IASBABA'S

60 DAYS PLAN

PRELIMS 2021

COMPILATIONS

ENVIRONMENT - PART 2

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Q.1) With reference to Project Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) consider the following statements?

1. This project has been launched by United Nation Environment Programme.
2. This project is being funded by European Union.
3. Ministry of Statistics and Programme Implementation is its implementation agency.

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 (d)

Explanation

About Project Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES)

In 2017, the United Nations Statistics Division (UNSD), the United Nations Environment Programme (UNEP), the Secretariat of the Convention on Biological Diversity (CBD) and the European Union (EU) launched the NCAVES Project.

This project is funded by the EU through its Partnership Instrument and aims to assist the five participating partner countries, namely Brazil, China, India, Mexico and South Africa, to advance the knowledge agenda on environmental-economic accounting, and in particular ecosystem accounting.

The project will have duration until the end of 2021

In India, the NCAVES project is being implemented by the MoSPI in close collaboration with the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the National Remote Sensing Centre (NRSC)

Q.2 Consider the following pairs of Conservation community and protected area :

1. Soligas : Biligiri Rangaswamy Temple (BRT) Tiger Reserve
2. Baigas : Kanha National Park
3. Bugun : Namdapha National Park

Which of the above are correctly matched?

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

Q.2) Solution (a)

Explanation:

Example of successful community participation and co-existence include

- Bishnoi tribe of Rajasthan,
- Soligas in the BRT Tiger Reserve
- Baigas of the Kanha National Park
- Bugun tribe of Eaglenest wildlife Sanctuary

Q.3) Consider the following statement about Red Panda:

1. India has both subspecies of red panda i.e. Himalayan and Chinese.
2. It is state animal of Sikkim.
3. It is under schedule 1 of wildlife Protection act of 1972 and critically endangered under IUCN's red list.

Which of the above statement are correct?

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

Q.3) Solution (a)

Explanation:

About Red Panda

- The red panda is a carnivore native to the eastern Himalayas and south-western China.

- It is listed as Endangered on the IUCN Red List and Schedule I of Wildlife (Protection) Act, 1972 because the wild population is estimated at fewer than 10,000 mature individuals and continues to decline due to habitat loss and fragmentation, poaching, and inbreeding depression.
- Scientists from the ZSI have concluded that India is home to both the (sub) species — Himalayan red panda and the Chinese red panda and the Siang river in Arunachal Pradesh splits the red panda into these two phylogenetic species.
- In India, it is found in Sikkim, western Arunachal Pradesh, Darjeeling district of West Bengal and parts of Meghalaya.
- It is also the state animal of Sikkim.
- It is classified as a carnivore but mainly eat bamboo leaves.
- These animals spend most of their lives in trees and even sleep aloft. When foraging, they are most active at night as well as in the gloaming hours of dusk and dawn.

Q.4) Consider the following statement about Community right of forest under Forest Rights Act, 2006:

1. It covers both Individual rights and community rights.
2. Ministry of Environment is nodal ministry of this land transfer under this act.
3. Gram Sabha is final authority of land transfer to the tribes.

Which of the above given statement is *incorrect*?

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

Q.4) Solution (c)

Explanation:

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

Features:

The Act recognizes and vests the forest rights and occupation in Forest land in Forest Dwelling

Scheduled Tribes (FDST) and Other Traditional Forest Dwellers (OTFD) who have been residing in such forests for three generations.

Ministry of Tribal Affairs

The Act identifies four types of rights:

- **Title rights**
    - It gives FDST and OTFD the right to ownership to land farmed by tribals or forest dwellers subject to a maximum of 4 hectares.
    - Ownership is only for land that is actually being cultivated by the concerned family and no new lands will be granted.
- **Use rights**
    - The rights of the dwellers extend to extracting Minor Forest Produce, grazing areas etc.
- **Relief and development rights**
    - To rehabilitate in case of illegal eviction or forced displacement and to basic amenities, subject to restrictions for forest protection.
- **Forest management rights**
    - It includes the right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use.

Procedure

- Gram Sabha is the authority to initiate a process to vest rights on marginally and tribal communities after assessment of the extent of their needs from forest lands.
- Sub-Divisional Level committee after its assessment, passes the resolution to Sub-divisional officer to district level committee for its final decision
  (Hence, Statement 3 is incorrect)

Eligibility

- Members or community of the Scheduled Tribes who primarily reside in and who depend on the forests or forest lands for bona fide livelihood needs.

- It can also be claimed by any member or community who has for at least three generations **(75 years)** prior to the **13th day of December, 2005** primarily resided in forests land for bona fide livelihood needs.

Ministry of Tribal Affairs is nodal ministry of this act. (Hence, Statement 2 is incorrect)

Q.5) consider the following statements about Leopard:

1. Leopards are among most adoptable carnivores.
2. Highest population of Leopards in India is found in Maharashtra.
3. It is endangered under IUCN's red list.

Select the correct statements:

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

Q.5) Solution (a)

Explanation:

Leopards

- Species: Leopards are among the most adaptable carnivores. They are known to exist very close to human habitations.
- Indian subspecies is found in all forested habitats in the country, absent only in the arid deserts and above the timber line in the Himalayas.
- Population: India now has 12,852 leopards, 60% increase compared to the previous estimate (2014). Highest population
    - State Wise: Madhya Pradesh (3421), Karnataka (1783) and Maharashtra (1690)
- Threat: Poaching, habitat loss, depletion of natural prey and human-conflict.
    - IUCN status - Vulnerable.
    - Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) - Appendix I
    - Wildlife (Protection) Act 1972 - Schedule I

Q.6) Usually in translocation of Tiger, tiger and tigress are chosen from different reserves. What is the possible reason for it?

a) To lessen the effect on reserve, from where tiger is translocated
b) To increase diversity of species of tigers
c) To control Genetic inbreeding
d) For faster translocation of tiger, as it will be easy to get single tiger from a state.

Q.6) Solution (c)

Explanation:

TRANSLOCATION OF TIGERS

- Translocation is a conservation tool that can boost the overall population of a species by establishing viable populations spread out in more than one area.
- This helps increase genetic diversity and safeguards populations from being wiped out by poachers, diseases or natural disasters like fire and floods.
- With increasing tiger populations in some areas, translocation is likely to emerge as a management tool for reducing conflict, repopulating potential tiger habitat and diversifying populations.
- But concerns of genetic inbreeding have to be kept in mind for translocation. This means tigers and tigresses meant for a particular tiger reserve should be translocated from different reserves. (Hence, Statement c is correct)

Q.7) Consider the following statement about a Tiger Reserve:

1. It is situated on the Indo-Nepal Border and thus represents Terai Ecosystem.
2. Around half of the world's barasinghas are present here.
3. It was established in 1958 as a wildlife sanctuary for Swamp Deer.

Which of the following national park is being discussed here?

a) Pilibhit Tiger Reserve
b) Amangarh Tiger Reserve
c) Valmiki Tiger Reserve
d) Dudhwa Tiger Reserve

Q.7) Solution (d)

Explanation

The Dudhwa Tiger Reserve is a protected area in Uttar Pradesh that stretches mainly across the Lakhimpur Kheri and Bahraich districts and comprises the Dudhwa National Park, Kishanpur Wildlife Sanctuary and Katarniaghat Wildlife Sanctuary. It covers an area of 1,284.3 km2 and includes three large forest fragments amidst the matrix dominated by agriculture. It shares the north-eastern boundary with Nepal and so represent Terai ecosystem, which is defined to a large extent by the Mohana River.

Dudhwa became a tiger reserve in 1979. The area was established in 1958 as a wildlife sanctuary for swamp deer.

Major attractions of Dudhwa National Park are the tigers (population 98 in 1995) and swamp deer (population over 1,600).

- Billy Arjan Singh successfully hand-reared and reintroduced zoo-born tigers and leopards into the wilds of Dudhwa.
- Some rare species inhabit the park. Hispid hare, earlier thought to have become extinct, was rediscovered here in 1984. In the mid-1980s, Indian rhinoceros was reintroduced into Dudhwa from Assam and Nepal.
- The other animals to be seen here include swamp deer, sambar deer, barking deer, spotted deer, hog deer, tiger, Indian rhinoceros, sloth bear, ratel, jackal, civets, jungle cat, fishing cat, leopard cat.
- Dudhwa National Park is a stronghold of the barasingha. Around half of the world's barasinghas are present in Dudhwa National Park.

Q.8) consider the following statements about Biologically Heritage Sites (BHS):

1. Central government with consultation of state and local body will notify it.
2. State government with consultation with central government may frame rules for management and conservation of BHS.

Select the correct statements:

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

d) Neither 1 nor 2

Q.8) Solution (b)

Explanation:

Biodiversity Heritage Sites" (BHS) are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising of any one or more of the following components:

- richness of wild as well as domesticated species or intra-specific categories,
- high endemism,
- presence of rare and threatened species, keystone species, species of evolutionary significance,
- wild ancestors of domestic/ cultivated species or their varieties,
- past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and
- are important for the maintenance of cultural diversity, with or without a long history of human association with them

Guidelines and Management of Biodiversity heritage sites

- Under Section 37 of Biological Diversity Act, 2002 (BDA) the State Government in consultation with local bodies may notify in the official gazette, areas of biodiversity importance as Biodiversity Heritage Sites (BHS). **(So, statement 1 is incorrect)**
- Under sub section (2) of Section 37, the State Government in consultation with the Central Government may frame rules for the management and conservation of BHS.

Q.9) Which of the following is not one of the defined protected area under Wildlife Protection Act, 1972?

1. National Parks
2. Wildlife Sanctuaries
3. Community Reserves
4. Conservation Reserves
5. Private protected areas
6. Biosphere reserves
7. Tiger Reserves

Choose the correct answer:

a) 1,2, 3, 6 and 7 only
b) 1,2,6 and 7 only
c) 1,2, 3, 4 and 7 only
d) All of the above

Q.9) Solution (c)

Explanation:

The Wildlife Protection Act 1972 is first umbrella act to protect plants as well as animals.

It defines five types of protected areas viz. National Parks, Wildlife Sanctuaries, Community Reserves, Conservation Reserves and Tiger Reserves.

- Biosphere reserve (UNESCO designation roughly corresponding to IUCN Category V): The Indian government has also established Biosphere reserves, which protect larger areas of natural habitat, and often include one or more national parks and/or preserves, along buffer zones that are open to limited economic activities. The Indian government has established 18 Biosphere Reserves of India.
- Private protected areas: These are regions which are owned by an individual or an organisation /corporation not affiliated to the government or a communal body. Even though Indian legislation does not provide protection to such areas, some NGOs are using methods such as land trusts to help in the conservation effort, and providing limited means of protection.
- **Protected Areas of India (As on December, 2019)**

	No.	Total Area (km^2)	Coverage % of Country
National Parks (NPs)	101	40,564.03	1.23
Wildlife Sanctuaries (WLSs)	553	119,756.97	3.64
Conservation Reserves (CRs)	86	3,858.25	0.12
Community Reserves	163	833.34	0.03
Protected Areas (PAs)	**903**	**1,65,012.59**	**5.02**

Q.10) Consider the following statements with reference to Panna Biosphere Reserve:

1. It is also a tiger reserve and third biosphere from state of Madhya Pradesh.
2. It is situated in Satpura range of Madhya Pradesh.
3. Ken river flow through it and Ken-Betwa interlink project will be located in it.

Which of the above given statements are correct?

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

Q.10) Solution (b)

Explanation:

About Panna Biosphere Reserve

- Established in 1981, Panna Biosphere Reserve is located in the Panna and Chhatarpur districts of Madhya Pradesh with an area of around 540 km. sq.
- It was declared in 1993 as the twenty second Tiger reserve of India and the fifth in Madhya Pradesh.
- It is situated in the Vindhya mountain range in the northern part of Madhya Pradesh.**(Hence, Statement 2 is incorrect)**
- Ken River (one of the least polluted tributaries of the Yamuna River) flows through the reserve and the Ken-Betwa river interlinking project will also be located in it.
- In 1994, The Panna National Park got the status of Project Tiger Reserve as India's 22nd tiger reserve.
- In 2011, It was notified as a Biosphere Reserve by the Union Ministry of Environment, Forest and Climate Change (MoEFCC)
- In 2020, it has been included in Man and Biosphere programme of UNESCO. The Panna Biosphere Reserve is the third in Madhya Pradesh to be included in the list after Pachmarhi and Amarkantak.

Q.11) Consider the following statement with reference to "Fishing Cat":

1. It is found all over India.
2. It is in appendix II of CITES and schedule I of WPA, 1972.

3. It is also state animal of West Bengal.

Select the correct code

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

Q.11) Solution (b)

Basic Information:

About Fishing Cats

Fish cat is mammal double the size of domestic cat which is a native to wetlands, swamps and marshy areas.

Habitats

- Fishing cats have a patchy distribution along the Eastern Ghats.
- They abound in estuarine floodplains, tidal mangrove forests and also inland freshwater habitats.
- Apart from Sundarbans in West Bengal and Bangladesh, fishing cats inhabit the Chilika lagoon and surrounding wetlands in Odisha, Coringa and Krishna mangroves in Andhra Pradesh. (So, statement 1 is not correct)

In 2012, the West Bengal government officially declared the Fishing Cat as the State Animal.

Conservation status

- IUCN status: Vulnerable
- Convention on International Trade in Endangered Species (CITES) lists the fishing cat on Appendix II.
- Schedule I of the Indian Wildlife (Protection) Act, 1972 and thereby protected from hunting

The conservation threats to fishing cats are mainly due to:

- habitat loss [wetland degradation and conversion for aquaculture and other commercial projects],
- sand mining along river banks,

- agricultural intensification resulting in loss of riverine buffer and
- conflict with humans in certain areas resulting in targeted hunting and retaliatory killings

Q.12) The Global Biodiversity Outlook is released by:

a) International Union for Conservation of Nature
b) World Wide Fund for Nature
c) Convention on Biological Diversity
d) United Nations Environment Program

Q.12) Solution (c)

Explanation:

About Global Biodiversity Outlook

- It is a flagship publication of the Convention on Biological Diversity (CBD).
- It is a periodic report that summarizes the latest data on the status and trends of biodiversity and draws conclusions relevant to the further implementation of the CBD.
- Evidence is presented by the latest UN Global Biodiversity Outlook 5 report: none of the 20 targets has been fully met. Many countries have chosen to ignore the connection between biodiversity and well-being, and depleted ecological capital in pursuit of financial prosperity.

Q.13) consider the following statements

1. Living Planet Report is released by IUCN, which assess trends of global biodiversity and health of planet.
2. According to it, India has lost nearly one third of its natural wetland.

Select the correct code:

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

Q.13) Solution (b)

Explanation:

Living Planet Report 2020 has been released by the World Wide Fund for Nature. (So, Statement 1 is incorrect)

Key takeaways from the Report

- There has been a reduction of 68 % in the global wildlife population between 1970 and 2016.
- 75 % of the Earth's ice-free land surface has already been significantly altered.
- Most of the oceans are polluted.
- More than 85% of the area of wetlands has been lost during this period and India has lost more than 1/3rd of its natural wetlands. (So, Statement 2 is correct)
- The most important cause of biodiversity loss: Land-use change – conversion of pristine habitats into agricultural systems and oceans have been overfished.
- The highest biodiversity loss due to land use change: (1) Europe and Central Asia at 57.9 %; (2) North America at 52.5 %; (3) Latin America and Caribbean at 51.2 %; (4) Africa at 45.9 %; (5) Asia at 43 %.
- The largest wildlife population loss: Latin America at an alarming 94 %.
- One of the most threatened biodiversity: Freshwater biodiversity (declining faster than that in oceans or forest.

Q.14) Consider the following statement with reference to "Central Zoo Authority":

1. It is chaired by Minister of state responsible for Forests And Wildlife Wing
2. It was established under Wildlife (protection) Act, 1972.
3. It also approves the exchange of tigers among different zoos in India.

Which of the above given statement is/are incorrect?

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

Q.14) Solution (a)

Explanation:

Central Zoo Authority was established under provision of Wildlife (Protection) Act, 1972 as a statutory body under the Ministry of Environment & Forests by the Government of India in the year 1992. **(Hence, Statement 2 is correct.)**

It consists of Union Minister of Environment, Forest and Climate Change as Chairperson, 10 members and a Member Secretary. **(Hence, statement 1 is incorrect.)**

The main objective of this Authority is to complement and strengthen the national effort in conservation of the rich biodiversity of the country, particularly the fauna as per the National Zoo Policy, 1998. Other objectives of this Authority include- enforcing minimum standards and norms for upkeep and healthcare of animals in Indian zoos and to control mushrooming of unplanned and ill-conceived zoos.

- Every zoo in the count is required to obtain recognition from the Authority for its operation. The Authority evaluates the zoos with reference to the parameters prescribed under the Rules and grants recognition, accordingly.
- It therefore, provides technical and financial assistance to such zoos which have the potential to attain the desired standard in animal management.
- Central Zoo Authority also regulates the exchange of animals of endangered category listed under Schedule. I and II of the Wildlife (Protection) Act, 1972 among zoos.**(Hence, Statement 3 is correct)**
- Exchange of animals between Indian and foreign zoos is also approved by the Authority before the requisite clearances under EXIM Policy and the CITES permits are issued by the competent authority.
- The Authority also coordinates and implements programmes on capacity building of 200 personnel, planned conservation breeding programmes and ex situ research including biotechnological intervention for conservation of species for complementing in situ

In case of Tiger's translocation from one protected areas to another protected area, approval of National Tiger Conservation Authority is needed. Final permission is granted by National Board of Wildlife.

Q.15) Consider the following statement about Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):

1. It is a legally binding treaty, but does not take place of national laws.
2. CITES Secretariat is administrated by UNEP.

3. Appendix III of CITES lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.

Which of the above statement is/are correct?

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

Q.15) Solution (b)

Explanation:

- CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species.
- CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union) and came into force in 1975.
- CITES is an international agreement to which States and regional economic integration organizations adhere voluntarily.
- Although CITES is legally binding on the Parties, it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES, is implemented at the national level.
- For many years CITES has been among the conservation agreements with the largest membership, with now 183 Parties.
- Appendix of CITES
    - **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 931 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. Currently 34,419 species are listed.
- International trade in specimens of Appendix-II species may be authorized by the granting of an export permit or re-export certificate.

- 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 147 species are listed.
  - International trade in specimens of species listed in this Appendix is allowed only on presentation of the appropriate permits or certificates.

Q.16) Consider the following statement about "Eco Sensitive Zones":

1. They are notified by State government under Environment Protection Act, 1986.
2. Establishment of Hotels and Resorts are allowed activities in Eco sensitive zones.
3. Kasturiranjan report suggested notifying entire area of Western Ghats as Eco sensitive zone, while Gadgil committee recommended only 37% of Western Ghats to be Eco Sensitive Zone.

Which of the above statements are correct?

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

Q.16) Solution (b)

Explanation:

- Eco-Sensitive Zones (ESZs) are areas notified by the Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India around Protected Areas, National Parks and Wildlife Sanctuaries. **(So, Statement 1 is not correct.)**

- 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.
- 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.
- **Activities Allowed in ESZs**
    - **Prohibited activities:** Commercial mining, saw mills, industries causing pollution (air, water, soil, noise etc), establishment of major hydroelectric projects (HEP), commercial use of wood, Tourism activities like hot-air balloons over the National Park, discharge of effluents or any solid waste or production of hazardous substances.
    - **Regulated activities:** Felling of trees, **establishment of hotels and resorts**, commercial use of natural water, erection of electrical cables, drastic change of agriculture system, e.g. adoption of heavy technology, pesticides etc, widening of roads.
    - **Permitted activities:** On-going agricultural or horticultural practices, rainwater harvesting, organic farming, use of renewable energy sources, adoption of green technology for all activities**.**
    - **As, Establishment of Hotels and Resort are regulated, but they are permitted under Eco-sensitive Zone. (So, statement 2 is correct)**
- **Instead of the total area of Western Ghats (as suggested by Gadgil Report), only 37% (i.e. 60,000 sq. km.) of the total area be brought under ESA under Kasturirangan report. (So, statement 3 is incorrect)**

Q.17) consider the following statements with respect to "Snow Leopard":

1. Snow Leopards are group animals and found in groups of 4-5 members.
2. They are found at elevations of 3,000-5,000 metres or higher in the Himalayas.
3. Snow leopards are categorized as 'Vulnerable' by IUCN and in the Schedule I of the Indian Wildlife (Protection) Act 1972.
4. Government of India has started a central sector scheme named Project Snow Leopard for the conservation of the species and its habitats.

Select the correct answer using the code given below:

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

Q.17) Solution (b)

Snow Leopard

- Snow leopards are considered medium-sized cats, standing about 24 inches at the shoulder and weighing around 30-55kg.
- Like most species of cats, snow leopards are solitary animals, though sometimes male and female pairs might be seen together during mating season.
- Snow leopards live in the mountainous regions of central and southern Asia.
- In India, their geographical range encompasses a large part of the western Himalayas including the states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand and Sikkim and Arunachal Pradesh in the eastern Himalayas.
- Snow leopards prefer steep, rugged terrains with rocky outcrops and ravines. This type of habitat provides good cover and clear view to help them sneak up on their prey.
- They are found at elevations of 3,000-5,000 metres or higher in the Himalayas.
- The strikingly beautiful snow leopard remains one of the most mysterious cats in the world.
- This roving, high altitude cat is rarely sighted and because it is so elusive, accurate population numbers are hard to come by, although estimates range from 450 to 500 individuals for India.
- The Government of India has identified the snow leopard as a flagship species for the high altitude Himalayas.
- It has developed a **centrally-supported programme called Project Snow Leopard** for the conservation of the species and its habitats.
- The snow leopard is listed as Vulnerable on the IUCN's Red List. In addition, the snow leopard, like all big cats, is listed on Appendix I of the Convention on International Trade of Endangered Species (CITES).Also it is listed in schedule 1 of Wildlife Protection Act, 1972.

Q.18) Consider the following statement about Nagar Van Scheme:

1. It aims to create forests in 2000 urban cities across the country in next five years.
2. Nagar Van Scheme is implemented by Ministry of Housing and Urban Affairs.
3. The finances for the scheme will be paid for by the CAMPA (Compensatory Afforestation Fund (CAF) Act, 2016) funds.

Which of the above statements is/are correct?

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

Q.18) Solution (b)

About Nagar Van scheme:

- **Objective:** Under this scheme a minimum of 20 hectares of forests will be created in the city. These city forests will provide the city dwellers a wholesome natural environment for recreation and will contribute to improvement of the city's environment by pollution mitigation, cleaner air, noise reduction, water harvesting and reduction of heat island effect.
- **Aim:** The Nagar Van Udyan Yojana aims **at developing 200 Nagar Van (City Forests)** across the country in cities having Municipal Corporation or Municipalities by involving local communities, educational institutions, local bodies, NGOs etc. Van Udyan once established will be maintained by the State Government. (So, Statement 1 is incorrect)
- **Implementing Ministry**: Ministry of Environment, Forest and Climate Change (So, statement 2 is incorrect)
- **Finances:** The finances for the scheme will be paid for by the CAMPA (Compensatory Afforestation Fund (CAF) Act, 2016) funds.

Q.19) Consider the following statements about a National Park:

1. It was originally created to preserve the habitat of white-winged wood duck.
2. It is bounded by Lohit and Brahmaputra on one side and Dibru river on another.
3. It is also designated as a Biospere Reserve.

Which National Park is being discussed here?

a) Manas National Park
b) Kaziaranga National Park
c) Dibru-Saikhowa National Park
d) Nameri National Park

Q.19) Solution (c)

Explanation:

About Dibru-Saikhowa National Park

- Dibru-Saikhowa National Park is a national park in Assam located in Dibrugarh and Tinsukia districts.
- It was designated a Biosphere Reserve in July 1997.
- The park is bounded by the Brahmaputra and Lohit Rivers in the north and Dibru River in the south.
- It mainly consists of moist mixed semi-evergreen forests, moist mixed deciduous forests, canebrakes and grasslands.
- Originally created to help conserve the habitat of the rare white-winged wood duck, the park is also home to other rare creatures such as water buffalo, black-breasted parrot bill, tiger and capped langur.
- It is the largest Salix swamp forest in north-eastern India, with a tropical monsoon climate with a hot and wet summer and cool and usually dry winter. Annual rainfall ranges from 230 to 380 cm.
- Species include Bengal tiger, Indian leopard, clouded leopard, jungle cat, sloth bear, dhole, small Indian civet, Malayan giant squirrel, Chinese pangolin, Gangetic dolphin, slow loris, pig tailed macaque, Assamese macaque, rhesus macaque, capped langur, Hoolock gibbon, Asian elephant, wild boar, Sambar deer, hog deer, barking deer, Asiatic water buffalo, and feral horse. The park is one of the few places in the world which is home to feral horses.

Q.20) Consider following statement about "Nagarhole National Park":

1. It is part of Nilgiris Biosphere Reserve.
2. It is situated in the basin region of Kaveri.
3. Nagarhole NP has highest density of tiger Population.

Select the correct code:

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

Q.20) Solution (a)

Basic introduction:

- Nagarhole National Park is a national park located in Kodagu district and Mysore district in Karnataka.
- It is one of India's premier Tiger Reserves along with the adjoining Bandipur Tiger Reserve and Wayanad Wildlife Sanctuary.
- Together with the adjoining Bandipur National Park, Mudumalai National Park and Wayanad Wildlife Sanctuary, it forms the largest protected area in Southern India.
- This park was declared the thirty seventh Project Tiger, Tiger reserves of India in 1999.
- **It is part of the Nilgiris Biosphere Reserve.**
- The Western Ghats Nilgiris Sub-Cluster of 6,000 km^2, including all of Nagarhole National Park, is under consideration by the UNESCO World Heritage Committee for selection as a World Heritage Site. (So, Statement 3 is not Correct)
- The park has rich forest cover, small streams, hills, valleys and waterfalls.
- Its water sources include the Lakshmmantirtha River, Sarati Hole, Nagar Hole, Balle Halla, Kabini River, four perennial streams, 47 seasonal streams, four small perennial lakes, 41 artificial tanks, and several swamps. Kabini is prominent tributary. **(So, Statement 2 is correct)**
- The park has a healthy predator-prey ratio, with many tigers, Gaur, elephants, Indian leopards, and deer (Chital, Sambar, etc.).
- Corbett National Park has highest tiger population density and Nagarhole with 127 tigers comes at second place. Bandipur Tiger Reserve is 3rd dense tiger populated area in India. **(So, Statement 3 is incorrect)**

Q.21) Consider the following statements with reference to National Clean Air Program.

1. It is a pollution control initiative launched by Ministry of Environment, Forest and Climate change.

2. It aims to cut the concentration of Particulate matter by at least 40% by 2025.
3. Under NCAP, 500 smart cities have been identified across the country based on the Air Quality data from 2014-2018.

Which of the above statements are *incorrect*?

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

Q.21) Solution (b)

Statement analysis

The Ministry of Ministry of Environment, Forest and Climate change launched National Clean Air Programme (NCAP) as a long-term, time-bound, national level strategy to tackle the air pollution problem across the country in a comprehensive manner with targets to achieve **20% to 30% reduction in Particulate Matter concentrations by 2024 keeping 2017 as the base year** for the comparison of concentration.

- Under NCAP, 122 non-attainment cities have been identified across the country based on the Air Quality data from 2014-2018.
- The NCAP will be a mid-term, five-year action plan with 2019 as the first year.
- The approach for NCAP includes collaborative, multi-scale and cross-sectoral coordination between the relevant central ministries, state governments and local bodies.
- The city specific action plans have been prepared which, inter-alia, include measures for strengthening the monitoring network, reducing vehicular/industrial emissions, increasing public awareness etc. Implementation of the city specific action plans are regularly monitored by Committees at Central and State level namely Steering Committee, Monitoring Committee and Implementation Committee.
- Other features of NCAP include, increasing number of monitoring stations in the country including rural monitoring stations, technology support, emphasis on awareness and capacity building initiatives, setting up of certification agencies for monitoring equipment, source apportionment studies, emphasis on enforcement, specific sectoral interventions etc.

Q.22) Recently a term 'Brown carbon Tarballs' was in news, which is associated with –

a) The particles that absorb graphene but are extremely short-lived.
b) Small light-absorbing, carbonaceous particles that deposits on snow and ice.
c) A pollutant released from nuclear power plants.
d) The cell tissue that resides in Plant

Q.22) Solution (b)

Explanation:

Nearly 28 per cent of particles collected from the air samples from a research station in the Himalaya-Tibetan Plateau were tarballs, a recent study has found.

- **Tarballs are small light-absorbing, carbonaceous particles formed due to burning of biomass or fossil fuels that deposit on snow and ice.**
- The percentage of the tarballs increased on days of higher levels of pollution and could contribute to hastening of glacial melt and global warming,
- Tarballs are formed from brown carbon, emitted during the burning of fossil fuels. Until now, black carbon was found to be transported long distances by wind to the Himalayan atmosphere; there was not sufficient direct evidence for primary BrC in the Himalayan atmosphere.
- Primary brown carbon (BrC) co-emitted with black carbon (BC) from biomass burning is an important light-absorbing carbonaceous aerosol.
- The black carbon from the Indo-Gangetic Plain can reach the Himalaya region and influence glacial melting and climatic change.
- But recent study points that tarballs from long-range transport can be an important factor in the climatic effect and would correspond to a substantial influence on glacial melting in the Himalaya region.

Q.23) Which of the followings are Ex-situ method of Bioremediation?

1. Land farming
2. Biopiles
3. Biosparging
4. Bioreactors

Select the correct code:

a) 1 , 2 and 4 only
b) 2 and 3 only
c) 1 , 3 and 4 only
d) 1. 2, 3 and 4

Q.23) Solution (a)

Explanation:

Bioremediation is a branch of biotechnology that employs the use of living organisms, like microbes and bacteria, in the removal of contaminants, pollutants, and toxins from soil, water, and other environments. Bioremediation is used to clean up oil spills or contaminated groundwater.

Ex situ Bioremediation Technique — involves the removal of the contaminated material to be treated elsewhere.

1. **Land farming:** contaminated soil is excavated and spread over a prepared bed and periodically tilled until pollutants are degraded. The goal is to stimulate indigenous bio-degradative microorganisms and facilitate their aerobic degradation of contaminants.
2. **Bio-piles:** it is a hybrid of land farming and composting. Essentially, engineered cells are constructed as aerated composted piles. Typically used for treatment of surface contamination with petroleum hydrocarbons.
3. **Bioreactors:** it involves the processing of contaminated solid material (soil, sediment, sludge) or water through an engineered containment system.
4. **Composting:** Composting is nature's process of recycling decomposed organic materials into a rich soil known as compost.

Bioremediation techniques are more economical than traditional methods and pollutants can be treated on site, thus reducing exposure risks for personnel.

In Situ Bioremediation includes Bioinventing, Biosparaging, Bioslurping and Phytoremediaton.

Hence statement 3 is part of In-situ Bioremediation.

Q.24) Which of the following statements with reference to Critical Wildlife Habitat is/are correct?

1. They have been envisaged in Wildlife protection amendment act 2002.
2. These areas are required to be kept as inviolate for the purposes of wildlife conservation.

3. Ministry of Tribal Affairs determines and identifies it.

Select the correct code

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

Q.24) Solution (b)

Explanation:

Statement 1 and 2**: The Critical Wildlife Habitats (CWH) have been envisaged in Forest Rights Act, 2006.** The Act — defines CWH as areas "**required to be kept inviolate for the purposes of wildlife conservation".** These areas are to be identified within national parks and sanctuaries on a case by case basis and on the basis of scientific and objective criteria, according to the act. Areas once declared CWHs cannot be diverted for any other purpose. Hence **statement 1 is incorrect while statement 2 is correct.**

Statement 3: As per the sec 2 (b) of FRA, 2006 the Ministry of Environment and Forest (MoE&F) has been identified as the agency to determine and notify CWH. The ministry of tribal affairs is the nodal ministry for recognition and vesting of Individuals and community forests rights.

Q.25) Smog is the most common form of Air Pollution that occurs in many cities throughout the world. Consider the following statements with reference to it.

1. Classical smog occurs in cool humid climate and is mixture of smog, fog and sulphur dioxide.
2. Photochemical smog occurs in warm, dry and sunny climate and has concentration of oxidising agents.

Which of the above statements is/are correct?

a) 1 only
b) 2 only
c) Both
d) None

Q.25) Solution (c)

Explanation:

The word smog is derived from smoke and fog. This is the most common example of air pollution that occurs in many cities throughout the world

There are two types of smog:

- **Classical smog occurs in cool humid climate.** It is a mixture of smoke, fog and sulphur dioxide. Chemically it is a reducing mixture and so it is also called as reducing smog. Hence, **statement 1 is correct.**
- **Photochemical smog** occurs in warm, dry and sunny climate. The main components of the photochemical smog result from the action of sunlight on unsaturated hydrocarbons and nitrogen oxides produced by automobiles and factories.
    - Photochemical smog has high concentration of oxidising agents and is, therefore, called as oxidising smog. **Hence, statement 2 is correct.**

Q.26) Which of the following are the consequences of Harmful Algal Blooms over Aquatic Environment?

1. It leads to change in water colour giving foul, obnoxious smell making it unfit for drinking purposes.
2. It increases the penetration of lights by settling the decomposed substances at the bottom.
3. It increases the Biological Oxygen demand of water.

Select the correct code

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

Q.26) Solution (a)

Explanation:

Algal bloom is a rapid increase or accumulation in the population of algae in an aquatic system. Algal blooms may occur in freshwater as well as marine environments. Most algal blooms are not harmful but some produce toxins and do affect fish, birds, marine mammals and humans.

The toxins may also make the surrounding air difficult to breathe. These are known as Harmful Algal Blooms (HABs).

Consequences of HAB over aquatic environment:

- Impact over biodiversity: **HABs limit the penetration of light causing die-offs of plants in littoral zones** and their dependent population. To decompose these dead organisms, a large quantity of Oxygen is consumed. **This increases the Biological Oxygen Demand (BOD) of water.** Dissolved oxygen decreases and results into fish-kills. In worst cases, it leads to Hypoxia of water-bodies, further leading to formation of dead-zones where water can no more support life.
- Impact over water quality: The colour of the water changes and it **also gives a foul, obnoxious smell** making the **water unfit for drinking purposes.**
- Furthermore, high rates of photosynthesis associated with eutrophication can deplete dissolved inorganic carbon and raise pH to extreme levels during the day. Elevated pH can in turn 'blind' organisms that rely on perception of dissolved chemical cues for their survival by impairing their chemosensory abilities.

Q.27) In which of the following the concept of extended producer responsibility has not been imbibed?

a) Plastic waste Management rules 2016
b) E-waste management and Handling Rules, 2011
c) Solid waste management Rules, 2016
d) The Food Safety and Standard Regulations, 2011

Q.27) Solution (d)

Explanation:

Extended Producer Responsibility (EPR) is a concept based on the "polluter pays principle". The idea of EPR is extremely critical to waste management. The system is based on the premise that producers are required to provide financial incentive to the collection systems, processing facilities and the recycling industry to collect and process plastic waste in order to meet the targets set out by the Government.

- Today, India's recycling sector is mostly informal, and consists of waste pickers and kabadiwallahs.

- The concept of EPR has been imbibed in the **E-Waste (Management and Handling) Rules, 2011, Plastic Waste Management Rules, 2016, Solid Waste Management Rules, 2016** etc.
- The EPR entails three liabilities on producers i.e. Economic (expenses of collection, recycling and final disposal of products), Physical (management of products and its illeffects) and Informative (dissemination of information on the environmental properties of the manufactured products).

According to the Food Safety & Standards (Packaging & Labelling) Regulations, 2011, which covers Licensing and Registration, Packaging and Labelling of Food Businesses, Food Product Standards and Food Additives Regulation. FSSAI Regulations are a comprehensive set of guidelines that all food product manufacturers and brands should follow. Further, FSSAI imposes twelve primary labelling regulations for any food packaging. **It does not relate to EPR concept. Hence, statement 4 is incorrect.**

Q.28) Dobson Unit measures which of the following

a) Greenhouse gases
b) Arsenic contamination
c) Species richness in a community
d) Thickness of Ozone layer

Q.28) Solution (d)

Explanation:

The Dobson Unit is the most common unit for measuring ozone concentration. One Dobson Unit is the number of molecules of ozone that would be required to create a layer of pure ozone 0.01 millimeters thick at a temperature of 0 degrees Celsius and a pressure of 1 atmosphere (the air pressure at the surface of the Earth).

- Expressed another way, a column of air with an ozone concentration of 1 Dobson Unit would contain about 2.69x1016ozone molecules for every square centimeter of area at the base of the column.
- Over the Earth's surface, the ozone layer's average thickness is about 300 Dobson Units or a layer that is 3 millimeters thick.
- Ozone in the atmosphere isn't all packed into a single layer at a certain altitude above the Earth's surface; it's dispersed. Even the stratospheric ozone known as "the ozone

layer" is not a single layer of pure ozone. It is simply a region where ozone is more common than it is at other altitudes.

- Satellite sensors and other ozone-measuring devices measure the total ozone concentration for an entire column of the atmosphere.
- The Dobson Unit is a way to describe how much ozone there would be in the column if it were all squeezed into a single layer.
- The average amount of ozone in the atmosphere is roughly 300 Dobson Units, equivalent to a layer 3 millimeters (0.12 inches) thick—the height of 2 pennies stacked together. What scientists call the Antarctic Ozone "Hole" is an area where the ozone concentration drops to an average of about 100 Dobson Units.

Q.29) Consider the following statements with reference to Zero Liquid Discharge.

1. It is a waste treatment process to recirculate all the water back to the process with zero liquid waste.
2. Zero Liquid Discharge generates hazardous solid wastes creating disposal challenges.

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.29) Solution (c)

Statement Analysis:

Statement 1: **ZLD is a water treatment process to recirculate all the water back to the process with zero liquid waste.** The focus of ZLD is to reduce wastewater economically and produce clean water that is suitable for reuse (e.g. irrigation), thereby saving money and being beneficial to the environment. ZLD systems employ advanced wastewater/desalination treatment technologies to purify and recycle virtually all of the wastewater produced.

Statement 2: The conventional way to reach ZLD is with thermal technologies such as evaporators (multi stage flash (MSF), multi effect distillation (MED) and mechanical vapor compression (MCV)) and crystallizers and recover their condensate. Thus**, ZLD plants produce hazardous solid wastes creating disposal challanges.**

Evaporators in ZLD system consume a large amount of energy thus increasing the carbon footprint. Also implementing ZLD increases the production costs 25%-30%.

Q.30) Consider the following statements

1. Water having dissolved oxygen less than 50 mg / L is considered as contaminated.
2. BOD is the amount of dissolved oxygen needed by bacteria in decomposing the organic wastes present in water.
3. Higher value of Biological oxygen demand indicates higher dissolved oxygen.

Which of the above given statements is/are correct?

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

Q.30) Solution (b)

Explanation:

Statement 1: Presence of organic and inorganic wastes in water decreases the dissolved Oxygen (DO) content of the water**. Water having DO content below 8.0 mg L-1 may be considered as contaminated.** Water having DO content below. 4.0 mg L-1 is considered to be highly polluted. DO content of water is important for the survival of aquatic organisms. **Hence, statement 1 is incorrect.**

The higher amounts of waste increases the rates of decomposition and O2 consumption, thereby decreases the DO content of water. The demand for O2 is directly related to increasing input of organic wastes and is empressed as biological oxygen demand (BOD) of water.

Statement 2: Water pollution by organic wastes is measured in terms of Biochemical Oxygen Demand (BOD). **BOD is the amount of dissolved oxygen needed by bacteria in decomposing the organic wastes present in water**. It is expressed in milligrams of oxygen per litre of water. **Hence, statement 2 is correct.**

Statement 3: The higher value of BOD indicates low DO content of water. Since BOD is limited to biodegradable materials only. Therefore, it is not a reliable method of measuring pollution load in water. **Hence, statement 3 is incorrect.**

Q.31) Burning of coal generates fly ash, which contain many toxic pollutants, which include

1. Sulphur
2. Zinc
3. Arsenic
4. Plutonium
5. Mercury

Select the correct code

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

Q.31) Solution (d)

Statement Analysis:

Fly ash is a coal combustion product that is composed of the particulates (fine particles of burned fuel) that are driven out of coal-fired boilers together with the flue gases.

Depending upon the source and composition of the coal being burned, the components of fly ash vary considerably, but all fly ash includes substantial amounts of silicon dioxide (SiO_2) (both amorphous and crystalline), aluminium oxide (Al_2O_3) and calcium oxide (CaO), the main mineral compounds in coal-bearing rock strata.

The minor constituents of fly ash depend upon the specific coal bed composition but may include one or more of the following elements or compounds found in trace concentrations (up to hundreds ppm**): arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, zinc, copper molybdenum, selenium, strontium, thallium, and vanadium**, along with very small concentrations of dioxins and PAH compounds.

Plutonium is a radioactive chemical element, when exposed to moist air, it forms oxides and hydrides that can expand the sample up to 70% in volume, which in turn flake off as a powder that is pyrophoric. It is radioactive and can accumulate in bones, which makes the handling of plutonium dangerous. Producing plutonium in useful quantities for the first time was a major part of the Manhattan Project during World War II that developed the first atomic bombs. The Fat Man bombs used in the Trinity nuclear test in July 1945, and in the bombing of Nagasaki in August 1945, had plutonium cores.

Q.32) There are several ways to remove particulate matter from atmosphere. Consider the following statements with respect to it.

1. The electrostatic precipitator can remove over 99 per cent particulate matter present in the exhaust from a thermal power plant.
2. A scrubber can remove gases like sulphur dioxide. In a scrubber, the exhaust is passed through a spray of water or lime.

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

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

Q.32) Solution (d)

Explanation:

Incorrect statement is being asked here

Statement Analysis:

Statement 1 : An electrostatic precipitator is a filter-less device that removes fine particles, like dust and smoke, from a flowing gas using the force of an induced electrostatic charge minimally impeding the flow of gases through the unit. They **can remove over 99 per cent particulate matter present in the exhaust from a thermal power plant. Hence, statement 1 is correct.**

Statement 2: **A scrubber can be used to remove gases like Sulfur dioxide and ammonia when is passed through the water or lime droplets.** In a scrubber, the exhaust is passed through a spray of water or lime water. Water dissolves gases. The particles also become heavy and fall down. Lime reacts with sulphur dioxide to produce a precipitate of calcium sulphate or sulphite, used to remove soluble gases and particles. **Hence, statement 2 is correct.**

Q.33) Which of the following statements are correct with reference to Central Pollution Control Board?

1. It was established under the Air (Prevention and Control of Pollution) Act, 1981.
2. It co-ordinates the activities of the State Pollution Control Boards by providing technical assistance and guidance and also resolves disputes among them.

3. CPCB has the responsibility to regulate and control noise producing and generating sources.

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.33) Solution (b)

Explanation:

Statement 1: The Central Pollution Control Board (CPCB) of India is a statutory organisation under the Ministry of Environment, Forest and Climate Change. **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.

Statement 2: CPCB co-ordinates the activities of the State Pollution Control Boards by providing technical assistance and guidance and also resolves disputes among them. It is the apex organisation in country in the field of pollution control, as a technical wing of MoEFCC.

Statement 3: CPCB has the responsibility to regulate and control noise producing and generating sources with the objective of maintaining the ambient air quality standards. In India, the Air (Prevention and Control of Pollution) Act came into force in 1981, but was amended in 1987 to include noise as an air pollutant.

Q.34) Consider the following statements:

1. Biodiversity hotspots are areas that have relatively low biological diversity but are also experiencing a high rate of habitat loss.
2. Biodiversity cold spots are regions with unusually high concentrations of endemic species that also have suffered severe habitat destruction.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only
c) Both

d) None

Q.34) Solution (d)

Basic Information:

Statement 1**: Biodiversity hotspots are regions with unusually high concentrations of endemic species (species that are found nowhere else on Earth) that also have suffered severe habitat destruction**. Conservation International was a pioneer in defining and promoting the concept of hotspots. In 1989, just one year after scientist Norman Myers wrote the paper that introduced the hotspots concept, The hotspot concept has been extremely effective at directing international funding and philanthropy. **Hence, statement 1 is incorrect.**

Statement 2: **Biodiversity coldspots are areas that have relatively low biological diversity but are also experiencing a high rate of habitat loss.** Although a biodiversity coldspot is low in species richness, it can also be important to conserve, as it may be the only location where a rare species is found. Extreme physical environments (low or high temperatures or pressures, or unusual chemical composition) inhabited by just one or two specially adapted species are coldspots that warrant conservation because they represent unique environments that are biologically and physically interesting. **Hence, statement 2 is incorrect.**

Q.35) Consider the following species and select the critically endangered from the code given below:

1. Indian Pangolin
2. Asiatic Lion
3. Indian Bustard
4. Gharial
5. Bengal Florican

Select the correct code:

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

Q.35) Solution (c)

Explanation:

Statement 1: Of the eight extant species of pangolin, the **Indian Pangolin** and Chinese Pangolin occur in India. Indian Pangolin is a large anteater covered dorsally by 11-13 rows of scales. IUCN status of Indian Pangolin is **endangered.**

Statement 2: **Asiatic Lion** is a Panthera leo leo population in India. Its current range is restricted to the Gir National Park and environs in the Indian state of Gujarat. Its IUCN status **is endangered.** it is slightly smaller than African lions.

Statement 3: **Indian bustard** is a bustard found on the Indian subcontinent. A large bird with a horizontal body and long bare legs, giving it an ostrich like appearance, this bird is among the heaviest of the flying birds. Its IUCN status is **Critically Endangered**.

Statement 4: **Gharial is a fish eating crocodile**. It has been listed **as critically endangered** on the IUCN Red List since 2007. The geographical range of gharial distribution has dwindled throughout Pakistan, Bhutan, India, Nepal and Bangladesh.

Statement 5: The **Bengal florican** , also called Bengal bustard, is a bustard species native to the Indian subcontinent, Cambodia, and Vietnam. It is listed **as Critically Endangered** on the IUCN Red List because fewer than 1,000 individuals were estimated to be alive as of 2017.

Q.36) Consider the following statements with reference to E-waste Management in India

1. India is the 8th largest E-waste generator in the world
2. India's first E-waste clinic is going to be set up in Bhopal that would enable segregation, processing and disposal of waste from both household and commercial units.
3. Under E-waste management rules 2018, the financial cost of testing Electronic equipment is to borne by producer.

Which of the above statements is/are correct?

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

Q.36) Solution (b)

Basic informstion:

Electronic waste (e-waste), refers to all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use. EEE

includes a wide range of products with circuitry or electrical components with a power or battery supply

The increase in production of electrical and electronic equipment (EEE) has been attributed to industrialisation, urbanisation and higher levels of disposable income. E-waste generation trends have also moved uphill, which has been majorly imputed to higher and irresponsible consumption, shorter life spans of products and the mandatory obsolescence planned by the producers of EEE.

India is the only country in Southern Asia with e-waste legislation, with laws to manage e-waste in place since 2011, mandating that only authorised dismantlers and recyclers collect e-waste. There are now 312 authorised recyclers in the country.

Statement Analysis

Statement 1: **According to the Global E-Waste Monitor 2020 India is the third largest electronic waste generator in the world after China and the USA 2020.** India, together with China and the United States, accounts for 38 per cent of this volume generated worldwide. **(So, statement 1 is incorrect.)**

Statement 2: **India's first E-waste clinic is going to be set up in Bhopal** that would enable segregation, processing and disposal of waste from both household and commercial units. **So, Statement 2 is incorrect.**

Statement 3: The E-waste (Management) Rules, 2016 (effective from October 2016) mandated collection targets and transferred responsibilities to the producers – Extended Producer Responsibility (EPR). This put the onus on the brands to ensure that waste was brought back in. These targets were relaxed in 2018.

This amendment also gives the Central Pollution Control Board power to randomly select electronic equipment on the market to test for compliance of rules**. The financial cost associated with this testing shall be the responsibility of the government, whereas previously**, this responsibility was of the producer. **Hence, statement 3 is incorrect.**

Q.37) For Bio magnification to occur, a pollutant must be –

1. Soluble in fat
2. Short lived
3. Mobile
4. Biologically active

Select the correct answer using the code given below:

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

Q.37) Solution (c)

Statement analysis:

A few toxic substances, often present in industrial waste waters, can undergo biological magnification (Bio magnification) in the aquatic food chain. Biomagnification refers to the tendency of pollutants to concentrate as they move from one trophic level to the next.

- This happens because a toxic substance accumulated by an organism cannot be metabolised or excreted, and is thus passed on to the next higher trophic level. This phenomenon is well known for mercury and DDT.
- Thus in biomagnification there is an increase in concentration of a pollutant from one link in a food chain to another.
- **In order for biomagnification to occur, the pollutant must be: long-lived, mobile, soluble in fats, biologically active.**
- If a pollutant is short-lived, it will be broken down before it can become dangerous. If it is not mobile, it will stay in one place and is unlikely to be taken up by organisms. If the pollutant is soluble in water, it will be excreted by the organism. Pollutants that dissolve in fats, however, may be retained for a long time.

Q.38) Biorock technology is in news with reference to

a) Coral Reef restoration
b) Tackling climate change through cloud seeding
c) Heart regenerative technology
d) Restoration of Ozone layer

Q.38) Solution (a)

Explanation:

The Zoological Survey of India (ZSI), with help from Gujarat's forest department, is attempting

for the first time a process to restore coral reefs using biorock or mineral accretion technology.

- A biorock structure was installed one nautical mile off the Mithapur coast in the Gulf of Kachchh.
- Biorock is the name given to the substance formed by electro accumulation of minerals dissolved in seawater on steel structures that are lowered onto the sea bed and are connected to a power source, in this case solar panels that float on the surface.
- The location for installing the biorock had been chosen keeping in mind the high tidal amplitude in the Gulf of Kachchh.
- The low tide depth where the biorock has been installed is four metres, and at high tide it is about eight metres. The ongoing initiative of coral restoration using biorock technology could help corals, including the highly sensitive branching corals, to counter the threats posed by global warming.
- Biorock technology is the only sustainable method of protecting coral reefs from mass extinction from global warming.

Q.39) Consider the following statements with reference to Plastic waste management rules 2016 (as amended in 2018).

1. It defines minimum thickness of plastic carry bags.
2. It seeks to promote use of plastic for road construction.
3. It aims to phase out Multi-layered plastics by 2024.

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

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

Q.39) Solution (c)

Explanation:

Note: incorrect statements are asked.

Plastic Waste Management Rules, 2016 (as amended in 2018)

- **Defines minimum thickness of plastic carry bags** i.e. 50 microns. This would increase the cost and the tendency to provide free carry bags would come down. **Hence, statement 1 is correct.**
- Expand the jurisdiction of applicability from the municipal area to rural areas, because plastic has reached rural areas also
- To bring in the responsibilities of producers and generators, both in plastic waste management system and to introduce collect back system of plastic waste by the producers/brand owners, as per extended producer's responsibility.
- **Promote the use of plastic for road construction** as per Indian Road Congress guidelines **or energy recovery**, or waste to oil etc. for gainful utilization of waste and also address the waste disposal issue. **Hence, statement 2 is correct.**
- Manufacturing and use of non-recyclable **multi-layered plastic to be phased in two years. Hence statement 3 is incorrect.**

Plastic Waste Management Amendment rules, 2018

- The amended Rules lay down that the phasing out of Multilayered Plastic (MLP) is now applicable to MLP, which are "non-recyclable, or non-energy recoverable, or with no alternate use."
- The amended Rules also prescribe a central registration system for the registration of the producer/importer/brand owner.
- In addition, Rule 15 of the Plastic Waste Management (Amendment) Rules 2018 on "explicit pricing of carry bags" has been omitted.

Q.40) The Global Climate risk index is released by

a) IUCN
b) IPBES
c) German watch
d) UNEP

Q.40) Solution (c)

Explanation:

Global Climate Risk Index analyses the extent to which countries and regions have been affected by weather-related events such as severe rainfall, storms, floods and heatwaves.

- The Index stresses on the level of vulnerability of nations to severe climate events, which they should view as warnings for more frequent or severe events in the future.
- **The Global Climate Risk Index 2020 is published by International Environmental think tank Germanwatch.**
- The most recent data available — for 2018 and from 1999 to 2018 — were taken into account.
- India was the fifth most climate-affected country in 2018, which suffered water shortages, crop failures and worst flooding,
- Japan, the Philippines and Germany were found to be the most climate-affected countries in 2018 followed by Madagascar, India and Sri Lanka.
- Regarding future climate change, the Climate Risk Index may serve as a red flag for already existing vulnerability that may further increase in regions where extreme events will become more frequent or more severe due to climate change.

Q.41) Consider the following statements with respect Loss and Damage (L&D):

1. Under L&D, rich countries that have historical responsibility for climate change are asked to be liable to the developing countries.
2. Warsaw International Mechanism (WIM) acknowledges that "loss and damage" associated with the adverse effects of climate change.
3. Paris Agreement provides a basis for liability of industrialized countries towards developing countries under loss and damage framework.

Which of the following statement given above is/are correct?

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

Q.41) Solution (a)

Explanation

Statement 1: Under L&D, rich countries who have historical responsibility for climate change are asked to be liable to the developing countries who are already facing climate change impacts. **So statement 1 is correct**.

Statement 2: The Warsaw International Mechanism (WIM) on Loss and Damage came into

being in 2013(COP 19). It acknowledges that "loss and damage associated with the adverse effects of climate change includes, and in some cases involves more than that which can be reduced by adaptation". **So statement 2 is correct.**

Statement 3: In Paris Agreement 2015 (COP 21), developed countries agreed to include loss and damage in the agreement, but only with an added clause that the specific article which relates to loss and damage "does not involve or provide a basis for any liability or compensation". So **statement 3 is incorrect.**

Q.42) Consider the following statements about "Montreal Protocol":

1. It is the multilateral environmental agreement that regulates the production and consumption of nearly 1000 ozone depleting substances (ODS).
2. It is till date only UN treaty that is ratified by all UN members.

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.42) Solution (b)

Explanation

Statement 1: The Montreal Protocol on Substances that Deplete the Ozone Layer is a global agreement to protect the Earth's ozone layer by phasing out the chemicals that deplete it. This phase-out plan includes both the production and consumption of ozone-depleting substances. The landmark agreement was signed in 1987 and entered into force in 1989. **The Montreal Protocol targets 96 ozone depleting chemicals in thousands of applications across more than 240 industrial sectors. (So, statement 1 is incorrect)**

Statement 2: The Vienna Convention and the Montreal Protocol have each been ratified by 196 nations and the European Union, making them the first universally ratified treaties in United Nations history. Due to its widespread adoption and implementation, the Montreal Protocol has been hailed as an example of exceptional international cooperation, with Kofi Annan describing it as "perhaps the single most successful international agreement to date". **(Hence, statement 2 is correct)**

Do you know?

The most recent amendment, the Kigali Amendment, called for the phase-down of hydrofluorocarbons (HFCs) in 2016. These HFCs were used as replacements for a batch of ozone-depleting substances eliminated by the original Montreal Protocol. Although they do not deplete the ozone layer, they are known to be powerful greenhouse gases and, thus, contributors to climate change.

Q.43) Consider the following statements regarding "Climate Financing":

1. Global Environment Facility (GEF) was established under UNEP's Rio Earth Summit, 1992.
2. World Bank serves as Green Climate Fund (GCF)'s trustee.
3. Half of the adaption resources must be invested in the most climate vulnerable countries.

Which of the above statement is/are correct?

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

Q.43) Solution (b)

Explanation: World Bank acts as Global Environment Facility's trustee. Global Environmental Facility works under UNFCCC. **(Hence, Statement 2 is not correct)**

Green Climate Fund (GCF):

- It is the world's largest climate fund, mandated to support developing countries raise and realize their Nationally Determined Contributions (NDC) ambitions towards low-emissions, climate-resilient pathways.
- It was set up in 2010 as part of UNFCCC's financial mechanism.
- GCF aims to catalyze a flow of climate finance to invest in low-emission and climate-resilient development, driving a paradigm shift in the global response to climate change.

Global Environment Facility:

- GEF was established under the 1992 Rio Earth Summit.
- The World Bank serves as the GEF Trustee, administering the Fund.
- The GEF serves as a "financial mechanism" to five conventions:
    - Convention on Biological Diversity (CBD),
    - United Nations Framework Convention on Climate Change (UNFCCC),
    - Stockholm Convention on Persistent Organic Pollutants (POPs),

- UN Convention to Combat Desertification (UNCCD), and
- Minamata Convention on Mercury.

- GEF funds are available to developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements.

Q.44) Consider the following statements regarding Corporate Average Fuel Efficiency/Economy (CAFE):

1. It aims to improve fuel efficiency by lowering carbon oxide's emission.
2. The Regulation is applicable on Petrol and Diesel variant only.

Which of the above statement is/are correct?

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

Q.44) Solution (a)

Explanation:

Corporate Average Fuel Efficiency/Economy (CAFE) Regulation

- It aims at lowering fuel consumption (or improving fuel efficiency) of vehicles by lowering carbon dioxide (CO_2) emissions.
- Corporate Average refers to sales-volume weighted average for every auto manufacturer.
- The norms are applicable for petrol, diesel, LPG and CNG passenger vehicles. (So, statement 2 is incorrect)
- In India, CAFE regulations come into force into 2017, under which, average corporate CO_2 emission from vehicle must be less than 130 gm per km till 2022 and below 113 gm per km thereafter.
- CAFE norms require cars to be 30% or more fuel efficient from 2022 and 10% or more between 2017 and 2021.

Q.45) Consider the following pairs of Conventions and subject it deals with:

Convention : : Subject it deal with

1. Basel Convention : : Certain Hazardous Chemicals and Pesticides in International Trade
2. Rotterdam Convention : : Trans boundary Movements of Hazardous Waste and their Disposal
3. Stockholm Convention : : Persistent Organic Pollutants (POP)

Which of the above pairs are NOT correctly matched?

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

Q.45) Solution (a)

Explanation:

Conventions dealing with trans-boundary movement

- **Basel Convention on the Control of Trans boundary Movements of Hazardous Waste and their Disposal**
  - It was adopted in 1989 and entered into force in 1992.
  - The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes.
  - Its scope of application covers a wide range of wastes defined as "hazardous wastes" based on their origin and/or composition and their characteristics, as well as two types of wastes defined as "other wastes" - household waste and incinerator ash.

- **Rotterdam Convention on the Prior Informed Consent Procedure (PIC) for Certain Hazardous Chemicals and Pesticides in International Trade**
  - It was adopted in September 1998 and entered into force in 2004.
  - It's jointly administered by the Food and Agriculture Organization (FAO) and UN Environment (UNEP).
  - It creates legally binding obligations for the implementation of the Prior Informed Consent (PIC) procedure.
  - It built on the voluntary PIC procedure, initiated by UNEP and FAO in 1989.
- **Stockholm Convention on Persistent Organic Pollutants (POP)**
  - It was adopted in May 2001 and entered into force in 2004.
  - It's a global treaty to protect human health and the environment from chemicals (POP) that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

Q.46) Consider the following statements about Jal Jeevan Mission:

1. This mission has a component regarding grey water management.
2. Villages with less than 50% of SC/ST population have to provide 10% of capital cost incurred on the project.
3. It is centralised mission, where plans will be made at state level and then, that will be segregated at village level.

Which of the above statement is/are correct?

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

Q.46) Solution (a)

Explanation:

Statement 1:

Following works are to be taken up under Jal Jeevan Mission:

- In-village water supply infrastructure for tap water connection to every household
- Development of reliable drinking water sources and/or augmentation of existing sources
- Technological intervention for treatment to make water potable
- **Grey water (domestic non-faecal wastewater) management**
- Development of utilities, water quality laboratories, water quality testing & surveillance, R&D, knowledge centre, capacity building of communities, etc.

Statement 2: Community contribution: To bring in sense of ownership and pride, 5% capital cost contribution by community towards in-village water supply infrastructure in hilly, forested, and more than 50% SC/ ST dominant population villages, and 10% in the remaining villages is proposed.

Statement 3: Planning: Every village will have to prepare a village action plan (VAP) on three components: water source and its maintenance, water supply, and grey water management. Village plans will be aggregated at district level and thereafter at state level to formulate a state action plan. The state action plan will cover projects like regional grids, bulk water supply etc. for ensuring drinking water security in the state. **(Hence, Statement 3 is incorrect)**

Q.47) With reference to Ecological Flow, consider the following statements:

1. It is maximum flow of water needed to maintain ecology naturally.
2. ISRO through In-WRIS portal is designated authority to submit such data to National Mission for clean Ganga.

Choose correct option from below:

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

Q.47) Solution (d)

Explanation:

Ecological Flow (or E-Flow)

- E-flow or Environmental Flow refers to the **minimum flow of water considered necessary for protecting the structure and function** of an ecosystem and its dependent species.
- Rivers must not dry-up or have their physical regimes significantly altered in order to conserve the hydrological and ecological functions of their drainage networks.
- The ecological quality of rivers must be maintained by maintaining a minimum flow.
- The e-flow norms stipulate the volume of water that dams and barrages must release to allow the river to naturally clean itself and protect its aquatic biodiversity.
- **CWC is the designated authority to collect relevant data and submit reports on a quarterly basis to the NMCG.**

Q.48) The New Delhi Declaration is related to

a) Desertification
b) Disaster Management
c) Terrorism
d) Trans boundary pollution

Q.48) Solution (a)

Explanation:

The New Delhi Declaration:

It was declaration held in the United Nation Convention to Combat Desertification's 14th

Conference of Parties.

Adoption of New Delhi Declaration in which parties expressed commitment for a range of issues, including gender and health, ecosystem restoration, taking action on climate change, private sector engagement, Peace Forest Initiative and recovery of five million hectares of degraded land in India by 2030, raising the land to be restored in India to 26 million hectares.

Q.49) Which of the following leads to increased Soil Organic Carbon?

1. Increased Temperature
2. Contained soil erosion
3. Elevated level of Soil moisture
4. Increased salinity and toxicity of soil

Choose the correct answer from the given options:

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

Q.49) Solution (c)

Explanation:

Soil organic carbon (SOC) is the carbon that remains in the soil after partial decomposition of any material produced by living organisms. It constitutes a key element of the global carbon cycle through atmosphere, vegetation, soil, rivers and the ocean.

Factors affecting soil carbon level

- **Temperature**: with increased temperature, decomposition takes place at faster rate, resulting into loss of nutrient and Soil Organic Matter. Decomposition normally occurs more rapidly in the tropics than in temperate areas.
- **Erosion of Surface soil** result into losses of SOC.
- **Soil Moisture and water saturation**: Increased levels of soil moisture result in greater biomass production, which provides more residues, and thus more potential food for soil biota.
- **Salinity and Acidity:** Salinity, toxicity and extremes in soil pH (acid or alkaline) result in poor biomass production and, thus in reduced additions of organic matter to the soil.

Q.50) Consider the following about Payment for ecosystem service:

1. In this model stakeholder are mandated to pay for the benefit derived from the ecosystem.
2. It is based on the "Polluter Pay Principle".
3. It is a sustainable medium of Payment service, where both conservator and beneficiary are in balance.

Which of the above statements are *incorrect*?

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

Q.50) Solution (a)

Explanation:

Payment for ecosystem service

It involves payments to the managers of natural resources in exchange for the provision of specified ecosystem services over-and-above what would otherwise be provided in the absence of payment.

Stakeholders enter into PES agreements on a voluntary basis and are in no way obligated to do so.

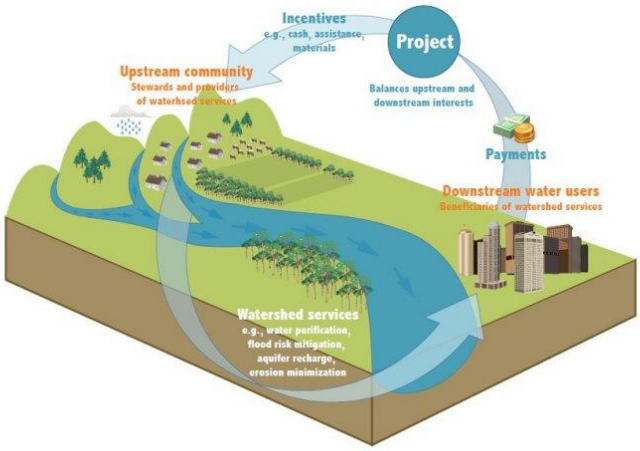
The novelty of PES arises from its focus on the 'beneficiary pays principle', as opposed to the 'polluter pays principle'.

India's first PES agreement took place in Palampur Municipal Corporation, Himachal Pradesh.

Advantage of PES

- PES is highly flexible and there are numerous ways to structure schemes based on the specific context of its application including, for example, the focal ES and scale of application.
- PES schemes offer opportunities to create or support employment related to the delivery of ecosystem services.
- PES can highlight the value of ecosystem services, thereby modifying and potentially reversing incentives for resource users to over-exploit or convert them.

- So, its benefits make it sustainable for ecology as both beneficiary and manager of resources are in benefit.



Q.51) "Global Future" Project was initiated by:

a) United Nations Environment Programme
b) Intergovernmental Panel on Climate Change
c) World Economic Forum
d) World Wide Fund for Nature

Q.51) Solution (d)

Explanation:

'Global Future 'is a project initiated by World Wide Fund for Nature, with partnership between the Global Trade Analysis Project (GTAP) and the Natural Capital Project.

Global Futures is a landmark study using cutting-edge modelling to explore the global economic impacts of natural capital depletion.

It warns of potential risks to the world's economic prosperity if we don't act urgently to halt nature loss.

The study uses new economic and environmental modelling to calculate the costs of nature's decline across 140 countries and all key industry sectors.

Taking six crucial ecosystem services that nature provides (including the supply of water for agriculture; supply of timber; marine fisheries; pollination of crops; protection from flooding, storm surges and erosion; and carbon storage to help protect us from climate change), the report analyses the future costs to world economies of failing to act on the destruction of our

environment and biodiversity loss.

Q.52) Consider the following statement about International Energy Agency:

1. IEA is a G20 body for subject related to energy.
2. A country seeking membership of IEA should also be an OECD country.
3. India became its member in 2017.

Which of the above given statement are *incorrect*?

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

Q.52) Solution (b)

Explanation

International Energy Agency

- It is an autonomous intergovernmental organization established in the framework of Organization for Economic Cooperation and Development (OECD) in 1974 to help countries collectively respond to oil supply disruptions**.(So, statement 1 is incorrect)**
- It is headquartered in Paris.
- A candidate country to the IEA must be a member country of the OECD.
- The IEA family now represents about 75% of global energy consumption.
- Members: IEA is made up of 30 member countries and 8 association countries.
- India became an Associate Member in 2017. (**As India is not a full member, So statement 3 is incorrect)**
- Publications: World Energy Outlook, Global Energy & CO2 Status Report

Q.53) Consider the following statements regarding "Pradhan Mantri JI-VAN":

1. Under it, all type of Bio ethanol projects is provided viability gap funding.
2. A central agency under Ministry of Agriculture will be the implementation agency.

Which of the given statements is/are correct?

a) 1 only

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

Q.53) Solution (d)

Explanation:

Pradhan Mantri JI-VAN (Jaiv IndhanVatavaran Anukool fasal awashesh Nivaran) Yojana

- It has been launched for providing financial support to Integrated Bioethanol Projects using lignocellulose biomass and other renewable feedstock
- Under this Yojana, 12 Commercial Scale and 10 demonstration scale **Second Generation (2G) ethanol Projects** will be provided a Viability Gap Funding (VGF) support in two phases in the period from 2018-19 to 2023-24. (So, statement 1 is incorrect)
- Centre for High Technology (CHT), a technical body under the aegis of Ministry of Petroleum and Natural Gas, will be the implementation Agency for the scheme. (So, statement 2 is incorrect)

Q.54) Consider the following statements about energy efficiency in India:

1. Energy Conservation Building Code (ECBC), 2017 has been developed by TERI.
2. UNNATEE is a draft national energy efficiency policy of Bureau of Energy Efficiency (BEE).
3. Star Labelling is compulsory in Microwave Ovens.

Choose correct option from below:

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

Q.54) Solution (b)

Explanation:

Statement 1: Energy Conservation Building Code (ECBC), 2017:

- The code is **given by Bureau of Energy Efficiency (BEE), Ministry of Power**. (So, statement 1 is incorrect)
- The purpose of the Code is to provide minimum requirements for the energy-efficient design and construction of buildings.

- It is applicable to buildings or building complexes that have a connected load of 100 kW or greater and are intended to be used for commercial purposes.
- Buildings intended for private residential purposes only are not covered by the Code.

Statement 2: Unlocking NATional Energy Efficiency potential (UNNATEE):

- Bureau of Energy Efficiency (BEE) has developed a national strategy document for accelerating energy efficiency in India.
- The strategy document titled UNNATEE (Unlocking NATional Energy Efficiency potential) describes a plain framework and implementation strategy to establish a clear linkage between energy supply-demand scenarios and energy efficiency opportunities.
- The document offers a comprehensive roadmap to address India's environmental and climate change mitigation action through energy efficiency measures.
- The document has now been released for larger public consultation and seeking comments/ valuable inputs from all the stakeholders.

Statement 3: Ministry of Power, Government of India expanded Standards & Labelling (Star Rating) program for Energy Efficient for Appliances to cover the Microwave Ovens and Washing Machines. The Star Labelling Programs has been formulated by Bureau of Energy Efficiency. The program will now include these two appliances for grant of Star Rating in terms of their energy performance. From 31st December 2020, star labelling will be mandatory. (So, statement 3 is correct)

Q.55) Consider the following statements about "Charging infrastructure for Electric Vehicles":

1. Only a licensee contractor can set up public charging infrastructure.
2. In first phase, only city above 40 lakh population and associated expressway and pathway will be covered.
3. Charging infrastructure will have open access for electricity from any electricity company.

Which of the statements given above is/are correct?

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

Q.55) Solution (c)

Explanation:

Ministry of Power has issued a policy on charging infrastructure and has issued a notification clarifying that charging electric vehicles will be a service, not a sale of electricity

Highlights of Charging Infrastructure Guidelines

- **Objective**: To enable faster adoption of EVs in India, promote an affordable tariff system for EV owners and operators of charging stations, generate employment and income opportunities for small business owners and support the creation of EV charging infrastructure.
- **Procedure for setting**: No license will be required for setting set up a public charging station. (Hence, statement 1 is incorrect)
- **Location of Public Charging Station**: Charging station must cater to slow as well as fast-charging requirements
- **Implementation**: Phase I (1-3 years) will cover all mega cities with population above forty lakhs, and the associated expressways and highways. Phase II (3-5 years) will cover state and UT capitals.
- **Access to Electricity:** Charging station has been allowed to source electricity from any power generation company through open access.

Q.56) Consider the following statement regarding India 2000 norms (Bharat Stage):

1. BS norms are set up by Bureau of Energy Efficiency (BEE) under Ministry of Power.
2. Carbon Oxide, Carbon Mono-oxide, NO_x and Particulate matter are covered under it.
3. BS IV will reduce the Particulate Matter's level down by 80% from BS IV level.

Which of the above statement is/are *incorrect*?

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

Q.56) Solution (c)

Explanation:

Statement 1: Bharat Stage Norms are the standards set up by Central Pollution Control Board (CPCB) to regulate the output of air pollutants from internal combustion engines and spark-ignition engine equipment, including motor vehicles. (So, statement 1 is incorrect)

Statement 2: The exhaust gases now covered under the norms are: Carbon monoxide,

Hydrocarbons, oxides of nitrogen (NOx) and Particulate matter. Carbon di-oxide are not covered under it. (So, statement 2 is incorrect)

Statement 3: BS IV will reduce emission of major polluter by high margin. In case of Nitrogen, 70% and 25% in case of diesel and petrol engine respectively. In case of Particulate Matter, reduction in limit is by 80%. Similarly reduction in sulphur oxide will be 5 times lower.

Q.57) Which of the following is not a component of KUSUM?

a) Decentralised ground/ stilt mounted grid connected solar power plants.
b) Off-grid solar pumps
c) Solarisation of grid connected electric pumps
d) Roof-top solar plants

Q.57) Solution (d)

Explanation:

About KUSUM Scheme

- The scheme aims to provide energy security along with financial and water security to farmers.
- It would encourage farmers to generate solar power in their farms and use the clean energy to replace their diesel water pumps.
- It targets to add decentralised solar power capacity of 25,750 megawatt by 2022.

The approved scheme comprises three components

1. Component A: setting up of 10,000 megawatt of decentralised ground/ stilt mounted grid connected solar or other renewable energy based power plants.
2. Component B: Off-grid solar pumps
3. Component C: Solarization of grid connected electric pumps

Q.58) Consider the following statements regarding "Hindu Kush Himalaya Assessment":

1. It is released by Intergovernmental Panel on Climate Change (IPCC).
2. Eastern Himalaya glaciers have tended to shrink slower than glaciers in the central or western Himalaya.
3. In contrast to the Himalayan glaciers, on average, glacier areas in the Karakoram have not changed significantly.

Which of the above statement are *incorrect*?

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

Q.58) Solution (a)

Explanation:

About Climate Change Performance Index (CCPI)

- International Centre for Integrated Mountain Development's (ICIMOD) has released "Hindu Kush Himalaya Assessment. **(Hence, Statement 1 is not correct)**
- According to it more than one-third of the glaciers in the region could retreat by 2100, even if the global temperature rise is capped at 1.5ºC
- Since 1970s, nearly 15% of the glaciers in the HKH have disappeared. Eastern Himalaya glaciers have tended to shrink faster than glaciers in the central or western Himalaya. **(Hence, Statement 2 is incorrect)**
- In contrast to the Himalayan glaciers, on average, glacier areas in the Karakoram have not changed significantly. Given the context of glacier retreat throughout the rest of the extended HKH region, this behaviour has been designated the '**Karakoram anomaly**'.**(Hence, statement 3 is correct)**

Q.59) Consider following statements regarding "Sea Level Rise":

1. Sea level rise along Indian coast is not uniform.
2. Glaciers are largest contributor to sea level rise, next to Thermal Expansion.

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.59) Solution (a)

Explanation:

Sea Level Rise

It is caused primarily by two factors related to global warming:

1. The added water from melting ice sheets; and glaciers
2. The expansion of seawater as it warms.

Contribution of different factor in sea level rise: according to a study of 2004-15 sea level rises, following are the contribution of different factor

- Thermal Expansion: 34%
- Glaciers: 23%
- Greenland and Ice sheets: 25%
- Antarctic Ice sheets: 10%
- Land Waters: 7%
- Water, vapour and others: 1% (So, statement 2 is incorrect)

India's Vulnerability:

- According to a new study published in Nature Climate Change, the sea-level is rising at an average rate of 1.6-1.7 mm per year along the Indian coast, but it is not uniform.
- It varies from 5mm in Sunderbans to less than a 1 mm per year in some of the areas in the west coast. Sunderbans are most vulnerable, not only because it's low-lying, but also because the land is also sinking.

Q.60) Decarbonising Transport in India project has been launched by:

a) Ministry of Road Transport and Highways
b) Ministry of Environment, Forest and Climate Change
c) Ministry of Heavy Industries and Public Enterprises
d) NITI Aayog

Q.60) Solution (d)

Explanation:

NITI Aayog in collaboration with International Transport Forum (ITF) has jointly launched the Decarbonising Transport in India project.

Need of Decarbonising Transport

- Transport emits around 23% of the energy related CO2 that feeds global warming. Without immediate action, its share could reach 40% by 2030 and 60% by 2050.

Decarbonisation means reducing greenhouse gas (GHG) emissions produced as a result of transport. It includes

- Emissions released directly during transport
- Emissions due to related activities - for example emissions from the production of electricity used to power a given mode.
- Emissions resulting from the manufacture and/or disposal/recycling of products and vehicles.

The project is carried out in the wider context of the International Transport Forums' (ITF) Decarbonising Transport Initiative (DTI).

Q.61) Which of the following are health impacts associated with Nitrogen pollution?

a) Blue baby syndrome
b) Vitamin A deficiency
c) Reduced functioning of thyroid
d) All of the above

Q.61) Solution (d)

Explanation:

Nitrogen is an important element that gives plants the energy to grow. It's essential to all life on Earth, but it can be very damaging in excess. **Nitrogen pollution** is caused when some nitrogen compounds – like ammonia and nitrous oxide – become too abundant.

Too much nitrates in drinking water have been connected to what is called the **"blue baby syndrome"** in children—affected children experience a dip in the oxygen levels in their blood, leading to incidences of continuous diarrhea, respiratory problems, and high blood pressure. **Along with Blue Baby Syndrome, reduced functioning of the thyroid gland, Vitamin A shortages etc. are other Health impacts of Nitrogen Pollution**.

Q.62) Which of the following diseases is/are an occupational hazard?

1. Pneumoconiosis
2. Asbestosis
3. Silicosis
4. Tuberculosis

Select the correct code

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

Q.62) Solution (b)

Explanation:

Pneumoconiosis - The coal miners are frequently caught by the black lung disease, which is also called as Pneumoconiosis is caused due to the deposit of coal dust in the lungs of coal miners, leads to a serious lung disease called as Black Lung disease.

Asbestosis - Workers working in the asbestos industry are caught by the serious lung disease called as asbestosis.

Silicosis is caused due to the deposit of silica in the lungs of workers working in silica industries or at the sand blasting sites.

Tuberculosis (TB) is a contagious infection that usually attacks your lungs. It can also spread to other parts of your body, like your brain and spine. A type of bacteria called Mycobacterium tuberculosis causes it. **It is not an occupational hazard Since Occupational hazards are risks of illnesses or accidents in the workplace. In other words, hazards that workers experience in their place of work.**

Hence, option (b) is correct.

Q.63) Which of the following organisation has released 'Locust Environmental Booklet'?

a) International Rice Institute
b) FAO
c) World Food Programme
d) International Fund for Agricultural Development

Q.63) Solution (b)

Explanation:

The locust problem is not confined to India alone, but most of Africa, West Asia, Iran and even parts of Australia. The Food and Agricultural Organization (FAO, this is a part of the United Nations, and based in Rome, Italy) co-ordinates and helps these nations with advice and funds

in combating this plague.

The informative document from FAO, called the Locust Environmental Booklet, gives an update on the situation and methods of handling locust swarms. And an excellent update (available online) on 'locust swarm and its management' has been published on May 29 by the ICRISAT Development Centre (IDC) of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), based in Hyderabad.

Q.64) Block Count Method of census is associated with?

a) Tiger census
b) Elephant census
c) Lion Census
d) Census of One horned Rhinos

Q.64) Solution (c)

Explanation:

The **Lion Census** usually runs for more than two days, including a preliminary census and a final census. It is **done using the block counting method** — in which census enumerators remain stationed at water points in a given block and estimate abundance of lions in that block, based on direct sighting of lions who need to drink water at least once in 24 hours during the summer.

A 'lion observation' is an in-house exercise, conducted only by forest staff. The methodology too is different as, instead of remaining stationary at water points, teams keep moving in their respective territories and make their estimates based on inputs provided by lion trackers and on chance sightings.

Q.65) Consider the following statements:

1. NDMA has designated Ministry of Jal Shakti as a nodal ministry for Urban Floods.
2. National Disaster risk index is published by Ministry of Home Affairs in association with UNDP.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only

c) Both 1 and 2
d) Neither 1 nor 2

Q.65) Solution (b)

Explanation:

Statement 1: The NDMA panel, set up in the wake of the 2005 Mumbai floods, held that urban flooding is a phenomenon distinct from rural flooding. Hence, the panel said, it needs to be dealt with by the ministry in charge of urban affairs through an urban flooding unit headed by an officer at the level of joint secretary.

In July 2012, the Ministry of Home Affairs had issued orders designating the urban affairs ministry as the nodal ministry for urban flooding. Since then Urban flooding comes under the purview of Ministry of Housing and Urban Affairs.

Statement 2: The **Union ministry of Home Affairs with the support of United Nations Development Programme (UNDP) have prepared for the first time a national disaster risk index for India.** It mapped hazards and vulnerabilities including economic vulnerabilities across 640 districts and all states including UTs

Q.66) Consider the following statements with reference to Renewable Energy

1. Hydropower is the world's biggest source of renewable energy by far.
2. The concentrating solar power (CSP) plants use mirrors to concentrate the sun's heat, deriving thermal energy instead.
3. Algal fuel is a type of biomass energy that uses the unique chemicals in seaweed to create a clean and renewable biofuel.

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.66) Solution (d)

Basic information:

Renewable energy comes from sources that naturally renew, or will not run out in our lifetimes. Renewable energy, often referred to as clean energy, comes from natural sources or processes that are constantly replenished. For example, sunlight or wind keep shining and blowing, even if their availability depends on time and weather.

Statement Analysis:

Statement 1: For centuries, people have harnessed the energy of river currents, using dams to control water flow. **Hydropower is the world's biggest source of renewable energy by far accounting for 83% of the world's electricity generation from renewable sources.** The China, Brazil, Canada, the U.S., and Russia are the leading hydropower producers.

Statement 2: In addition to solar panels, which convert the sun's light to electricity, **concentrating solar power (CSP) plants use mirrors to concentrate the sun's heat, deriving thermal energy instead.** China, Japan, and the U.S. are leading the solar transformation, but solar still has a long way to go, Solar thermal energy is also being used worldwide for hot water, heating, and cooling.

Statement 3: **Algal fuel is a type of biomass energy that uses the unique chemicals in seaweed (marine algae) to create a clean and renewable biofuel.** Algal fuel does not need the acres of cropland that other biofuel feedstocks do.

Q.67) Consider the following statements with reference to production and usage of pesticide in India

1. The main use of pesticides in India is for cotton crops, followed by paddy and wheat.
2. In India herbicide is the most used pesticides accounting to more than two third.
3. Maharashtra is the largest consumer of pesticide in India.

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.67) Solution (c)

Explanation:

The production of pesticides started in India in 1952 with the establishment of a plant for the

production of BHC near Calcutta, and India is now the second largest manufacturer of pesticides in Asia after China and ranks twelfth globally. The pattern of pesticide usage in India is different from that for the world in general.

- Pesticides are regulated in India through the Insecticides Act, 1968 and Insecticides Rules, 1971. The experience in administering this Act over the last five decades has exposed certain gaps which spurred the need to propose a new law.
- Insecticides, fungicides and herbicides are used in India, with **insecticides forming the highest share**, the use of herbicides and fungicides is correspondingly less heavy.
- **The main use of pesticides in India is for cotton crops**, followed by paddy and wheat.
- **Maharashtra consumed the most chemical pesticides in India** in the past five years at 61,138 tonnes, followed by Uttar Pradesh (UP) at 52,747 tonnes and Punjab at 29,394 tonnes, according to non-profit Pesticide Action Network (PAN).
- On the other hand, per hectare consumption of pesticides was the highest in Punjab, followed by Haryana and Maharashtra.

Q.68) Recently the term 'SILAM' and 'ENFUSER' was in news with reference to

a) Tsunami Early warning system
b) Border Management
c) Elephant census
d) Air Quality forecasting

Q.68) Solution (d)

Explanation:

Ministry of Earth Sciences is constantly striving to improve **Air Quality Early Warning System** by incorporating various changes in Air Quality Forecast Models such as improved emission inventories, Land Use and Land Cover and improved assimilation of various observational data.

- The Air Quality forecast model **System for Integrated modelling of Atmospheric composition (SILAM)** for India has been further improved by implementing global emission inventories CAMS-GLOB v2.1 supplemented with EDGAR v4.3.2 for coarse and mineral-fine anthropogenic particulate matter at 10km resolution.
- A very high resolution city scale model **ENFUSER (ENvironmental information FUsion SERvice) for Delhi also has been operationalized to identify the air pollution hotspots** and pollution up to street level.

- The speciality of the ENFUSER is the high utilization of measurement data such as air quality observations, a detailed description of the road network, buildings, land-use information, high resolution satellite images, ground elevation and population data. The ENFUSER natively taps into the operative IMD's regional SILAM access point.
- The ENFUSER results are being evaluated with the satellite measurements and observations, model is found to capture the hotspots over Delhi very well.
- The SILAM models have been extensively validated against observations over Indian region.

Q.69) Which of the following places has potential for Geo-thermal Energy in India?

1. Puga Valley
2. Jalgaon in Maharastra
3. Bakreshwar in West Bengal
4. Tattapani in Chhattisgarh

Select the correct code:

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

Q.69) Solution (c)

Explanation:

Geothermal generation refers to harnessing of the geothermal energy or the vast reservoir of heat stored in the earth's inner core. Below the earth's crust, there is a layer of hot and molten rock called 'magma'. Heat is continually produced there, mostly from the decay of naturally radioactive materials such as uranium and potassium.

Following places in India has potential for geo thermal energy generation:

- Tattapani in Chhattisgarh.
- Puga Valley in Jammu & Kashmir.
- Manikaran in Himachal Pradesh.
- Surajkund in Jharkhand.

- Cambay Graben in Gujarat.
- Jalgaon and Unai in Maharastra
- Chhumathang in Jammu & Kashmir.

Q.70) Consider the statements about South Asia Wildlife Enforcement Network (SAWEN).

1. SAWEN is an intergovernmental wildlife law enforcement support body under SAARC.
2. Its Secretariat is in New Delhi.
3. It promotes regional cooperation to combat wildlife crime in South Asia.

Which of the statements given above is/are correct?

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

Q.70) Solution (b)

Explanation

South Asia Wildlife Enforcement Network (SAWEN) is an **inter-governmental wildlife law enforcement support body of South Asian countries** namely - Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

- SAWEN was officially launched in January, 2011 in Paro Bhutan**. It promotes regional cooperation to combat wildlife crime in South Asia**. It focuses on policy harmonization; institutional capacity strengthening through knowledge and intelligence sharing; and collaboration with regional and international partners to enhance wildlife law enforcement in the member countries. **Hence, statement 3 is correct.**
- SAWEN operates its activities from the **Secretariat based in Kathmandu**, Nepal.
- **It does not work under South Asian Association for Regional Cooperation (SAARC).**

Hence, statement 1 and 2 is incorrect.

Q.71) Consider the following statements with reference to Ecotone and Niche.

1. Ecotone is a zone of junction between two or more diverse ecosystems.
2. A niche is unique for a species and plays an important role in conservation of organisms.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 Nor 2

Q.71) Solution (c)

Explanation:

Statement 1: Ecotone, a transitional area of vegetation between two different plant communities, such as forest and grassland. It **has some of the characteristics of each bordering biological community and often contains species not found in the overlapping communities.**

- An ecotone may exist along a broad belt or in a small pocket, such as a forest clearing, where two local communities blend together.
- The influence of the two bordering communities on each other is known as the edge effect. An ecotonal area often has a higher density of organisms of one species and a greater number of species than are found in either flanking community.
- Some organisms need a transitional area for activities such as courtship, nesting, or foraging for food.

Statement 2: In ecology, the term "niche" describes the role an organism plays in a community. A species' niche encompasses both the physical and environmental conditions it requires (like temperature or terrain) and the interactions it has with other species (like predation or competition).

- **A niche is unique for a species**, which means no two species have exact identical niches.
- **Niche plays an important role in conservation of organisms.**
- If we have to conserve species in its native habitat we should have knowledge about the niche requirements of the species and should ensure that all requirements of its niche are fulfilled.

Q.72) Which of the following serve as bio indicator to Pollution?

1. Mosses
2. Bryophytes
3. Lichens
4. Tubifex

Select the correct answer using the code given below:

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

Q.72) Solution (d)

Explanation:

Bioindicator species effectively indicate the condition of the environment because of their moderate tolerance to environmental variability. Examples of environmental, ecological, and biodiversity indicators can be found in many different organisms inhabiting many different environments.

- **Lichens and bryophytes serve as effective bioindicators of air quality** because they have no roots, no cuticle, and acquire all their nutrients from direct exposure to the atmosphere. Their high surface area to volume ratio further encourages the interception and accumulation of contaminants from the air.
    - **Lichens are sensitive to sulphur dioxide**.
- **Mosses** are reliable indicators of **air pollution** risks to ecosystems, because they get most of their nutrients direct from the air and rain, rather than the soil. Because mosses are so good at **absorbing nitrogen** they prevent it from leaching into ground water, but if they get overloaded they quickly deteriorate.
- Tubifex (annelid worm) also called the sludge worm, or sewage worm, is a species of tubificid segmented worm that inhabits the sediments of lakes and rivers on several continents.
    - **Tubifex is used as a water quality indicator because of its ability to tolerate low oxygen conditions, the presence of heavy metals, and other environmental conditions.**
- Other bio-indicators are bacteria, sparrow, butterflies etc.

Q.73) 'One Trillion Tree Initiative' has been launched by which of the following organization in a bid to restore biodiversity and help fight climate change.

a) UNEP
b) World Bank
c) UNFCC
d) WEF

Q.73) Solution (d)

Explanation:

The **World Economic Forum** has launched a global initiative to grow, restore and **conserve 1 trillion trees** around the world - in a bid to restore biodiversity and help fight climate change.

The 1t.org project aims to unite governments, non-governmental organisations, businesses and individuals in a "mass-scale nature restoration".

Q.74) Consider the following statements with reference to Ecological succession

1. The stage leading to the climax community are called successional stages or seres.
2. Secondary succession is relatively faster as compared to primary succession.
3. Succession would occur faster in area existing in the middle of the large continent.

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.74) Solution (c)

Explanation:

Statement 1: Succession is a universal process of directional change in vegetation, on an ecological time scale. Succession occurs when a series of communities replace one another due to large scale destruction either natural or manmade. This process continues - one community replacing another community, until a stable, mature community develops. The first plant to colonise an area is called the pioneer community. **The final stage of succession is called the**

climax community. The stage leading to the climax community are called successional stages or seres.

Statement 2: Secondary succession occurs when plants recognize an area in which the climax community has been disturbed. Secondary succession is the sequential development of biotic communities after the complete or partial destruction of the existing community. A mature or intermediate community may be destroyed by natural events such as floods, droughts, fires, or storms or by human interventions such as deforestation, agriculture, overgrazing, etc. the secondary succession starts on a well-developed soil already formed at the site. Thus **secondary succession is relatively faster as compared to primary succession which may often require hundreds of years.**

Statement 3: **Succession would occur faster in area existing in the middle of the large continent**. This is because, here all propagules or seeds of plants belonging to the different seres would reach much faster, establish and ultimately result in climax community.

Q.75) Consider the following statements about role of Coral reefs.

1. The Great Barrier Reef can be seen from outer space and is the world's biggest single structure made by living organisms.
2. Soft corals are found in oceans from the equator to the north and south poles.
3. There are about twice as many coral species in Pacific Ocean reefs as in Atlantic Ocean reefs

Which of the statements given above is/are correct?

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

Q.75) Solution (d)

Explanation:

Statement 1: The Great Barrier Reef is the world's largest coral reef system, it is located in the Coral Sea, off the coast of Queensland, Australia.

- **The Great Barrier Reef can be seen from outer space and is the world's biggest single structure made by living organisms.** This reef structure is composed of and built by

billions of tiny organisms, known as coral polyps. It supports a wide diversity of life and was selected as a World Heritage Site in 1981.

Statement 2: Coral are generally classified as either "hard coral" or "soft coral". There are around 800 known species of hard coral, also known as the 'reef building' corals.

- Soft corals, which include seas fans, sea feathers and sea whips, don't have the rock-like calcareous skeleton like the others, instead they grow wood-like cores for support and fleshy rinds for protection.
- Soft corals also live in colonies that often resemble brightly coloured plants or trees, and are easy to tell apart from hard corals as their polyps have tentacles that occur in numerals of 8, and have a distinctive feathery appearance.
- **Soft corals are found in oceans from the equator to the north and south poles, generally in caves or ledges.** Here, they hang down in order to capture food floating by in the currents that are usually typical of these places.

Statement 3: Reef-building corals are restricted in their geographic distribution by factors such as the temperature and the salinity (salt content) of the water.

- The water must also be clear to permit high light penetration.
- Because of these environmental restrictions, reefs generally are confined to tropical and semitropical waters.
- The diversity of reef corals (the number of species), decreases in higher latitudes up to about 30° north and south, beyond which reef corals are usually not found.
- **Generally, there are about twice as many coral species in Pacific Ocean reefs as in Atlantic Ocean reefs.**

Q.76) Consider the following statements with reference to Biomes

1. The tundra biomes are located at the northernmost parts of the globe and are defined by short, cold winters and hot summers.
2. Coniferous biomes are also called Taiga or Borreal forests.

Which of the statements given above is/are correct?

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

d) Neither 1 nor 2

Q.76) Solution (b)

Basic Information

Biomes are sometimes confused with similar ecological concepts, such as habitats and ecosystems. Ecosystems are the interactions between biota, such as plants and animals, within the environment, and many ecosystems can make up a single biome. Nutrient and energy flow also play a critical role in ecosystems. A habitat, on the other hand, is specific to a population or species; it is the area in which that group lives. Meanwhile, biomes describe life on a much larger scale than either habitats or ecosystems.

Statement analysis:

Statement 1: **The tundra are located at the northernmost parts of the globe and is defined by long, cold winters and cool summers**. The animals and plants that reside here have evolved adaptations that allow them to survive in this frigid environment, such as thick fur and the ability to hibernate.

Statement 2: **Coniferous Forest Biomes are known as taigas or boreal forests**—experience long, cold winters, short summers, and heavy precipitation. Within this biome, the primary vegetation types are conifers and evergreen trees. Sometimes this category is split into another category, known as the temperate forest, which does not experience temperatures as cold. One example of this warmer forest would be the west coast of North America, a humid forest system home to redwoods and cedars.

Q.77) Which of the following statements is *incorrect* in context of Radioactive Pollution?

1. The Ionising radiations have high penetration power and cause breakage of macro molecules.
2. Non-ionising radiations affect only those components which absorb them and have low penetrability.

Select the appropriate code

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

Q.77) Solution (d)

Explanation:

Radiation is a form of energy travelling through space. Radiations can be categorized into two groups namely the non-ionizing radiations and the ionizing radiations.

Non-ionizing radiations: They are constituted by the electromagnetic waves at the longer wavelength of the spectrum ranging from near infra-red rays to radio waves.

- Non-ionizing radiation is the term given to radiation in the part of the electromagnetic spectrum where there is insufficient energy to cause ionization.
- **Non-ionising radiations affect only those components which absorb them and have low penetrability.**
- It includes electric and magnetic fields, radio waves, microwaves, infrared, ultraviolet, and visible radiation.
- In a microwave oven the radiation causes water molecules in the cooking medium to vibrate faster and thus raising its temperature.

Ionizing Radiation: They include X-rays, cosmic rays and atomic radiations (radiations emitted by radioactive elements).**Ionising radiations have high penetration power and cause breakage of macro molecules.**

- Electrically charged particles produced in the nuclear processes can have sufficient energy to knock electrons out of the atoms or molecules of the medium, thereby producing ions.
- The ionizing radiations cause damage to biological systems and are, therefore they are pollutants.
- A gamma ray passing through a cell, can ionise the water molecules near the DNA.
- These ions might react with the DNA causing it to break. They can also cause chemical changes by breaking the chemical bonds, which can damage living tissues.

Q.78) Consider the following statements about Green Deal:

1. It is a proposed package of United States legislation that aims to address climate change and economic inequality.
2. It sets binding target to cut emission by at least 50% by 2030 and go net zero by 2050.

Select the correct statements:

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

Q.78) Solution (b)

EXPLANATIONS

European Union, whose 28 member countries are together the third-largest emitter of greenhouse gases in the world after China and the United States, came up with an announcement on additional measures it would on climate change. Called the **European Green Deal,** the EU announcement was hailed as a major step forward, even though it needs complementary efforts from other countries to make a significant impact.

- The EU has promised to bring a law, binding on all member countries, to ensure it **becomes "climate neutral" by 2050**.
- Climate neutrality, sometimes also expressed as a state of net-zero emissions, is achieved when a country's emissions are balanced by absorptions and removal of greenhouse gases from the atmosphere.
- Absorption can be increased by creating more carbon sinks like forests, while removal involves technologies like carbon capture and storage.
- The second decision pertains to an increase in its 2030 emission reduction target.
- In its climate action plan declared under the Paris Agreement, the EU was committed to making a 40 per cent reduction in its emissions by 2030 compared to 1990 levels. **It is now promising to increase this reduction to at least 50 per cent and work towards 55 per cent.**

Statement 1: The package discussed here is **Green New Deal (GND) which is a proposed package of United States legislation that aims to address climate change and economic inequality.** The name refers back to the New Deal, a set of social and economic reforms and public works projects undertaken by President Franklin D. Roosevelt in response to the Great Depression. The Green New Deal combines Roosevelt's economic approach with modern ideas such as renewable energy and resource efficiency**.**

Hence statement 1 is incorrect. **There is difference between the two, i.e. Green deal relates with EU while Green New Deal with USA.**

Q.79) Which of the following statements is/are correct with reference to Integrated Development of Wildlife Habitats?

1. It is a central sector umbrella scheme
2. It provides support to protected areas, protection of wildlife outside protected areas and recovery programmes for saving critically endangered species and habitats.
3. So far, 21 species have been identified under the recovery programme.

Choose the appropriate code:

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

Q.79) Solution (b)

Explanation:

Integrated Development of Wildlife Habitats is a Centrally Sponsored Scheme where GoI provides financial and technical assistance to the State/UT Governments for activities aimed at wildlife conservation. The scheme has following three components:

- Support to **Protected Areas** (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves)
- **Protection of Wildlife Outside Protected Areas**
- **Recovery programmes** for saving critically endangered species and habitats.

So far, 22 species have been identified under the recovery programme. These are the Snow Leopard, Bustard (including Floricans), Dolphin, Hangul, Nilgiri Tahr, Marine Turtles, Dugongs, Edible Nest Swiftlet, Asian Wild Buffalo, Nicobar Megapode, Manipur Brow-antlered Deer, Vultures, Malabar Civet, Indian Rhinoceros, Asiatic Lion, Swamp Deer, Jerdon's Courser, the Northern River Terrapin, Clouded Leopard, Arabian Sea Humpback Whale and Red Panda and Caracal.

The implementation of the schemes would be done through the respective States in designated Tiger Reserves, Protected Areas and Elephant Reserves.

Q.80) Consider the following statements with reference to Biodiversity Heritage site:

1. The Indian State Government can notify the Biodiversity Heritage Sites in consultation with local governing bodies.
2. These are notified under Wildlife Protection Act, 1972
3. Rules for management of Biodiversity Heritage sites are framed by Central government for uniformity throughout the country.

Which of the above statements is/are correct?

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

Q.80) Solution (a)

Basic Information:

Biodiversity Heritage Sites" (BHS) are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising of any one or more of the following components:

- richness of wild as well as domesticated species or intra-specific categories,
- high endemism,
- presence of rare and threatened species, keystone species, species of evolutionary significance,
- wild ancestors of domestic/ cultivated species or their varieties,
- past pre-eminence of biological components represented by fossil beds and
- Having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

Statement Analysis

Statement 1 and 2: **The Indian State Government can notify the Biodiversity Heritage Sites in consultation with local governing bodies under Section 37 of Biological Diversity Act of 2002**. They can be either terrestrial, coastal and inland waters or marine ecosystems. **Hence, statement 1 is correct while statement 2 is incorrect.**

Statement 3**: State Government in consultation with the Central Government may frame rules**

for the management and conservation of BHS.

The State Governments shall frame schemes for compensating or rehabilitating any person or section of people economically affected by such notification. **Hence, statement 3 is incorrect.**

Q.81) With reference to Microplastics, consider the following statements:

1. Microplastics are fragments of any type of plastic less than 5 mm in length.
2. Microplastics are ingested directly by zooplanktons.
3. The Great Pacific Garbage Patch is entirely made up of microplastics.

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.81) Solution (d)

Statement analysis

Statement 1: **Plastic pieces that are less than 5mm in length are called microplastics**. They can be formed by fragmentation of large plastic waste material. Microfibres from washing of textiles, microbeads used in cosmetics, and even paint from land run-offs can dump microplastics in the ocean.

Various studies have shown that once ingested, microplastics can settle in the stomach and lead to reduction in feeding capacity of organisms. They can also be detrimental to the intestinal function and reproductive system.

Statement 2: Microplastics can travel high up the food chain and affect even the large predators of the oceans. **Microplastics are ingested directly by the zooplankton --** the lowest link in the food chain. The zooplankton is eaten by fish; and the microplastic finally reaches the seal, which consumes the fish.

Statement 3: The Great Pacific Garbage Patch is a collection of marine debris in the North Pacific Ocean. Marine debris is litter that ends up in the ocean, seas, and other large bodies of water.

For many people, the idea of a "garbage patch" conjures up images of an island of trash floating on the ocean. **In reality, these patches are almost entirely made up of tiny bits of plastic, called microplastics.** Microplastics can't always be seen by the naked eye. Even satellite imagery

doesn't show a giant patch of garbage. The microplastics of the Great Pacific Garbage Patch can simply make the water look like a cloudy soup. This soup is intermixed with larger items, such as fishing gear and shoes.

Q.82) Consider the following statements with reference to light pollution:

1. Light pollution is an unwanted consequence of excessive or misdirected artificial lighting and includes such effects as sky glow, light trespass and glare.
2. It severely reduces the visibility of stars and other celestial objects.

Which of the statements given above is/are correct?

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

Q.82) Solution (c)

Explanation:

Artificial lighting at night is contributing to an alarming increase in light pollution, both in amount and in brightness, affecting places all over the world, including India, a study has found. Light pollution, unwanted or excessive artificial light. Like noise pollution, light pollution is a form of waste energy that can cause adverse effects and degrade environmental quality.

Light pollution is an unwanted consequence of excessive or misdirected artificial lighting and includes such effects as sky glow, light trespass and glare. Global push towards energy and cost efficient light sources, such as LEDs, has directly contributed to an increase in light pollution.

Light pollution possess following health risk to human and Biodiversity

- **Light pollution adversely affects professional and amateur astronomers, as well as casual observers of the night sky,** because it severely reduces the visibility of stars and other celestial objects.
- Light pollution also has adverse impacts on birds and other animals. Many migratory birds, for example, fly by night, when light from the stars and Moon helps them navigate. These birds are disoriented by the glare of artificial light as they fly over urban and suburban areas

- Artificial lighting near waterways draws insects up from the water surface and toward the lighting source, disrupting food chains and weakening the local ecosystem.
- Artificial light disrupts nocturnal pollination and leads to a reduced number of fruits produced by the plant.
- With respect to adverse health effects, many species, especially humans, are dependent on natural body cycles called circadian rhythms and the production of melatonin, which are regulated by light and dark (e.g., day and night). If humans are exposed to light while sleeping, melatonin production can be suppressed. This can lead to **sleep disorders** and other health problems such as increased headaches, worker fatigue, medically defined stress, some forms of obesity due to lack of sleep and increased anxiety.

The good news is that light pollution can be reduced fairly easily by shielding lights properly, by only using light when and where it is needed, by only using the amount that is needed, by using energy efficient bulbs, and by using bulbs with appropriate spectral power distributions for the task at hand.

Q.83) Which of the following are migratory birds to India?

1. Siberian Crane
2. Amur Falcon
3. Bar-headed Goose
4. Great white Pelican

Choose appropriate option:

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

Q.83) Solution (d)

Basic Information:

Migratory birds are seasonal guests with positive impacts. Birds from 29 countries fly to India every year. The country witnesses incoming of large flocks during September-October signifying the beginning of migration.

Migratory bird species are known to be indicators for the flyway region, as they use different

biomes and habitats and face different pressures along the migration route.

Statement Analysis:

Statement 1: **Siberian Cranes are snowy white color birds and migrate during winter to India.** These cranes are omnivorous and breed in the arctic tundra of Russia and Siberia. Siberian Cranes or snow cranes are critically endangered species of migratory birds, wintered in Bharatpur Keoladeo National Park till 2002.

Statement 2: **Amur falcon** is a small raptor of the falcon family. It breeds in south-eastern Siberia and Northern China **before migrating in large flocks across India and over the Arabian Sea to winter in Southern Africa.** The raptor (bird of prey) — the size of a pigeon — makes its home in Nagaland, flying a staggering 22,000 km from there to South Africa, then onto Mongolia and back to **Nagaland.** The bird has one of the longest and most fascinating migratory paths in the avian world. Pangti village in Nagaland is considered as the world's Amur Falcon capital.

Statement 3: **The bar-headed goose migrates over the Himalayas to spend the winter in parts of South Asia (from Assam to as far south as Tamil Nadu**. The modern winter habitat of the species is cultivated fields, where it feeds on barley, rice and wheat, and may damage crops.

Statement 4: **The great white pelican** also is known as rosy pelican is a large bird with a long beak and a large throat pouch, distributed in Eastern Europe, Africa, and Northwest India. **This species migrates to India during winters i**n large numbers and settles down mainly in the states of Assam, Uttar Pradesh, Rajasthan, and Gujarat.

Hence, all statements are correct.

Q.84) Consider the following statements:

1. Bioassay is a test in which organisms are used to detect the presence or the effects of any other physical factor, chemical factor, or any other type of ecological disturbance.
2. Keystone species is a dominant primary producer in an ecosystem both in terms of abundance and influence.

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.84) Solution (a)

Explanation:

Statement 1: **The Bioassay is a test in which organisms are used to detect the presence or the effects of any other physical factor, chemical factor, or any other type of ecological disturbance**.

- Bioassays are very common in pollution studies.
- Bioassays can be conducted by using any type of organisms. However, the fish and insect bioassays are very common.
- The aim is to find out either lethal concentration or effective concentration causing mortality or other effects.

Statement 2: **Foundation species is a dominant primary producer in an ecosystem both in terms of abundance and influence.** Example: kelp in kelp forests and corals in coral reefs.

Keystone species is a species whose addition to or loss from an ecosystem leads to major changes in abundance or occurrence of at least one other species. Certain species in an ecosystem is considered more important in determining the presence of many other species in that ecosystem.

- All top predators (Tiger, Lion, Crocodile, Elephant) are considered as keystone species because it regulates all other animals' population indirectly. Hence top predators are given much consideration in conservation.

Hence, statement 2 is incorrect.

Q.85) Which of the following methods are being suggested to treat Air pollution from Thermal Power Plant?

1. Gravitational settling chamber
2. Using electrostatic precipitator
3. Fluidised Bed Combustion

Choose appropriate option:

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

d) 1, 2 and 3

Q.85) Solution (d)

Explanation:

Methods to control air Pollution from Thermal Power Plant;-

- **Electrostatic precipitator: It** is a device that helps in pollution control by removing many chemicals. These chemicals are lime salts, activated charcoal. It also removes particles called 'Fly ash' because they are light and tend to fly around in hot flue gases.
- **Particulate filter**: It separate the particulate matter from the gases in electric power plants. The smoke passes through a series of cloth bags which trap the particulate matter.
- **Gravitational settling chamber**: This device consists of huge rectangular chambers. The gas stream polluted w/particulates is allowed to enter from one end. The horizontal velocity of the gas stream is kept low in order to give sufficient time for the particles to settle by gravity.
- **Scrubber:** It is a device that employs spray of water to catch pollutants during emissions. A dry scrubber is used to remove acid gases.
- **FLUIDISED Bed Combustion:** is a new technique to reduce the emission of sulphur di-oxide and oxides of nitrogen. In the Fluidised bed system, lime stone or dolomite is used as bed material. The lime stone reacts with so2 in flue gases from the bottom of the bed. Another advantage of using Fluidised bed is stabilization of combustion at 700 to 900 C .This temperature is well below the ash can be tapped from the bottom of the bed. The low combustion temperature also reduces the formation of oxides of nitrogen.

Q.86) Consider the following statements in context of Wildlife census

1. In India, Only Tiger and Elephant census is done at National level periodically.
2. According to the 4th Tiger census, Karnataka has highest tiger Populations.
3. Only critically endangered species are included Recovery programmes for saving critically endangered species.

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.86) Solution (a)

Statement Analysis

Statement 1: Census of major flagship species is undertaken at the State-level by the respective State/Union Territory Governments periodically. **However census of tiger and elephant is undertaken at the national level once every four and five years respectively**. As per the report of the latest census carried out by the state and central government, the population of endangered species especially lions, rhinos, tigers, and elephants has increased in country.

While National-level estimation processes are done for Tigers, Rhinos and Elephants and Snow Leopards but there is difference between the two, i.e. census is regular and consistent while estimation is not. **So, don't confuse. Hence, statement 1 is correct.**

Statement 2: According to the 4th Tiger census conducted in 2018, **Madhya Pradesh saw the highest number of tigers at 526, closely followed by Karnataka at 524 with Uttarakhand** at number 3 with 442 tigers. It was a moment of pride for the country as it achieved its commitment to the St.Petersburg Declaration, of doubling Tiger population, much in advance to the 2022 deadline. **Hence, statement 2 is incorrect.**

Statement 3: There are currently 22 species under the recovery programme for critically endangered species **out of which only Hangul, Indian Bustard, Malabar Civet and Jerdon Cursor are critically endangered. Hence, statement 3 is incorrect.**

Q.87) Consider the following statements:

1. Usage of Diclofenac for treatment of domestic animal was the major cause of decrease of Vulture Population in India.
2. Red-headed vulture is on critically endangered list of IUCN but not listed under Schedule I of the Wild Life (Protection) Act, 1972.

Which of the statements given above is/are correct?

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

Q.87) Solution (a)

Basic introduction:

Vultures are large, magnificent raptors, often referred to as nature's own disposal system because of their scavenging habits. Until recently, India was home to large numbers of vultures – some of which thrived around human habitation, notably by scavenging in nearby carcass dumps.

Statement analysis:

Statement 1: A sharp decline in the vulture population was noted in the 1990s. The numbers of these once numerous and widespread raptors have since fallen by over 99% for some species. **Diclofenac, an anti-inflammatory drug administered to livestock, proved to be fatal to vultures**. Veterinary formulations of Diclofenac have since been banned, and the numbers of some vultures are stabilising, and in some cases – recovering. **Hence, statement 1 is correct.**

Statement 2: Out of nine vulture species in India, four namely — white-backed vulture, long-billed vulture, slender-billed vulture and red-headed vulture — are listed as critically endangered by the IUCN and **all are in the Schedule-1 of the Wildlife Protection Act**, the highest category of endangerment. **Hence, statement 2 is incorrect.**

Q.88) Which of the following is a plant succession limited by water availability?

a) Xerosere
b) Hydrosere
c) Psammosere
d) Lithosere

Q.88) Solution (a)

Explanation:

Psammosere is a seral community, an ecological succession that began life on newly exposed coastal sand. Most common psammoseres are sand dune systems.

Xerosere is a plant succession that is limited by water availability. It includes the different stages in a xerarch succession. Xerarch succession of ecological communities originated in extremely dry situation such as sand deserts, sand dunes, salt deserts, rock deserts etc.

Hydrosere is a plant succession which occurs in an area of fresh water such as in oxbow lakes

and kettle lakes. In time, an area of open freshwater will naturally dry out, ultimately becoming woodland. During this change, a range of different landtypes such as swamp and marsh will succeed each other.

Lithosere (a sere originating on rock) is a plant succession that begins life on a newly exposed rock surface, such as one left bare as a result of glacial retreat, tectonic uplift as in the formation of a raised beach, or volcanic eruptions.

Q.89) Global Environment Outlook is published by

a) IPCC
b) World Bank
c) UNEP
d) UNDP

Q.89) Solution (c)

Explanation:

Global Environment Outlook (GEO) is a series of reports on the environment issued periodically by the United Nations Environment Programme (UNEP). The GEO project was initiated in response to the environmental reporting requirements of UN Agenda 21 and to a UNEP Governing Council decision of May 1995 which requested the production of a new comprehensive global state of the environment report.

The sixth edition of the Global Environment Outlook (GEO-6) published in 2019 provides a clear assessment of the current state of the environment, the challenges that we face and how well we have dealt with them, with due consideration given to gender, indigenous knowledge and cultural dimensions.

Q.90) "It is a second largest contagious protected area network and is largest high altitude reserve in India. It has highest density of Snow Leopard in the World and it lies in rain shadow area of Himalayas." Which of the protected area is being discussed here?

a) Namdampha National Park
b) Nanda Devi Biosphere Reserve
c) Kanchenjunga National Park
d) Hemis National Park

Q.90) Solution (d)

Explanation:

Hemis National Park, is a high altitude national park in Ladakh. It is the only national park that lies north of the Himalayan Mountains and is the **second-largest contiguous protected zone in India after Nanda Devi Biosphere reserve.**

- It is also **the largest notified protected area** and national park in the country.
- The Indus river serves as the park's eastern and northern boundary and several of the rivers major catchment areas such as Rumbak and Markha fall within the national park. In the west, the Zanskar river acts as a boundary.
- The Park falls within the Karakoram-West Tibetan Plateau alpine steppe ecoregion. It primarily consists of alpine shurblands, alpine meadows, and alpine tundra.
- The mean annual precipitation in the region varies from 200mm to 900mm and 90% of it is in the form of snow. This **region is in the rain shadow of the Himalayas**.
- It is globally famous for its snow leopards, it is believed to have the **highest density of them in any protected area in the world.**

Q.91) Consider the following statements about Sunderban Delta:

1. It is the only mangrove forest inhabited by Tigers.
2. It is both Ramsar Site and World Heritage site.

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.91) Solution (c)

Statement Analysis

Statement 1: The Sundarbans is a mangrove area in the delta formed by the confluence of the Ganges, Brahmaputra and Meghna Rivers in the Bay of Bengal. It is spread over India and Bangladesh**, is the only mangrove forest in the world inhabited by tigers.**

Statement 2:.**It is a UNESCO World Heritage Site inscribed in 1987 and it has been designated as a Ramsar site since 2019.** It is considered as a World Network of Biosphere Reserve (Man and Biosphere Reserve) from 1989.

Hence, both are correct.

Q.92) Consider the following statements about Montreux Record:

1. It is register of wetland sites on the List of Wetlands of International Importance.
2. It is maintained as a part of Ramsar List.
3. Currently Chilika Lake and Kaledeo National Park from India is listed under it.

Which of the above statements is/are correct?

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

Q.92) Solution (a)

Statement Analysis

Statement 1: The Montreux Record is **a register of wetland sites on the List of Wetlands of International Importance** where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.

Statement 2: Montreux record is a voluntary mechanism to highlight specific wetlands of international importance that are facing immediate challenges. It is maintained as part of the List of Ramsar wetlands of international importance**. It is under Ramsar Site**.

Statement 3: Currently, two wetlands of India are in Montreux record i.e. Keoladeo National Park (Rajasthan) and Loktak Lake (Manipur), **Chilka Lake (Odisha) was placed in record but was later removed from it. Hence, statement 3 is incorrect.**

Q.93) Consider the following statements about International Renewable Energy Agency:

1. It is an intergovernmental organisation that supports countries in their transition to a sustainable energy.
2. IRENA is the first international organisation to focus exclusively on the issue of renewable energies.
3. IRENA is an official United Nations observer.

Which of the above statements is/are correct?

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

Q.93) Solution (d)

Basic Information:

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation mandated to facilitate cooperation, advance knowledge, and promote the adoption and **sustainable use of renewable energy.**

- It is **the first international organisation to focus exclusively on renewable energy.**
- The aim of the new Agency is to close throughout the world the gap between the enormous potential of renewables and their current relatively low market share in energy consumption.
- It was founded in 2009 and its statute entered into force on 8 July 2010.
- The agency is headquartered in Abu Dhabi
- **IRENA is an official United Nations observer.**

Q.94) Recently which of the following has become the first state or UT to launch Carbon Watch, a mobile application to assess the carbon footprint of an individual?

a) Karnataka
b) Madhya Pradesh
c) Chandigarh
d) Delhi

Q.94) Solution (c)

Explanations:

In news**: Chandigarh** became the first state or Union Territory in India to launch **Carbon Watch,** a mobile application to assess the carbon footprint of an individual. Although the app can be accessed by everyone, it has specific options for the residents of Chandigarh to compile a detail study.

Q.95) Recently two wetlands have been declared as Ramsar site, of which Kabartal wetland is located in?

a) Uttarakhand
b) Uttar Pradesh
c) Bihar
d) Tamil Nadu

Q.95) Solution (c)

Explanation:

Recently, **Kabartal in Bihar''s Begusarai district was recognised as a wetland of international importance, the first such wetland in the state, under the Ramsar Convention**. Besides Karbatal, **Asan Wetland from Uttarakhand** has also been included in Ramsar site.

Earlier in 2020, India designated 10 more wetlands as a Ramsar site, taking the total number from 27 to 37. With 2 more inclusions, the total number of Ramsar sites in India is 39, the highest in South Asia.

Q.96) Which of the following farming practices contribute to Carbon sink?

1. Reduction in tillage
2. Reducing fallow periods
3. Planting shrubs and trees as shelterbelts
4. Adding synthetic manures and Pesticide

Select the correct option:

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

d) All of the above

Q.96) Solution (b)

Explanation:

Historically, when lands were first cropped, large amounts of carbon were lost because cultivation accelerated decay and removal of harvests meant less carbon was returned to soil. But today, farmers can rebuild some of the lost carbon through improved practices.

If land management practices are changed in ways that increase the soil organic carbon, CO2 is effectively removed from the atmosphere and stored or 'sequestered' in the soil. The size of the 'sink' is increased. **Farm practices that contribute to the carbon sink are:**

- Reduction in tillage
- Restoring degraded land, improving pasture management
- Reducing fallow periods
- Adding animal manures to the soil
- Crop residue management
- Using legumes and/or grasses in crop rotations
- Converting marginal crop land to perennial grass or trees
- Using rotational grazing and high-intensity/short duration grazing
- Planting shrubs and trees as shelterbelts
- Restoring wetlands

In addition to sequestering carbon in the soil, these practices also increase soil productivity, enhance the quality of water running off or draining from agricultural land, and provide a more hospitable environment for wildlife inhabiting agricultural lands.

Q.97) Consider the following about Convention on Biological Diversity:

1. It is a legally binding convention.
2. It does not cover genetic resources.
3. Cartagena Protocol on Biosafety is one of its Supplementary agreement.

Select the correct statements:

a) 1 and 2 only
b) 3 only

c) 1 and 3 only
d) All of the above

Q.97) Solution (c)

Explanation:

Statement 1**: CBD is a legally binding Convention** recognized for the first time, that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process. The convention was opened for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993.

Statement 2: The **agreement covers all ecosystems, species, and genetic resources**.

Statement 3: **It has two supplementary agreements, the Cartagena Protocol and Nagoya Protocol. T**he Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another. It was adopted on 29 January 2000 as a supplementary agreement to the CBD and entered into force on 11 September 2003.

Q.98) Consider the following statements about National Board for Wildlife:

1. It is a statutory body chaired by Minister of Environment, Forest and Climate change.
2. No alternation of boundaries in wildlife sanctuaries can be done without approval of the National Board of Wildlife (NBWL).

Which of the statements given above is/are correct?

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

Q.98) Solution (b)

Explanation:

Statement 1: **The National Board for Wildlife (NBWL) is a "statutory board" constituted under the Wild Life (Protection) Act, 1972 (wildlife act).**

- However, it is important to point out that the wildlife act, as originally enacted in 1972, did not provide for the NBWL.
- It was only through an amendment of the wildlife act in 20021 that the NBWL was constituted.
- It is a 47-member committee, **headed by the Prime Minister** and the minister of environment, forest and climate change (environment minister) as vice chairperson. **Hence, statement 1 is incorrect.**

Statement 2:

The NBWL Standing Committee chaired by the Union Minister, Environment & Forests is duty bound to ensure compliance of the mandate's statutory processes prescribed by the WLPA in letter and spirit.

Specific provisions in the WLPA include:

- **No alteration of the boundaries of a National Park or wildlife sanctuaries except on a recommendation of the National Board for Wildlife; Hence, statement 2 is correct.**
- No destruction, removal of wildlife or forest produce from a National Park or diversion of habitat unless State Government in consultation with the National Board for wildlife authorizes the issue of such permit.
- Ensure Tiger Reserves and areas linking one protected area with another are not diverted for ecologically unsustainable uses except in public interest and with the approval of the National Board for wildlife.
- No alteration or denotification of Tiger Reserves without the approval of the National Board for Wildlife.

Q.99) Consider the following statements about Great Green wall Project:

1. It is a project to address desertification, land degradation and climate change in Sahel Region of Africa.
2. It is led by African Union and aims to grow 8,000-kilometre-long and 15-km-wide mosaic of trees, grasslands, vegetation and plants.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only

c) Both
d) None

Q.99) Solution (c)

Explanation:

In News: More than 13 years after the **Great Green Wall (GGW) initiative** was started by the African Union **to address desertification, land degradation and climate change in the Sahel region,** the project had hit a wall due to funds crunch. The project aims to restore 100 million hectares of degraded land by 2030; only four million hectares had been restored between 2007 and 2019.

GGW, as conceived by 11 countries located along the southern border of the Sahara and their international partners, is aimed at limiting the desertification of the Sahel zone.

The GGW initiative**, launched in 2007 by the African Union**, aims to transform the lives of 100 million people by growing **an 8,000-kilometre-long and 15-km-wide mosaic of trees, grasslands, vegetation and plants.**

Q.100) Consider the following statements about Coral Bio-Triangle Region:

1. The Coral Triangle is a marine area located in the western Pacific Ocean
2. Due to its importance it is known as Amazon of the seas.

Select the correct statements:

a) 1 only
b) 2 only
c) Both
d) None

Q.100) Solution (c)

Explanation:

The Coral Triangle is a marine area located in the western Pacific Ocean. It includes the waters of Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor Leste and Solomon Islands. Named for its staggering number of corals (nearly 600 different species of reef-building corals alone), the region nurtures six of the world's seven marine turtle species and more than 2000 species of reef fish.

As one of eight major coral reef zones in the world, the Coral Triangle is recognized as a global centre of marine biodiversity and a global priority for conservation. **Known as the "Amazon of the seas", its biological resources make it a global hotspot of marine biodiversity**. It is said to be to be 10 times as biodiverse as Australia's Great Barrier Reef.