The rules are applicable to Municipal areas and urban agglomeration only.
3. It introduced the collect back system for bio-degradable Packaging waste.

Which of the statements given above is/are correct?

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

Q.6) Solution (a)

Explanation:

Revamping solid waste management rules, government introduced new solid waste management rules in 2016. Following are the salient features of the new rules:

- **The Rules are now applicable beyond Municipal areas and extend to urban agglomerations**, census towns, notified industrial townships, areas under the control of Indian Railways, airports, airbase, Port and harbour, defence establishments, special economic zones, State and Central government organizations, places of pilgrims, religious & historical importance. **Hence, statement 2 is incorrect.**
- As per the new rules, all waste generators should start segregating their waste into three categories – Biodegradables, Dry Waste (Plastic, Paper, metal, Wood) and Domestic Hazardous Waste (diapers, napkins, mosquito repellents, cleaning agents) before they hand it over to the collectors.
- In order to manage the sanitary waste like diapers and sanitary pads effectively, the new guidelines have made it mandatory for the manufacturers to provide a pouch or wrapper for disposal whenever they sell their products to the customer.
- No person should throw, burn, or bury the solid waste generated by him, on streets, open public spaces outside his premises, or in the drain, or water bodies.
- Generator will have to pay '**User Fee**' to waste collector and for '**Spot Fine**' for Littering and Non-segregation. **Hence, statement 1 is correct.**
- The new guidelines says that the brand owners who sell or market their products in **packaging material which are non-biodegradable or are not environmental friendly**, will have to put a system in place to collect back the packaging waste generated due to their production. **(So, statement 3 is incorrect since it asks the same for non-biodegradable not biodegradable.)**
- The **bio-degradable waste** should be processed, treated and disposed of through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local authority.

- All street vendor should keep suitable containers or bins for storage of the waste generated by them such as food waste, disposable plates, cups, cans, wrappers, coconut shells, leftover food, vegetables, fruits etc. They are also responsible for their own waste and should deposit their waste at a waste storage depot or container or vehicle as notified by the local authority.
- Integration of ragpickers, waste pickers and kabadiwalas from the informal sector to the formal sector by the state government.

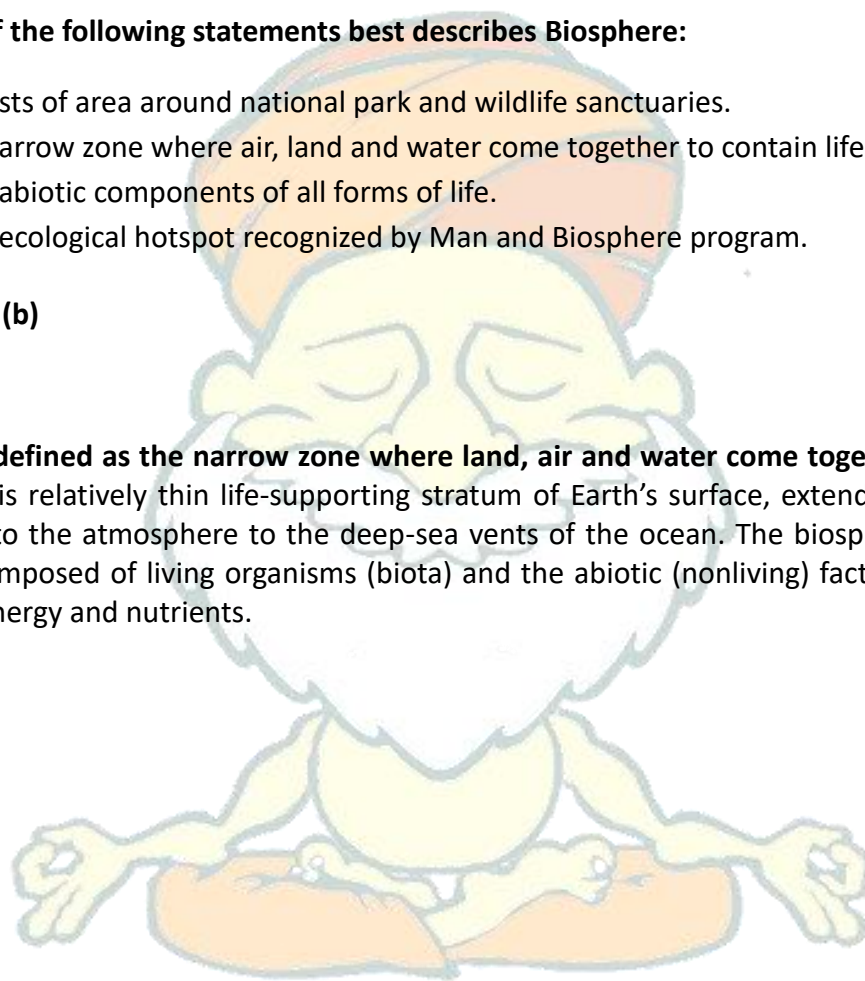
Q.7) Which of the following statements best describes Biosphere:

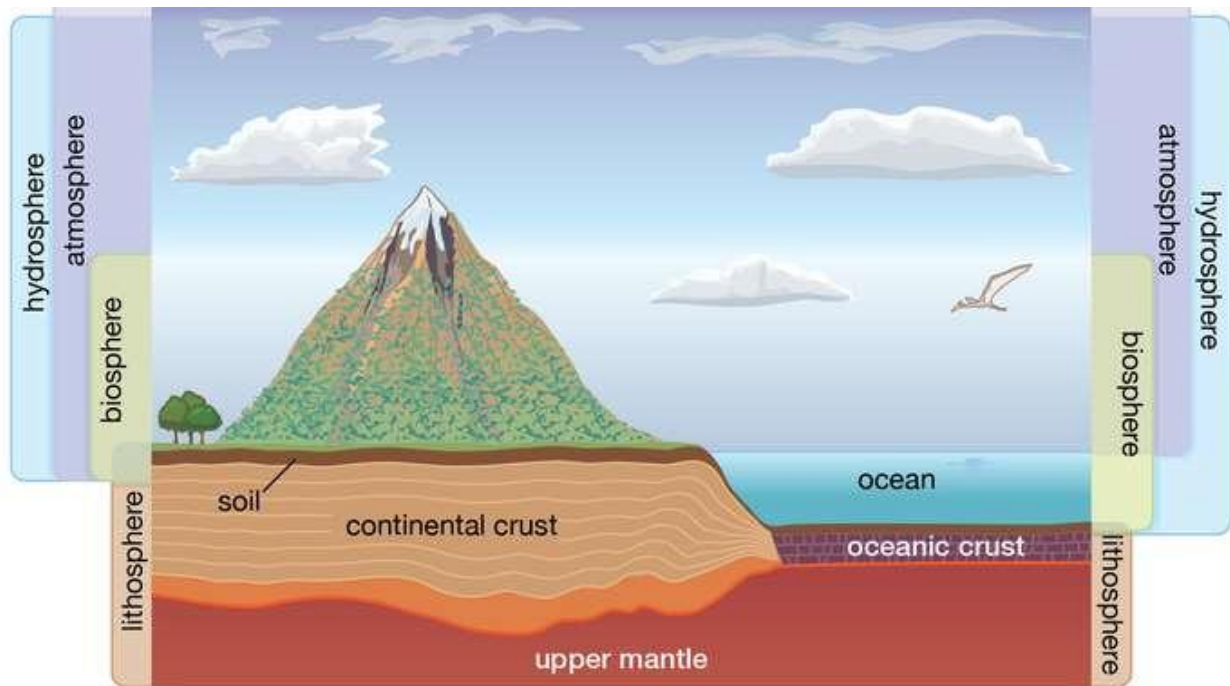
- a) It consists of area around national park and wildlife sanctuaries.
- b) It is a narrow zone where air, land and water come together to contain life forms.
- c) It is an abiotic components of all forms of life.
- d) It is an ecological hotspot recognized by Man and Biosphere program.

Q.7) Solution (b)

Explanation:

Biosphere is defined as the narrow zone where land, air and water come together to contain life forms. It is relatively thin life-supporting stratum of Earth's surface, extending from a few kilometres into the atmosphere to the deep-sea vents of the ocean. The biosphere is a global ecosystem composed of living organisms (biota) and the abiotic (nonliving) factors from which they derive energy and nutrients.





Q.8) UNEP along with other organisations has launched a campaign called 'Glowing, Glowing, Gone' to

- a) Create awareness about effect of Cosmetic product on Oceans
- b) To create awareness about conservation of coral reefs.
- c) To combat land desertification
- d) To reduce the use of plastic

Q.8) Solution (b)

Statement analysis:

In partnership with the United Nations Environment Programme, the Ocean Agency has launched Glowing Glowing Gone, a creative awareness campaign that draws attention to coral fluorescence due to climate change.

Coral fluorescence, or "glowing" coral, is a last line of defense before coral dies and bleaches. The Ocean Agency worked with Pantone and Adobe to turn the warning colours of glowing coral into three official Pantone colours, to inspire action that everyone can use.

Through Glowing Glowing Gone, The Ocean Agency hopes to garner public support to inspire policy and funding to conserve coral reefs and save an ecosystem on which our entire planet

depends.

Q.9) Which of the following species are endemic to India?

1. Asiatic Lion
2. Sangai deer
3. Lion Tailed Macaque

Select the correct answer using the code given below

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

Q.9) Solution (d)

Basic Information

Endemic species are plant and animal species that are found in a particular geographical region and nowhere else in the world. Some species are endemic to a continent while the others can be endemic to an island.

Statement Analysis:

Statement 1: **The Asiatic lion** is a *Panthera leo leo* population surviving **today only in India**. Since the turn of the 20th century, its range is restricted to Gir National Park and the surrounding areas in the Indian state of Gujarat. Historically, it inhabited much of Western Asia and the Middle East up to northern India.

Statement 2: **The Sangai** is an endemic and endangered subspecies of brow-antlered deer found only in Manipur, India. It is also the state animal of Manipur.

Statement 3: The **Lion-tailed macaque**, or the wanderoo, is an Old World monkey endemic to the Western Ghats of South India. These animals live is scattered over several areas in Tamil Nadu, Kerala, Karnataka. The lion-tailed macaque ranks among the rarest and most threatened primates. Its IUCN status is Endangered.

Q.10) Consider the following statements about Man and Biosphere Program:

1. The program was launched by Conservation International in 1971.
2. It aims to establish a scientific basis for the improvement of relationships between people and their environments.
3. From India, Panna Tiger reserve is latest to be added in the World network for Biosphere reserve.

Which of the above given statements is/are correct?

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

Q.10) Solution (c)

Explanation:

Statement 1 is incorrect while statement 2 is correct: Man and the Biosphere Programme (MAB) is an intergovernmental scientific program, **launched in 1971 by UNESCO that aims to establish a scientific basis for the improvement of relationships between people and their environments.**

It predicts the consequences of today's actions on tomorrow's world and thereby increases people's ability to efficiently manage natural resources for the well-being of both human populations and the environment.

Statement 3 is Correct: The UNESCO World Network of Biosphere Reserves (WNBR) created in 1977, covers internationally designated protected areas, each known as biosphere reserves. They are created under the Man and the Biosphere Programme (MAB).

Panna Tiger reserve in Madhya Pradesh was declared 12th Biosphere reserve of India under WNBS in November 2020. It is the latest to be added in this list.

Q.11) Which of the following are the causes of species richness in Tropical regions?

1. Tropics had more evolutionary time.
2. They provide relatively constant environment.
3. They receive more solar energy.

Select the correct code

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

Q.11) Solution (d)

Statement Analysis:

Species richness is the number of species within a defined region. The species richness of a region is obtained through sampling or via a census.

- Species richness is generally highest in the tropics and decreases towards the poles. Important explanations for the species richness of the tropics are:
 - Tropics had more evolutionary time;
 - They provide a relatively constant environment and,
 - They receive more solar energy which contributes to greater productivity.
 - Species richness is also function of the area of a region; the species-area relationship is generally a rectangular hyperbolic function.

So, all of the above statements are correct.

Q.12) Consider the following statements with reference to the threats to Earth Biodiversity?

1. The World is currently witnessing the 5th mass extinction which is faster than previous episodes.
2. Stellar sea cow and three subspecies of Tigers are now extinct.

Which of the above given statements is/are *incorrect*?

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

Q.12) Solution (a)

Explanation:

Incorrect statement is being asked here.

Statement Analysis:

Statement 1: Mass extinction refers to a substantial increase in the degree of extinction or when the Earth loses more than three-quarters of its species in a geologically short period of time. **So far, during the entire history of the Earth, there have been five mass extinctions. The sixth, which is ongoing, is referred to as the Anthropocene extinction.**

- The five mass extinctions that took place in the last 450 million years have led to the destruction of 70-95 per cent of the species of plants, animals and microorganisms that existed earlier.
- These extinctions were caused by “catastrophic alterations” to the environment, such as massive volcanic eruptions, depletion of oceanic oxygen or collision with an asteroid. After each of these extinctions, it took millions of years to regain species comparable to those that existed before the event.
- **The current species extinction rates are estimated to be 100 to 1,000 times faster than in the pre-human times and our activities are responsible for the faster rates.** Ecologists warn that if the present trends continue, nearly half of all the species on earth might be wiped out within the next 100 years. **(So, statement 1 is incorrect here, since it is Sixth Extinction not fifth.)**

Statement 2: The biological wealth of our planet has been declining rapidly and the accusing finger is clearly pointing to human activities. **Some examples of recent extinctions include the dodo (Mauritius), quagga (Africa), thylacine (Australia), Steller's Sea Cow (Russia) and three subspecies (Bali, Javan, Caspian) of tiger.** The last twenty years alone have witnessed the disappearance of 27 species. **Hence, statement 2 is correct.**

Q.13) In general the loss of Biodiversity in a region may lead to which of the following

1. Increase in plant production.
2. It will lead to lower resistance to environmental perturbations.
3. Increased variability in certain ecosystem process.

Select the correct answer using the code given below

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

d) 1, 2 and 3

Q.13) Solution (b)

Explanation:

Biodiversity loss includes the extinction of species (plant or animal) worldwide, as well as the local reduction or loss of species in a certain habitat, resulting in a loss of biological diversity. The latter phenomenon can be temporary or permanent, depending on whether the environmental degradation that leads to the loss is reversible through ecological restoration/ecological resilience or effectively permanent (e.g. through land loss).

In general, loss of biodiversity in a region may lead to

- Decline in plant production,
- Lowered resistance to environmental perturbations such as drought and
- Increased variability in certain ecosystem processes such as plant productivity, water use, and pest and disease cycles.

So, only statement 2 and 3 is correct.

Q.14) Which of the following is the biggest overall contributor to the natural greenhouse effect?

- a) Carbon Dioxide
- b) Nitrous Oxide
- c) Water Vapour
- d) Methane

Q.14) Solution (c)

Basic Information:

Greenhouse gases (GHGs) control energy flows in the atmosphere by absorbing infra-red radiation. These trace gases comprise less than 1% of the atmosphere. Their levels are determined by a balance between "sources" and "sinks". Sources are processes that generate greenhouse gases; sinks are processes that destroy or remove them. Humans affect greenhouse gas levels by introducing new sources or by interfering with natural sinks.

Statement analysis:

Note- the question is asking natural greenhouse effect contributor.

Statement 1 is incorrect: Carbon dioxide is currently responsible for over 60% of the "enhanced" greenhouse effect, which is responsible for climate change. This gas occurs naturally in the atmosphere, but burning coal, oil, and natural gas is releasing the carbon stored in these "fossil fuels" at an unprecedented rate.

Statement 2 is incorrect: Nitrous oxide (N₂O) is naturally present in the atmosphere as part of the Earth's nitrogen cycle, and has a variety of natural sources. However, human activities such as agriculture, fossil fuel combustion, wastewater management, and industrial processes are increasing the amount of N₂O in the atmosphere.

Statement 3 is correct: **Water vapour is the biggest overall contributor to the natural greenhouse effect and humans are not directly responsible for emitting this gas in quantities sufficient to change its concentration in the atmosphere.** However, CO₂ and other greenhouse gases is increasing the amount of water vapour in the air by boosting the rate of evaporation.

Statement 4 is incorrect: **Methane is a powerful greenhouse gas whose levels have already doubled.** The main "new" sources of methane are agricultural, notably flooded rice paddies and expanding herds of cattle. Emissions from waste dumps and leaks from coal mining and natural gas production also contribute. The main sink for methane is chemical reactions in the atmosphere.

Q.15) Consider the following statements:

1. Pyrolysis is a process of chemical decomposition of organic matter brought about by heat.
2. In incineration waste is directly burned in the presence of excess air (oxygen) at high temperatures.

Which of the above given statements is/are correct?

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

Q.15) Solution (c)

Explanation:

Statement 1 is correct: **Pyrolysis is a process of chemical decomposition of organic matter brought about by heat.** In this process, the organic material is heated in the absence of air until the molecules thermally break down to become a gas comprising smaller molecules (known collectively as syngas).

Statement 2 is correct: **In Incineration waste is directly burned in the presence of excess air (oxygen) at high temperatures (about 800°C), liberating heat energy, inert gases and ash.** Combustion results in transfer of 65–80% of heat content of the organic matter to hot air, steam and hot water.

Q.16) Consider the following statements with reference to protected area network:

1. Environment protection act 1986, provided for the establishment of Wildlife Sanctuaries.
2. Conservation reserves and community reserves are the outcome of the amendment in 2002 in wildlife protection act of 1972.

Which of the above statements is/are correct?

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

Q.16) Solution (b)

Basic information:

Protected areas are those in which human occupation or at least the exploitation of resources is limited. There are several kinds of protected areas, which vary by level of protection depending on the enabling laws of each country or the regulations of the international organizations involved. The term "protected area" also includes Marine Protected Areas, the boundaries of which will include some area of ocean, and Transboundary Protected Areas that overlap multiple countries which remove the borders inside the area for conservation and economic purposes.

Statement Analysis

Statement 1: Any area other than area comprised with any reserve forest or the territorial waters can be notified by the State Government to constitute as a sanctuary if such area is of adequate ecological, faunal, floral, geomorphological, natural. Or zoological significance, for the

purpose of protecting, propagating or developing wildlife or its environment. **Some restricted human activities are allowed inside the Sanctuary area details of which are given in CHAPTER IV, WPA 1972. (So, statement 1 is incorrect.)**

Statement 2: The **Conservation reserves and community reserves** in India are terms denoting protected areas of India which typically act as buffer zones to or connectors and migration corridors between established national parks, wildlife sanctuaries and reserved and protected forests of India. Such areas are designated as conservation areas if they are uninhabited and completely owned by the Government of India but used for subsistence by communities and community areas if part of the lands are privately owned.

These protected area categories were first introduced in the Wildlife (Protection) Amendment Act of 2002 – the amendment to the Wildlife Protection Act of 1972. (So, statement 2 is correct.)

Q.17) Consider the following statements about World Database of Protected Areas.

1. It is the largest and most comprehensive global database on terrestrial and marine protected areas.
2. It is a Joint project between Conservation international and TRAFFIC.
3. It is updated on yearly basis.

Select the correct answer using the code given below:

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

Q.17) Solution (a)

Statement analysis:

The WDPA was established in 1981, but the mandate for the database dates back from 1959 when the United Nations (UN) Economic and Social Council called for a list of national parks and equivalent reserves in recognition that they 'are valuable for economic and scientific reasons. and also as areas for the future preservation of fauna and flora and geologic structures in their natural state' Resolution 713 (XXVII).

- The first UN List of Protected Areas, as it became known, was subsequently published in 1962. Since this time there have been several decisions from the Conference of the

Parties to the Convention on Biological Diversity encouraging Parties to share and update relevant information on their protected areas system with the World Database on Protected Areas.

- **The World Database on Protected Areas (WDPA) is the largest and most comprehensive global database of marine and terrestrial protected areas.**
- **It is a joint project between UN Environment Programme and the International Union for Conservation of Nature (IUCN),**
- The role of custodian is allocated to the Protected Areas Programme of UNEP-WCMC, based in Cambridge, UK, who have hosted the database since its creation in 1981 in collaboration with governments, non-governmental organisations, academia and industry.
- **The WDPA is updated on a monthly basis,**
- The WDPA delivers invaluable information to decision-makers around the world, particularly in terms of measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets.

Q.18) Consider the following statements with reference to difference between National park and Wildlife sanctuaries.

1. No human activity can be allowed in National park in any condition while some restricted human activities are allowed in Wildlife sanctuaries.
2. National Parks are declared by Central government while wildlife sanctuaries are declared by State Government under Wildlife Protection act of 1972.

Which of the above statements is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 and 2

Q.18) Solution (d)

Explanation:

The Wildlife (Protection) Act, 1972 provides for the establishment of Protected Areas in India. Here are all the differences between Wildlife Sanctuaries and National Parks.

National Park	Wildlife sanctuaries
<ul style="list-style-type: none">National parks provide protection to the entire ecosystem that is, flora, fauna, landscape, etc. of that region.National parks are given a greater degree of protection, with human activity greatly restricted.Boundaries are fixed by administration. Only certain areas can be visited and only activities permitted by the chief wildlife warden of the state are allowed in the park. (So, statement 1 is incorrect since it says in any condition which is an absurd statement.)	<ul style="list-style-type: none">Wildlife Sanctuary, as the name implies, is the place that is reserved exclusively for wildlife use, which includes animals, reptiles, insects, birds, etc. wild animals, especially those in danger of extinction and the rare ones, so that they can live in peace for a lifetime and keep their population viable.It has relatively less restrictions and is open to people, without the requirement of official permission. So some restricted activities are allowed here.It does not have fixed boundaries and human activities are permitted to a specified limit.

Similarities include: The **Wildlife (Protection) Act (WPA) of 1972 provided for the declaration of National Parks by the State Government in addition to the declaration of wildlife sanctuaries. The Central Government may also declare, Wild Life Sanctuary and National Park under certain conditions.**

So, both statements are incorrect here.

Q.19) Consider the following statements about Ecologically Sensitive Zones

1. The ecologically sensitive zone is mentioned under Environment Protection act of 1986.
2. It is an area around National park and Wildlife sanctuaries where developmental activities are prohibited.

Which of the above statements is/are incorrect?

- a) 1 only
- b) 2 only
- c) Both 1 and 2

d) Neither 1 nor 2

Q.19) Solution (d)

Basic Information

Eco-Sensitive Zones (ESZs) or Ecologically Fragile Areas (EFAs) are areas in India notified by the Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India around Protected Areas, National Parks and Wildlife Sanctuaries. The purpose of declaring ESZs is to create some kind of "shock absorbers" to the protected areas by regulating and managing the activities around such areas. They also act as a transition zone from areas of high protection to areas involving lesser protection.

Explanation:

Note: Incorrect statements are asked.

Statement 1 is incorrect: **The Environment (Protection) Act, 1986 does not mention the word "Eco-Sensitive Zones"**. However, Section 3(2)(v) of the Act, says that Central Government can restrict areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards.

Statement 2 is incorrect: **The basic aim of ESZ guideline is to regulate (not prohibit)** certain activities around National Parks and Wildlife Sanctuaries so as to minimise the negative impacts of such activities on the fragile ecosystem encompassing the protected areas,

Q.20) Which of the following statements is/are correct with reference to National Adaptation fund for climate change?

1. It is a centrally sponsored scheme to support concrete adaptation activities to mitigate adverse effects of climate change.
2. The activities under this scheme is implemented in project mode.
3. NABARD is the national implementing Entity for adaption fund under Montreal Protocol.

Select the correct code:

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

d) 1, 2 and 3

Q.20) Solution (b)

Statement analysis:

Statement 1 is incorrect: **The National Adaptation Fund for Climate Change (NAFCC) is a Central Sector Scheme which was set up in the year 2015-16.** The overall aim of NAFCC is to support concrete adaptation activities which mitigate the adverse effects of climate change. The activities under this scheme are implemented in a project mode. The projects related to adaptation in sectors such as agriculture, animal husbandry, water, forestry, tourism etc. are eligible for funding under NAFCC.

Statement 2 is correct: **The activities under this scheme will be implemented in project mode.** The projects under NAFCC prioritizes the needs that builds climate resilience in the areas identified under the SAPCC (State Action Plan on Climate Change) and the relevant Missions under NAPCC (National Action Plan on Climate Change).

Statement 3 is incorrect: Considering the existing arrangement with **NABARD** as National Implementing Entity (NIE) for Adaptation Fund (AF) **under Kyoto Protocol** and its presence across the country

- NABARD has been designated as National Implementing Entity (NIE) for implementation of adaptation projects under NAFCC by Govt. of India.
- Under this arrangement, NABARD would perform roles in facilitating identification of project ideas/concepts from State Action Plan for Climate Change (SAPCC), project formulation, appraisal, and sanction, disbursement of fund, monitoring & evaluation and capacity building of stakeholders including State Governments.

Q.21) With reference to India Energy Modelling Forum, consider the following statements:

1. It was jointly launched by NITI Aayog and International Energy Agency (IEA).
2. Its governing structure will consist of an inter-ministerial and a steering committee.
3. The steering committee will comprise representatives of the Government, Industry Associations, Academia, Policy research organizations, think tanks and funding agencies.

Which of the statements given above is/are correct?

a) 1 and 2 only

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

Q.21) Solution (c)

Statement 1	Statement 2	Statement 3
Incorrect	Correct	Correct
India Energy Modelling Forum (IEMF) was jointly launched by NITI Aayog and United States Agency for International Development (USAID) under the US-India Strategic Energy Partnership. IEMF is part of the Sustainable Growth pillar of US-India Strategic Energy Partnership (SEP).	The governing structure of IEMF will consist of an inter-ministerial and a steering committee. Inter-ministerial committee will review the studies/modelling activities and provide directions and new areas of research.	The steering committee will comprise representatives of the Government, Industry Associations, Academia, Policy research organizations, think tanks and funding agencies and will shortlist policy issues to be taken up for study and might form various taskforces depending on the specific studies/modelling exercises to be carried out.

Q.22) With reference to Nutri-Sensitive Agricultural Resources and Innovations (NARI) programme which of the following statements is/are correct?

1. It promotes family farming linking agriculture to nutrition, nutri-smart villages for enhancing nutritional security.
2. It is started by National Bank for Agriculture and Rural Development (NABARD).

Select the correct answer using the code given below:

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

Q.22) Solution (a)

Statement 1	Statement 2
Correct	Incorrect
The objective of the NARI programme is to promote family farming linking agriculture to nutrition, nutri-smart villages for enhancing nutritional security . Under it, location specific nutrition garden models are being developed and promoted by KVKs to ensure access to locally available, healthy and diversified diet with adequate macro and micronutrients.	Indian Council of Agricultural Research (ICAR) has started Nutri-Sensitive Agricultural Resources and Innovations (NARI) programme.

Q.23) Which of the following country is *NOT* a part of 'Five Eyes', a global intelligence alliance?

- a) Canada
- b) United Kingdom
- c) New Zealand
- d) France

Q.23) Solution (d)

- 'Five Eyes' is a global alliance on intelligence issues comprising of Australia, Canada, New Zealand, UK and the US.
- It is an international agreement under which these five countries cooperate and share signals intelligence, military intelligence, and human intelligence.
- India and Japan joined the 'Five Eyes' alliance and issued a joint international statement addressed to all tech companies to ensure end-to-end encrypted chats and provide access to the same.
- It marks an expansion of the "Five Eyes" group of nations to include India and Japan.

Q.24) With reference to Ayushman Sahakar Scheme, consider the following statements:

1. It assists in creation of healthcare infrastructure in the country.
2. It is formulated by National Health Authority (NHA).
3. It is launched by Ministry of Agriculture and Farmers Welfare.

Which of the statements given above is/are correct?

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

Q.24) Solution (c)

Statement 1	Statement 2	Statement 3
Correct	Incorrect	Correct
It is a unique scheme to assist cooperatives to play an important role in creation of healthcare infrastructure in the country. NCDC would extend term loans to prospective cooperatives.	It is formulated by National Cooperative Development Corporation (NCDC), the apex autonomous development finance institution under the Ministry of Agriculture.	The Ministry of Agriculture and Farmers Welfare has launched Ayushman Sahakar, a scheme to assist cooperatives in creation of healthcare infrastructure in the country. It is in line with the National Digital Health Mission and National Health Policy, 2017.

Q.25) The OSOWAG Initiative aims to facilitate global cooperation in which of the following area?

- a) Climate Action
- b) Human Trafficking
- c) Renewable Energy
- d) Tackling Terrorism Financing

Q.25) Solution (c)

- **The One Sun, One World, One Grid (OSOWOG) initiative** was proposed by India to set up a framework for facilitating global cooperation which aims at building a global ecosystem of interconnected renewable energy resources that can be easily shared.

- Its objective is to build global consensus about sharing solar resources among more than 140 countries of West Asia and South-East Asia.
- The Union Ministry of New and Renewable Energy (MNRE) is the parent body.

Q.26) With reference to OSCE Minsk Group, consider the following statements:

1. It is internationally agreed body to mediate the negotiations for the peaceful resolution of the Nagorno-Karabakh conflict.
2. It proposed Madrid principles for settling the conflict.

Which of the statements given above is/are *INCORRECT*?

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

Q.26) Solution (d)

Statement 1	Statement 2
Correct	Correct
Organization for Security and Co-operation in Europe (OSCE) Minsk Group created in 1992 is the only internationally agreed body to mediate the negotiations for the peaceful resolution of the Nagorno-Karabakh conflict . It is chaired by France, Russia and the US.	The Madrid principles were proposed by the Minsk Group in 2007 which are series of pragmatic suggestions for settling the conflict in the Nagorno-Karabakh peacefully. It calls for Armenia to withdraw its military from Nagorno-Karabakh in exchange for Azerbaijan granting de-facto autonomy to Nagorno-Karabakh.

Q.27) Bundi was the erstwhile capital of Hada Rajput province. Which of the following styles of temple architecture can be seen in Bundi?

1. Nagara style
2. Vesara style

3. Elevated Temple styles

Select the correct answer using the code given below:

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

Q.27) Solution (b)

- The Ministry of Tourism's DekhoApnaDesh Webinar series titled "Bundi: Architectural Heritage of a Forgotten Rajput Capital" focused on Bundi, Rajasthan recently.
- Bundi is a district in the Hadoti region of Rajasthan and was the erstwhile capital of Hada Rajput province. It is also known as City of stepwalls, blue city.
- It was also known as Chotti Kashi owing to presence of over hundred temples within and around the hada capital.
- Temples constructed in early phase of Bundi's growth were in classical **Nagara style**.
- In later phases new temple typologies emerged from amalgamation of architectural form of traditional haveli with the classical Nagara style.
- **Jain temples** formed third type of temple type constructed
- A fourth temple type emerged in the form of a **raised or elevated temple**.
- Absence of monumentality in their scale is a distinctive feature of temples in Bundi.

Q.28) Which of the following has become the first 'Har Ghar Jal' state in India?

- a) Sikkim
- b) Goa
- c) Himachal Pradesh
- d) Kerala

Q.28) Solution (b)

Goa has earned itself the unique distinction of becoming **first 'Har Ghar Jal' State** in the country as it successfully provides 100% Functional Household Tap Connections (FHTCs) in the rural areas covering 2.30 lakh rural households.

Harnessing the immense benefits of efficiently utilising the Jal Jeevan Mission (JJM) which aims to improve the quality of life and bring 'ease-of-living' to rural communities.

Q.29) Recently seen in news the Kastellorizo, officially known as Megisti is an island in which of the following seas?

- a) Mediterranean Sea
- b) South China Sea
- c) East China Sea
- d) Caribbean Sea

Q.29) Solution (a)

Kastellorizo or Castellorizo, officially known as **Megisti is a Greek island** and municipality of the Dodecanese in the **Eastern Mediterranean**.

Recently, Turkey's redeployment of the Oruc Reis survey vessel for new energy exploration around Kastellorizo has reignited tensions over sea boundaries between Greek islands, Cyprus and Turkey's southern coast.

Q.30) The Institute of Pesticide Formulation Technology (IPFT) developed Bio-Pesticide Formulation for insect control in seed spice crops has which of the following advantages?

- 1. It has good shelf life
- 2. It is safe to user and environment
- 3. It may be effectively used for controlling different agricultural insects

Select the correct answer using the code given below:

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

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

Q.30) Solution (d)

Recently, Institute of Pesticide Formulation Technology (IPFT) under the Ministry of Chemicals and Fertilizers has developed **Bio-Pesticide Formulation for insect control in seed spice crops.**

- Formulation is based on entomo-pathogenic fungus *Verticillium lecanii*.
- **The formulation has good shelf life, safe to user & environment and it may be effectively used for controlling different agricultural insects especially in seed spice crops.**

Directions for the following questions:

Read the following 3 (three) passages and answer the questions that follow each passage. Your answer to these questions should be based on passage only.

Passage 1

Until the end of his first year at school, Cyril retained many of the pleasures and pursuits he had brought with him from home, and he kept an old interest in butterflies and fossils. His grandmother had presented him with a fine bird's eggs cabinet, but he could never bring himself to risk in climbing trees. Once or twice he dissected dead birds from sheer determination to overcome his horror of the operation. Probably it was his envy of those physically unlike himself that brought on a phase during which he drew massive athletes with thick necks and square shoulders. Again he pitied himself for what he could never be.

Q.31) The reason Why Cyril made drawings of athletes was that

- a) though he admired them, he lacked a fine physique himself
- b) he loved violent exercises
- c) athletics was a passion with him
- d) he had to complete an assignment

Q.31) Solution (a)

Refer to the last 2 lines of the passage.

Passage 2

The Indian middle class consist of so many strata that it defies categorisation under a single term class, which would imply a considerable degree of homogeneity. Yet two paradoxical features characterise its conduct fairly uniformly; extensive practice and intensive abhorrence of corruption. In the several recent surveys of popular perceptions of corruptions, politicians of course invariably and understandably top the list, closely followed by bureaucrats, policemen, lawyers, businessmen and others. The quintessential middle class, if teachers do not figure high on this priority list, it is not for lack of trying, but for lack of opportunities. Over the years, the sense of shock over acts of corruption in the middle class has witnessed a steady decline, as its ambitions for a better material life have soared but the resources for meeting such ambitions have not kept pace. What is fascinating however is the intense yearning of this class for a clean corruption less politics and society, a yearning that has again and again surfaced with any figure public or obscure, focus on his mission of eradicating corruption. Even the repeated failure of this promise on virtually every man's part has not subjected it to the law of diminishing returns.

Q.32) The intense Middle Class intensely yearns for

- a) better material resources
- b) better material resources
- c) clean honest society
- d) law of increasing returns

Q.32) Solution (c)

What is fascinating however is the intense yearning of this class for a clean corruption less politics and society.

Hence option c is the correct answer.

Passage 3

The “who’s who” of universities and research institutions published by the Human Resource Development Ministry, as the National Institutional Ranking Framework, 2018, should be viewed mainly as a proposition that data makes it possible to assign objective credentials to some aspects of education. Its assessment of some of the top institutions such as the Indian Institute of Science, the Jawaharlal Nehru University, the IITs and the IIMs is unsurprising, given their record of research, peer-reviewed publications and outcomes for graduates.

Even among the 3,954 institutions that participated, there is a clear skew towards southern, south-eastern and western India. Participation levels are inadequate: there were 40,026

colleges and 11,669 standalone institutions according to the HRD Ministry's All India Survey on Higher Education for 2016-17.

To the faculty and students in many colleges, what matters is the vision of the administrative leaders and a commitment to excellence. The governing bodies should make available adequate financial and academic resources to colleges, particularly the younger ones, to help them improve performance. These are measured by the NIRF in terms of the percentage of faculty with doctoral degrees, papers published in credentialed journals, inclusivity and diversity of students, and median salaries for the graduates.

Q.33) What does the author mean when he refers to the universities and institutions as "Who's who"?

- a) He is trying to understand 'who' the list prepared by NIRF consists of
- b) He is referring to the top institutions among all institutions mentioned in the list prepared by NIRF
- c) He is asking the reader to fathom 'who' developed the list and the reasons behind it
- d) Both a and c

Q.33) Solution (b)

Who's who is basically used to refer to people/entities who/ which are important in a particular group. In this case, NIRF ranks all institutions and the topmost here have been referred to as who's who.

Only option b fits in as per the explanation above.

Hence, option b is correct.

Q.34) Which of the following can be logically deduced from the given passage?

- 1. There was a huge amount of participation seen in NIRF 2018.
- 2. The ranking approach has been critiqued for failing to capture the crucial metric of learning outcomes.
- 3. NIRF's assessment of the top notch institutions was expected.

Chose the correct code

- a) Only statement 3 is correct
- b) Only statements 1 and 2 are correct
- c) Only statements 2 and 3 are correct

- d) Only statements 1 and 3 are correct

Q.34) Solution (a)

Referring to the following excerpt from the passage,

'Participation levels are inadequate: there were 40,026 colleges and 11,669 standalone institutions according to the HRD Ministry's All India Survey on Higher Education for 2016-17.'

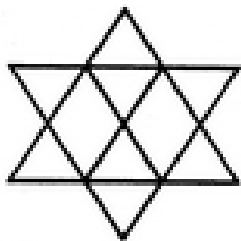
Statement 1 is incorrect.

Statement 2 is not mentioned anywhere in the passage and is incorrect.

'Its assessment of some of the top institutions such as the Indian Institute of Science, the Jawaharlal Nehru University, the IITs and the IIMs is unsurprising, given their record of research, peer-reviewed publications and outcomes for graduates.' Statement 3 is correct.

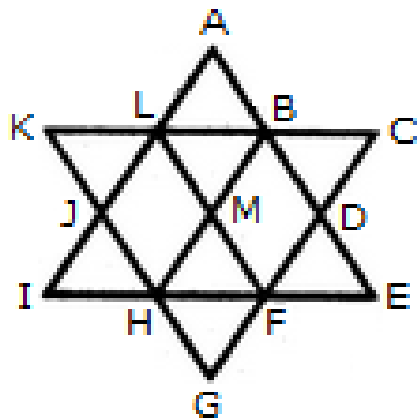
Hence, option 'a' is the correct answer.

Q.35) Count the number of parallelogram in the given figure.



- a) 13
- b) 14
- c) 15
- d) 16

Q.35) Solution (c)



The simplest parallelograms are LMHJ and BDFM i.e. 2 in number.

The parallelograms composed of two components each are ABML and MFGH i.e. 2 in number.

The parallelograms composed of six components each are LCFI, KBEH and ADGJ i.e. 3 in number.

The parallelograms composed of three components each are DFLA, BCFH, KLFH, ABHJ and LFGJ, LBHI, LBEF, BDGH i.e. 8 in number.

Total number of parallelograms are = $2 + 2 + 3 + 8 = 15$.

