

INSIGHT GS TEST SERIES

PRE-CUM-MAINS-2018

MODEL ANSWER

for

ADVANCE LEVEL

**ECOLOGY &
ENVIRONMENT**

(* Only for INSIGHT TEST SERIES STUDENTS)



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ECOLOGY & ENVIRONMENT (ADVANCE LEVEL)

1. C

- White tigers are predominantly found in Rewa, Madhya Pradesh. World's first White Tiger Safari was inaugurated at Mukundpur in Madhya Pradesh.
- The first white tiger of the world was spotted by Rewa Maharaja (King) Martand Singh in 1951, in this region only i.e. forest of Sidhi. In 1951, a white tiger cub captured by Rewa Maharaja Martand Singh.
- White tigers in India are nothing but a pigmentation variant of the Bengal tiger. They have white fur because of the lack of the pigment pheomelanin, which is found in Bengal tigers with orange colour fur.

Thus, Option C is correct.

2. D

The Supreme Court has imposed a ban on the use of five harmful heavy metals like lithium, antimony, mercury, arsenic and lead in the manufacturing of firecrackers as they cause air and noise pollution. The apex court held that it is the responsibility of the Petroleum and Explosives Safety Organisation (PESO) to ensure compliance of ban order particularly in Sivakasi in Tamil Nadu where there is large number of firecracker manufacturers.

Thus, Option D is correct.

3. C

Statement I is correct: Cloud seeding is a form of weather modification, a way of changing the amount or type of precipitation that falls from clouds, by dispersing substances into the air that serve as cloud condensation or ice nuclei, which alter the microphysical processes within the cloud. The usual intent is to increase precipitation (rain or snow), but hail and fog suppression are also widely practiced in airports, where harsh weather conditions are experienced.

The most common chemicals used for cloud seeding include silver iodide, potassium iodide and dry ice (solid carbon dioxide). Liquid propane, which expands into a gas, has also been used..

Statement II is correct: Karnataka Government has launched clouding seeding Project Varshadhari in Bengaluru under which an aircraft will spray chemicals to induce rainfall. Its purpose is to reform small-sized particles (less than 10 μm size) into 50-micron droplets by clouds. A special aircraft will be used to

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spread aerosols (silver iodide, potassium iodide, and dry ice –solid carbon dioxide) into the clouds to stimulate the precipitation process.

Thus, Option C is correct.

4. D

Statement I is correct: BirdLife International (formerly the International Council for Bird Preservation) is an international non-governmental organization that strives to conserve birds, their habitats and global biodiversity, working with people towards sustainability in the use of natural resources. It is the world's largest partnership of conservation organisations, with over 120 partner organizations.

Statement II is correct: The World Wide Fund for Nature (WWF) is an international non-governmental organization founded in 1961, working in the field of the wilderness preservation and the reduction of human impact on the environment. It was formerly named the World Wildlife Fund, which remains its official name in Canada and the United States. The Living Planet Report is published every two years by WWF since 1998; it is based on a Living Planet Index and ecological footprint calculation.

Statement III is correct: TRAFFIC, the Wildlife Trade Monitoring Network, is the leading non-governmental organization working globally on the trade of wild animals and plants in the context of both biodiversity and sustainable development. It was founded in 1976 as a strategic alliance of the World Wide Fund for Nature (WWF) and the International Union for the Conservation of Nature (IUCN).

Thus, Option D is correct.

5. B

The GCCA was established by the European Union (EU) in 2007 to strengthen dialogue and cooperation with developing countries, in particular least developed countries (LDCs) and Small Island developing States (SIDS). It supports 51 programmes around the world and is active in 38 countries, 8 regions and sub-regions and at the global level.

By fostering effective dialogue and cooperation on climate change, the Alliance helps to ensure that poor developing countries most vulnerable to climate change increase their capacities to adapt to the effects of climate change, in support of the achievement of the Millennium Development Goals (MDGs).

Where this benefits their poverty reduction objectives, the Alliance also helps such countries to participate in the global climate change mitigation effort.

Thus, Option B is correct.

6. A

The Wildlife Protection Act, 1972 is an Act of the Parliament of India enacted for protection of plants and animal species. It has six schedules which give varying degrees of protection:

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- Schedule I and Part II of Schedule II provide absolute protection - offences under these are prescribed the highest penalties.
- Species listed in Schedule III and Schedule IV also protected but the penalties are much lower.
- Schedule V includes the animals which may be hunted. These animals are called Vermin. Only the Central Government is empowered to declare any animals listed in Schedule III and IV of the WPA to be declared as vermin.
- The specified endemic plants in Schedule VI are prohibited from cultivation and planting. The hunting to the enforcement authorities have the power to compound offences under this Schedule (i.e. they impose fines on the offenders). Up to April 2010, there have been 16 convictions under this act relating to the death of tigers.

Thus, Option A is correct.

7. A

Statement I is incorrect: Tiger Reserves are declared by National Tiger Conservation Authority via Wild Life (Protection) Amendment Act, 2006 under centrally sponsored scheme called Project Tiger.

Statement II is incorrect: No alteration in the boundaries of a tiger reserve shall be made except on a recommendation of the Tiger Conservation Authority and the approval of the National Board for Wildlife. National Board for Wild Life is a "Statutory Organization" constituted under the Wildlife Protection Act, 1972. Theoretically, the board is "advisory" in nature and advises the Central Government on framing policies and measures for conservation of wildlife in the country.

Statement III is incorrect: Tiger reserves are demarcated into two areas:

- Core Area- No human activity is allowed in core areas except anything that affects the rights of the scheduled tribes or forest dwellers
- Buffer Area- The buffer area is allowed for limited non-commercial activity such as development, co-existence of man and wild animals and scientific research.

Statement IV is correct.

Thus, Option A is correct.

8. A

Statements I, II and III are correct: Carbon Sequestration means storage. Carbon or CO₂ sequestration means putting carbon into long-term storage. Carbon sequestration is the long-term storage of carbon in plants, soils, geologic formations and the ocean. Carbon sequestration occurs both naturally and as a result of anthropogenic activities and typically refers to the storage of carbon that has the immediate potential to become carbon dioxide gas.

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Reservoirs that retain carbon and keep it from entering Earth's atmosphere are known as carbon sinks. For example, deforestation is a source of carbon emission into the atmosphere but forest re-growth is a form of carbon sequestration, the forests themselves serving as carbon sinks.

Statement IV is incorrect: The Kyoto Protocol under the United Nations Framework Convention on Climate Change allows countries to receive credits for their carbon-sequestration activities in the area of land use, land-use change, and forestry as part of their obligations under the protocol.

Thus, Option A is correct.

9. B

- National Board for Wildlife - Wildlife (Protection) Act, 1972.
- Animal welfare board of India - The Prevention of Cruelty to Animals Act, 1960.
- National Tiger Conservation Authority - Wildlife (Protection) Act, 1972.

Thus, Option B is correct.

10. D

Statement I is correct: The International Seabed Authority (ISA) is an inter-governmental body based in Kingston, Jamaica, that was established to organize, regulate and control all mineral-related activities in the international seabed area beyond the limits of national jurisdiction, an area underlying most of the world's oceans. It is an autonomous international organization established under the 1982 United Nations Convention on the Law of the Sea.

Statement II is correct: It has been set up to regulate the exploration and exploitation of marine non-living resources of oceans in international waters. Its mandate is to organize, regulate and control all mineral-related activities in the international seabed area beyond limits of national jurisdiction (exclusive economic zone), an area underlying most of world's oceans.

Thus, Option D is correct.

11. B

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, also known as the Nagoya Protocol on Access and Benefit Sharing (ABS) is a 2010 supplementary agreement to the 1992 Convention on Biological Diversity (CBD).

Its aim is the implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity. However, there are concerns that the added bureaucracy and legislation will, overall, be damaging to the monitoring and collection of biodiversity, to conservation, to the international response to infectious diseases, and to research.

Thus, Option B is correct.

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12. A

13. B

Statement I is incorrect: The Blackbuck, also known as the Indian Antelope, is an antelope found in India, Nepal and Pakistan.

Statement II is correct: Blackbucks (*Antelope cervicapra*), known for their majestic spiral horns and coat colour contrasts, are found in grasslands and open forests. It is the only living species of the genus Antelope.

Statement III is incorrect: There are few national parks and sanctuaries inhabited by blackbuck in the country, like Velavadar Wildlife Sanctuary in Gujarat and Ranibennur Blackbuck Sanctuary in Karnataka.

Thus, Option B is correct.

14. D

Statement I is correct: Banginapalli Mangoes is a mango variety produced in Banaganapalle of Kurnool district in the Indian state of Andhra Pradesh. It was first introduced by the Nawabs of Banaganapalli. It was registered as one of the geographical indication from Andhra Pradesh on 3 May 2017, under horticultural products by Geographical Indication Registry.

Statement II is correct: Nagpur Orange is rustic and pockmarked exterior which is sweet and has juicy pulp. It gives the city of Nagpur its pseudonym Orange City. The Geographical Indication was applied for Nagpur Orange with the registrar of GIs in India, and is effective as of April 2014.

Statement III is correct: The Nanjangud banana, natively called as Nanjangud rasabalehannu, is a variety of banana grown in and around the area Mysore district and Chamarajanagar district of Karnataka, India. It is famous for its unique taste and aroma. It was found that the black clay alluvial saline soil found in and around Nanjangud drastically changed the taste and aroma, giving it a particular geographical identity, so it is now registered under geographical indicators under Government of India.

Thus, Option D is correct.

15. D

The Global Tiger Initiative (GTI) was launched in 2008 as a global alliance of governments, international organizations, civil society, the conservation and scientific communities and the private sector, with the aim of working together to save wild tigers from extinction. In 2013, the scope was broadened to include Snow Leopards.

The GTI's founding partners included the World Bank, the Global Environment Facility (GEF), the Smithsonian Institution, Save the Tiger Fund and International Tiger Coalition (representing more than 40 non-government organizations). The initiative is led by the 13 tiger range countries (TRCs)

Thus, Option D is correct.

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16. D

Statement I is correct: "Remediate" means to solve a problem, and "bio-remediate" means to use biological organisms to solve an environmental problem such as contaminated soil or groundwater.

Statement I is correct: In a non-polluted environment, bacteria, fungi, protists, and other microorganisms are constantly at work breaking down organic matter. What would occur if an organic pollutant such as oil contaminated this environment? Some of the microorganisms would die, while others capable of eating the organic pollution would survive. Bioremediation works by providing these pollution-eating organisms with fertilizer, oxygen, and other conditions that encourage their rapid growth. These organisms would then be able to break down the organic pollutant at a correspondingly faster rate. In fact, bioremediation is often used to help clean up oil spills.

Statement III is correct: Bioremediation of radioactive waste or bioremediation of radio-nuclides is an application of bioremediation based on the use of biological agents such as bacteria, plants and fungi (natural or genetically modified) to catalyze chemical reactions that allow the decontamination of sites affected by radionuclides.

Thus, Option D is correct.

17. B

Statement I is correct: Biological Oxygen Demand (BOD) is one of the most common measures of pollutant organic material in water. BOD indicates the amount of decaying organic matter present in water.

Statement II is incorrect: A low BOD is an indicator of good quality water while a high BOD indicates polluted water.

Statement III is correct: Dissolved oxygen (DO) is consumed by bacteria when large amounts of organic matter from sewage or other discharges are present in the water. DO is the actual amount of oxygen available in dissolved form in the water. When the DO drops below a certain level, the life forms in that water are unable to continue at a normal rate. The decrease in the oxygen supply in the water has a negative effect on the fish and other aquatic life. Fish kills and an invasion and growth of certain types of weeds can cause dramatic changes in a stream or other body of water.

Thus, Option B is correct.

18. D

The Government in 2013 announced a National Green Corridor Program (NGCP) worth Rs. 43,000 Crore to enable the flow of renewable energy into the National Grid Network.

Specifically, the green energy corridor is grid connected network for the transmission of renewable energy produced from various renewable energy projects. The project was envisaged by Power Grid

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Corporation of India Limited (PGCIL) in its innovative report titled 'Green Energy Corridors'. It was proposed as a dedicated transmission network for renewable energy across different renewable energy potential states.

Two green corridor transmission networks are proposed under the project. Firstly, construction of the inter-state transmission network for connecting renewable energy-rich states under Green Corridor-I will be completed. Besides, a Green Corridors-II for solar parks is also started which is connecting solar parks in different states including Andhra Pradesh, Madhya Pradesh, Karnataka, Rajasthan and Gujarat.

Intra State transmission schemes under Green Energy Corridors (GEC) are to be funded as 20% equity of the State Govt., 40% grant from National Clean Energy Fund (NCEF) and 40% soft loan, whereas, the inter State transmission schemes are to be funded as 30% equity by PGCIL and 70% as soft loan.

Thus, Option D is correct.

19. A

The Bamako Convention (Bamako Convention on the ban on the Import into Africa and the Control of Trans-boundary Movement and Management of Hazardous Wastes within Africa) is a treaty of African nations prohibiting the import of any hazardous (including radioactive) waste. The Convention was negotiated by twelve nations of the Organisation of African Unity at Bamako, Mali in January, 1991, and came into force in 1998.

Impetus for the Bamako Convention arose from the failure of the Basel Convention to prohibit trade of hazardous waste to less developed countries (LDCs) and from the realization that many developed nations were exporting toxic wastes to Africa.

The barrels, found in storage in the port of Koko, contained toxic waste including polychlorinated biphenyls and their eventual shipment back to Italy led to protests closing three Italian ports.

The Bamako Convention uses a format and language similar to that of the Basel Convention, but is much stronger in prohibiting all imports of hazardous waste. Additionally, it does not make exceptions on certain hazardous wastes (like those for radioactive materials) made by the Basel Convention.

Thus, Option A is correct.

20. C

Statement I is incorrect: Perform Achieve and Trade Scheme (PAT) is a component of the National Mission for Enhanced Energy Efficiency (NMEEE) which is one of the eight missions under the National Action Plan on Climate Change (NAPCC). NMEEE aims to strengthen the market for energy efficiency by creating conducive regulatory and policy regime and has envisaged fostering innovative and sustainable business models to the energy efficiency sector.

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Statement II is correct: With an aim to make the industrial sector energy efficient, India's Bureau of Energy Efficiency (BEE) launched its 'Perform, Achieve and Trade' (PAT) scheme. The scheme has set energy efficiency targets for industries. Those that fail to achieve targets will have to pay penalty.

Statement III is correct: It is a market based mechanism to further accelerate as well as incentivize energy efficiency in the large energy-intensive industries. The scheme provides the option to trade any additional certified energy savings with other designated consumers to comply with the Specific Energy Consumption reduction targets. The Energy Savings Certificates (ESCerts) so issued will be tradable on special trading platforms to be created in the two power exchanges -- Indian Energy Exchange and Power Exchange India.

Thus, Option C is correct.

21. C

- Forest Research Institute (India), Dehradun
- Himalayan Forest Research Institute, Shimla
- Tropical Forest Research Institute, Jabalpur
- Arid Forest Research Institute, Jodhpur
- Advanced Research Centre for Bamboo and Rattan, Aizawl
- Centre for Forest-based Livelihoods and Extension (CFLE), Agartala
- Centre for Forestry Research and Human Resource Development, Chhindwara
- Centre for Social Forestry and Eco-Rehabilitation, Allahabad
- Institute of Forest Biodiversity, Hyderabad
- Institute of Forest Genetics and Tree Breeding, Coimbatore
- Institute of Forest Productivity, Ranchi
- Institute of Wood Science and Technology, Bangalore
- Rain Forest Research Institute, Jorhat

Thus, Option C is correct.

22. B

Statement I is correct: Bharat stage emission standards (BSES) are emission standards instituted by the Government of India to regulate the output of air pollutants from internal combustion engines and Spark-ignition engines equipment, including motor vehicles.

Statement II is incorrect: Bharat Stage emission norms are largely similar to the European emission norms followed globally. The standards, based on European regulations were first introduced in 2000. Progressively stringent norms have been rolled out since then. All new vehicles manufactured after the implementation of the norms have to be compliant with the regulations. Since October 2010, Bharat Stage (BS) III norms have been enforced across the country. In 13 major cities, Bharat Stage IV emission

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norms have been in place since April 2010 and it has been enforced for entire country since April 2017. In 2016, the Indian government announced that the country would skip the BS-V norms altogether and adopt BS-VI norms by 2020.

Statement III is correct: The standards and the timeline for implementation are set by the Central Pollution Control Board (CPCB) under the Ministry of Environment & Forests and Climate Change.

Thus, Option B is correct.

23. C

24. D

Most of the sulphur dioxide released into the environment comes from electric utilities especially those that burn coal. Some other sources of sulphur dioxide include petroleum refineries, cement manufacturing, paper pulp manufacturing and metal smelting and processing facilities. Locomotives, large ships and some non-road diesel equipment currently burn high-sulphur fuel and release sulphur dioxide into the air. In nature, volcanic eruptions can release sulphur dioxide into the air.

Some dried fruits are preserved using SO_2 to prevent discoloration of the fruit. SO_2 is also used in bleaching materials and as a fumigant. In homes, sulphur dioxide gas can result from tobacco smoke, improperly or inadequately vented gas appliances (such as stoves, ranges, furnaces, or clothes dryers), gas or kerosene heaters, wood or coal stoves, automobile exhaust from attached garages, and malfunctioning chimneys.

Thus, Option D is correct.

25. C

Statement I is incorrect and Statement II is correct: Ocean acidification is the ongoing decrease in the pH of the Earth's oceans, caused by the uptake of carbon dioxide (CO_2) from the atmosphere. Seawater is slightly basic (meaning $\text{pH} > 7$), and ocean acidification involves a shift towards pH-neutral conditions rather than a transition to acidic conditions ($\text{pH} < 7$). An estimated 30–40% of the carbon dioxide from human activity released into the atmosphere dissolves into oceans, rivers and lakes.

Statement III is correct: This net decrease in the amount of carbonate ions available may make it more difficult for marine calcifying organisms, such as coral and some plankton, to form biogenic calcium carbonate, and such structures become vulnerable to dissolution. Ongoing acidification of the oceans may threaten future food chains connected with the oceans.

Increasing acidity has possibly harmful consequences, such as depressing metabolic rates in jumbo squid, depressing the immune responses of blue mussels, and coral bleaching. **However it may benefit some species, for example increasing the growth rate of the sea star, *Pisaster ochraceus*, while shelled plankton species may flourish in altered oceans.**

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Thus, Option C is correct.

26. D

Option D is correct.

27. A

The Climate Investment Funds (CIFs) were designed by developed and developing countries and are implemented with the multilateral development banks (MDBs) to bridge the financing and learning gap between now and the next international climate change agreement. CIFs are two distinct funds: the Clean Technology Fund and the Strategic Climate Fund. The CIFs are additional to existing Official Development Assistance (ODA) and aim to enable countries to continue on their development path and achieve the Millennium Development Goals. These funds will be operated in close coordination with existing bilateral and multilateral efforts.

The Climate Investment Funds include the:

- Clean Technology Fund
- Strategic Climate Fund
- Forest Investment Program
- Pilot Program for Climate Resilience
- Scaling Up Renewable Energy Program, and
- Private Sector

The BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL) is a multilateral fund, supported by donor governments and managed by the World Bank. It promotes reducing greenhouse gas emissions from the land sector, from deforestation and forest degradation in developing countries (REDD+), and from sustainable agriculture, as well as smarter land-use planning, policies and practices.

Thus, Option A is correct.

28. A

Statements I and II are correct: The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit to help tackle our planet's most pressing environmental problems. The GEF unites 183 countries in partnership with international institutions, civil society organizations (CSOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives. Since 1992, the GEF has provided over \$17 billion in grants and mobilized an additional \$88 billion in financing for more than 4000 projects in 170 countries. Through its Small Grants Programme (SGP), the GEF has invested \$450million and leveraged similar levels of co financing supporting over 14,500 community based projects in over 125 countries.

Statement III is incorrect: The GEF serves as financial mechanism for the following conventions:

- Convention on Biological Diversity (CBD)

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- United Nations Framework Convention on Climate Change (UNFCCC)
- UN Convention to Combat Desertification (UNCCD)
- Stockholm Convention on Persistent Organic Pollutants (POPs)
- Minamata Convention on Mercury

The GEF, although not linked formally to the Montreal Protocol on Substances that Deplete the Ozone Layer (MP), supports implementation of the Protocol in countries with economies in transition.

Thus, Option A is correct.

29. D

National Action Plan on Climate Change (NAPCC) has 8 missions. New missions are also expected to be added in future. The following eight missions are:

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitats
- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for a Green India
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge on Climate Change

National Mission for Clean Ganga (NMCG) was registered as a society on 12th August 2011 under the Societies Registration Act 1860. It acted as the implementation arm of National Ganga River Basin Authority (NGRBA) which was constituted under the provisions of the Environment (Protection) Act (EPA), 1986. NGRBA has since been dissolved with effect from the 7th October 2016, consequent to constitution of National Council for Rejuvenation, Protection and Management of River (referred as National Ganga Council).

Thus, Option D is correct.

30. A

Statements I and II are correct: Operation Thunderbird codenamed for INTERPOL's multi-national and multi-species enforcement operation. A total of 2, 524 Live species of scheduled animals, 19.2 kg of elephant ivory, 1 tiger skin, 9 carcasses of wild animals, 1 organ pipe coral, 1 jar snake venom, 8 leopard skins and 1 Indian Mujtac skin was seized. The operation brought about a unanimous approach by the state enforcement agencies in the fight against wildlife crime in the country. 71 persons were arrested during the operation, which saw an overwhelming response from the states of Assam, Meghalaya, Maharashtra, Odisha, Madhya Pradesh, Delhi, Uttrakhand, Bihar, West Bengal, Jharkhand, Gujarat, Karnataka, Tamil Nadu and Uttar Pradesh.

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Statement III is incorrect: Wildlife Crime Control Bureau (WCCB) has successfully coordinated OPERATION THUNDER BIRD in its fight to end poaching of India's wildlife animals.

Thus, Option A is correct.

31. A

The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003.

The Kyoto Protocol is an international treaty which extends the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits State Parties to reduce greenhouse gas emissions, based on the scientific consensus that (a) global warming is occurring and (b) it is extremely likely that human-made CO₂ emissions have predominantly caused it. The Kyoto Protocol was adopted in Kyoto, Japan, on December 11, 1997 and entered into force on February 16, 2005. There are currently 192 parties (Canada withdrew effective December 2012) to the Protocol.

The Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion. It was agreed on 16 September 1987, and entered into force on 1 January 1989, followed by a first meeting in Helsinki, May 1989.

Thus, Option A is correct.

32. A

Statements I and II are correct: The International Union for Conservation of Nature (IUCN; officially International Union for Conservation of Nature and Natural Resources) is an international organization working in the field of nature conservation and sustainable use of natural resources. It is involved in data gathering and analysis, research, field projects, advocacy, and education. IUCN's mission is to "influence, encourage and assist societies throughout the world to conserve nature and to ensure that any use of natural resources is equitable and ecologically sustainable".

The organization is best known to the wider public for compiling and publishing the IUCN Red List of Threatened Species, which assesses the conservation status of species worldwide.

Statement III is incorrect: The World Wide Fund for Nature (WWF) is an international non-governmental organization founded in 1961, working in the field of the wilderness preservation, and the reduction of human impact on the environment. It was formerly named the World Wildlife Fund, which remains its official name in Canada and the United States. The Living Planet Report is published

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every two years by WWF since 1998; it is based on a Living Planet Index and ecological footprint calculation.

Thus, Option A is correct.

33. C

Formally known as the World Commission on Environment and Development (WCED), the mission of the Brundtland Commission is to unite countries to pursue sustainable development together. The Chairperson of the Commission, Gro Harlem Brundtland, was appointed by United Nations Secretary-General Javier Pérez de Cuéllar in December 1983. At the time, the UN General Assembly realized that there was a heavy deterioration of the human environment and natural resources. To rally countries to work and pursue sustainable development together, the UN decided to establish the Brundtland Commission. Gro Harlem Brundtland was the former Prime Minister of Norway and was chosen due to her strong background in the sciences and public health. The Brundtland Commission officially dissolved in December 1987 after releasing *Our Common Future*, also known as the Brundtland Report, in October 1987, a document which coined, and defined the meaning of the term "Sustainable Development". *Our Common Future* won the University of Louisville Grawemeyer Award in 1991. The organization Center for Our Common Future was started in April 1988 to take the place of the Commission.

Thus, Option C is correct.

34. B

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

Statement II is incorrect: National Bank for Agriculture and Rural Development (NABARD) is the National Implementing Entity (NIE).

Thus, Option B is correct.

35. D

The mitigation strategies involves generation of clean and green energy by increasing renewable energy capacity form 35 GW (Giga Watt) to 175 GW by 2022. In addition to the National Solar Mission that targets fivefold increase in solar power to 1000 GW, it also aims to develop smart power grids to enhance the efficiency of power transmission and distribution across the country. To cap the wastage of energy consumption a nationwide campaign for energy conservation is launched to save 10 per cent energy consumption.

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While this is a macro level policy to address the issue of climate change, the government of India has initiated micro projects that have direct benefits accruing to the poorest groups while contributing to saving energy.

Under the ministry of Renewable Energy, UJALA scheme is launched in which 22.66 crore LED bulbs are distributed that will save Rs 11776 crores while reducing carbon emission up to 24 Metric tons per year.

Similarly under the ministry of Petroleum free LPG connections are given to women holding BPL cards. The Prime Ministers Ujjwala Yojana has already reached 2 crore households and it aims to reach the target of 5 crores house holds by 2019 with an outlay of Rs 8000 crores. This has direct impact on rural women empowering them by providing easy access to clean energy source that improves their health and reducing the pressure on forest resources as well as reducing the carbon emissions.

Thus, Option D is correct.

36. A

The Indian roller (*Coracias benghalensis*), is a member of the roller family of birds. They are found widely across tropical Asia from Iraq eastward across the Indian Subcontinent to Indochina and are best known for the aerobatic displays of the male during the breeding season. They are very commonly seen perched along roadside trees and wires and are commonly seen in open grassland and scrub forest habitats. The largest populations of the species are within India, and several states in India have chosen it as their state bird.

The Indian roller is very common in the populated plains of India and associated with Hindu legends. It is said to be sacred to Vishnu, and used to be caught and released during festivals such as Dusshera or the last day of Durga Puja. The Indian roller has been chosen as the state bird by the Indian states of Andhra Pradesh, Odisha, Karnataka and Telangana.

Thus, Option A is correct.

37. A

Statements I and II are correct: Government of India has notified FAME India Scheme [Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India] for implementation with effect from 1st April 2015, with the objective to support hybrid/electric vehicles market development and Manufacturing eco-system. The scheme has 4 focus areas i.e. Technology development, Demand Creation, Pilot Projects and Charging Infrastructure. The phase-I of the scheme is being implemented for a period of 2 years i.e. FY 2015-16 and FY 2016-17 commencing from 1st April 2015.

The FAME India Scheme is aimed at incentivising all vehicle segments i.e. 2 Wheeler, 3 Wheeler Auto, Passenger 4 Wheeler Vehicle, Light Commercial Vehicles and Buses. The scheme covers Hybrid & Electric technologies like Mild Hybrid, Strong Hybrid, plug in Hybrid & Battery Electric Vehicles.

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Statement III is incorrect: It is being administered by the Ministry of Heavy Industries and Public Enterprises. Recently in January 2018, Department of Heavy Industries (DHI) of Union Government has given its approval to Karnataka government for purchase of electric vehicles (EVs) under FAME India subsidised scheme.

Thus, Option A is correct.

38. D

Statement I is correct: The Clean Development Mechanism (CDM) is one of the Flexible Mechanisms defined in the Kyoto Protocol that provides for emissions reduction projects which generate Certified Emission Reduction units (CERs) which may be traded in emissions trading schemes.

The CDM, defined in Article 12 of the Protocol, was intended to meet two objectives:

- To assist parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC), which is to prevent dangerous climate change; and
- To assist parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments (greenhouse gas (GHG) emission caps).

Statement II is correct: The CDM is the main source of income for the UNFCCC Adaptation Fund, which was established to finance adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change. The Adaptation Fund is financed by a 2% levy on CERs issued by the CDM.

Statement III is correct: The CDM allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. These CERs can be traded and sold and used by industrialized countries to a meet a part of their emission reduction targets under the Kyoto Protocol.

Thus, Option D is correct.

39. D

SAWEN, a Regional network is comprised of eight countries in South Asia: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. It aims at working as a strong regional inter-governmental body for combating wildlife crime by attempting common goals and approaches for combating illegal trade in the region.

Thus, Option D is correct.

40. A

Statement I is incorrect: The Ken-Betwa Inter-Linking Project project aims to transfer surplus water from the Ken River to the Betwa basin through concrete canal to irrigate India's worst drought-prone

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Bundelkhand region. On completion, the multipurpose project will benefit Uttar Pradesh and Madhya Pradesh in terms of meeting irrigation, drinking water and electricity needs of people across 6 districts in the two states.

Statement II is incorrect: It is India's first inter-State river interlinking project.

Statement III is correct: It will submerge about 10% of the Panna Tiger Reserve in Madhya Pradesh which has been feted as a model tiger-conservation reserve

Thus, Option A is correct.

41. B

Global Environment Outlook (GEO) is a series of reports on the environment issued periodically by the United Nations Environmental 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.

Five GEO reports have been published to date: GEO-1 in 1997; GEO-2000 in 1999; GEO-3 in 2002; GEO-4 in 2007; and GEO-5 in 2012.

Thus, Option B is correct.

42. B

Statement I is correct: Many lichens are very sensitive to environmental disturbances and can be used in cheaply assessing air pollution, ozone depletion and metal contamination. Lichens are widely used as environmental indicators or bio-indicators. If air is very badly polluted with sulphur dioxide there may be no lichens present, just green algae may be found. If the air is clean, shrubby, hairy and leafy lichens become abundant.

Statement II is incorrect: Lichens is a composite organism that arises from algae or cyano-bacteria living among filaments of multiple fungi in a symbiotic relationship. The combined lichen has properties different from those of its component organisms. Lichens come in many colours, sizes, and forms. The properties are sometimes plant-like, but lichens are not plants. Lichens may have tiny, leafless branches (fruticose), flat leaf-like structures (foliose), flakes that lie on the surface like peeling paint (crustose), or other growth forms.

Statement III is correct: Lichens have been used in making dyes, perfumes, and in traditional medicines. A few lichen species are eaten by insects or larger animals, such as reindeer.

Thus, Option B is correct.

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43. D

- Alpha diversity: The diversity within a particular area or ecosystem; usually expressed by the number of species (i.e., species richness) in that ecosystem
- Beta diversity: A comparison of diversity between ecosystems, usually measured as the amount of species change between the ecosystems
- Gamma diversity: A measure of the overall diversity within a large region.

Thus, Option D is correct.

44. C

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

Statement II is correct: 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. Besides Rule 5(1) of the Environment (Protection) Rules, 1986 states that central government can prohibit or restrict the location of industries and carrying on certain operations or processes on the basis of considerations like the biological diversity of an area, maximum allowable limits of concentration of pollutants for an area, environmentally compatible land use, and proximity to protected areas. The above two clauses have been effectively used by the government to declare ESZs or EFAs.

Thus, Option C is correct.

45. D

Statement I is incorrect: Agenda 21 is a non-binding and voluntary implementation plan of United Nations with regard to Sustainable Development.

Statement II is incorrect: Aichi Biodiversity Targets have been adopted under the Convention on Biological Diversity.

Thus, Option D is correct.

46. C

Statement I is correct: The Ramsar Convention on Wetlands was signed in Ramsar, Iran, in 1971. Ramsar is a city on the shores of Caspian Sea. It is an inter-governmental treaty which provides the

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framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently 158 Contracting Parties to the Convention, with 1758 wetland sites, totaling 161 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance.

Statement II is correct: Ramsar Convention is the only global environment treaty dealing with a particular ecosystem of wetlands.

Statement III is incorrect: Both natural and man-made wetlands are included in Ramsar Convention.

Statement IV is correct: Montreux Record is a register of wetland sites on Ramsar List 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. It is maintained as part of the Ramsar List.

Thus, Option C is correct.

47. A

- Ozone Depleting Substance – Montreal Protocol
- Persistent Organic Pollutants (PoPs) – Stockholm Convention

Thus, Option A is correct.

48. B

The Agasthyamala Biosphere Reserve has recently been included in UNESCO's list of World Biosphere Reserve Network.

Notable Points

- The area falls in the Malabar rainforests and is one of the noted hotspot in the Western Ghats.
- It covers about 3500 sq kms and is part of different districts of Tamil Nadu and Kerala.
- Agastya Mala, the peak after which the reserve is named, rises up to almost 1868 metres above sea level, in Thiruvananthapuram.
- There are many endemic and endangered species of flora and fauna in the reserve including endangered Nilgiri Tahr.
- It includes the Indian eco regions of moist deciduous forests, montane rainforests and Shola forests and grasslands.
- There are three wildlife sanctuaries within the reserve Shendurney, Peppara, and Neyyar.
- The Kalakkad Mundanthurai Tiger Reserve was recently included as part of the biosphere reserve.
- It is also home to Kanikaran, one of the oldest surviving ancient tribes in the world.

Thus, Option B is correct.

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49. B

Colour	Score	Examples
Red (Heavily Polluting)	60 and above	Petrochemicals, pharmaceuticals, sugar, paper and pulp, nuclear power plants, thermal power plants, tanneries, organic chemicals, fertilizers, fire crackers
Orange	Between 30 - 59	Coal washeries, glass manufacturing, paints, stone crushers, aluminum and copper extraction from scrap
Green	Between 15 - 29	Aluminum utensils, steel furniture, soap manufacturing, tea processing
White (non-Polluting)	Below 15	Air cooler, AC units, Chalk factories, Biscuit tray units

Thus, Option B is correct.

50. C

51. B

52. C

53. C

54. D

55.

Primary air pollutants (PAPs) are those that are emitted directly into the air from sources. Examples – Sulphur dioxide, nitrogen oxides, carbon monoxide, volatile organic matter, particulate matters, lead, ammonia etc.

A secondary pollutant is not directly emitted as such, but forms when other pollutants (primary pollutants) react in the atmosphere. Acid rain, which is formed when sulphur dioxide or nitrogen oxides react with water, is therefore a secondary pollutant.

Ground-level ozone is a colorless and highly irritating gas that forms just above the earth's surface. It is called a "secondary" pollutant because it is produced when two primary pollutants react in sunlight and stagnant air. These two primary pollutants are nitrogen oxides (NO_x) and volatile organic compounds (VOCs).

Thus, Carbon Monoxide, Nitric Oxide, Fine Dust Particles and Volatile Organic Compounds (VOCs) belong to the category of Primary Air Pollutants. None of the Option is correct.

56. B

- Oil spills is one of the most dangerous of all water pollutants.

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- Oil spills from tankers at sea or leaks from underground storage tanks on land are very difficult to control as oil tends to spread very fast, affecting a large area in a very short time.
- Since crude oil is lighter than water, it floats on the surface and poses the threat of swift spreading fire.
- Oil spills at sea decrease the oxygen level in the water and cause harm to the organisms.

Thus, Option B is correct.

57. D

- Lead: Used in printed circuit boards and other components
- Cadmium: Occurs in SMD chip resistors, infra-red detectors and semi-conductor chips.
- Mercury: It is estimated that 22% of the yearly world consumption of mercury is used in electrical and electronic equipment. Mercury is used in thermostats, sensors, relays, switches, medical equipment, lamps, mobile phones and in batteries. Mercury, used in flat panel displays, will likely increase as their use replaces cathode ray tubes.
- Brominated Flame Retardants (BFRs): BFRs are used in the plastic housings of electronic equipments and in circuit boards to prevent flammability.

Thus, Option D is correct.

58. B

- River Gandak forms the western boundary of Valmiki wildlife sanctuary.
- Bandipur National Park is flanked by the Kabini river in the north and the Moyar river in the south.
- Kaziranga is a vast expanse of tall elephant grass, marshland, and dense tropical moist broadleaf forests, criss-crossed by four major rivers, including the Brahmaputra, and the park includes numerous small bodies of water. The park area is circumscribed by the Brahmaputra River, which forms the northern and eastern boundaries, and the Mora Diphlu, which forms the southern boundary. Other notable rivers within the park are the Diphlu and Mora Dhansiri.

Thus, Option B is correct.

59. D

The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has approved the proposal for ratification of Minamata Convention on Mercury and depositing the instrument of ratification enabling India to become a Party of the Convention.

Thus, Option D is correct.

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60. D

Composting is a biological process in which micro-organisms decompose degradable organic waste. Decomposers used can be: Fungi, Bacteria or Earthworm.

Thus, Option D is correct.

61. D

62. A

- While the majority of coral reefs are found in tropical and sub-tropical waters, there are also deep-water corals in colder regions.
- They occur in shallow tropical areas where the sea water is clean, clear and warm.
- Reef - building corals are a symbiotic association of polyps (coral animals) and 'xooxanthellae' (the microscopic algae).

Thus, Option A is correct.

63. C

- The Tropospheric Ozone formation occurs when nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compounds (VOCs) react in the atmosphere in the presence of sunlight.

Thus, Option C is correct.

64. D

"Montreal Protocol on Substances That Deplete the Ozone Layer" or simply Montreal Protocol is the protocol to the Vienna Convention for the Protection of the Ozone Layer. This international treaty was designed to protect the ozone layer by phasing out the production of substances believed to be responsible for ozone depletion.

The recent Kigali agreement amended the Montreal Protocol and substantially limit the emission of Hydrofluorocarbons (HFCs) that contribute to global warming represents major progress.

Thus, Option D is correct.

65. B

Keystone Species:

- A keystone species is a plant or animal that plays a unique and crucial role in the way an ecosystem functions. Without keystone species, the ecosystem would be dramatically different or cease to exist altogether.
- A keystone species disappearance would start a domino effect. Other species in the habitat would also disappear and become extinct. The keystone species disappearance could affect other species that rely on it for survival.

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- For example, the population of deer or rabbits would explode without the presence of a predator. The ecosystem cannot support an unlimited number of animals, and the deer soon compete with each other for food and water resources. Their population usually declines without a predator such as a mountain lion.

Indicator Species:

- An indicator species is an organism whose presence, absence or abundance reflects a specific environmental condition. Indicator species can signal a change in the biological condition of a particular ecosystem, and thus may be used as a proxy to diagnose the health of an ecosystem.
- For example, plants or lichens sensitive to heavy metals or acids in precipitation may be indicators of air pollution.

Invasive Alien Species:

- Invasive alien species are plants, animals, pathogens and other organisms that are non-native to an ecosystem, and which may cause economic or environmental harm or adversely affect human health.
- In particular, they impact adversely upon biodiversity, including decline or elimination of native species - through competition, predation, or transmission of pathogens - and the disruption of local ecosystems and ecosystem functions.

Pioneer Species:

- Pioneer species are hardy species which are the first to colonize previously disrupted or damaged ecosystems, beginning a chain of ecological succession that ultimately leads to a more bio-diverse steady-state ecosystem.
- Some lichens grow on rocks without soil, so may be among the first of life forms, and break down the rock into soil for other plants. Since some un-colonized land may have thin, poor quality soils with few nutrients, pioneer species are often hardy plants with adaptations such as long roots, root nodes containing nitrogen-fixing bacteria, and leaves that employ transpiration.

Thus, Option B is correct.

66. B

Statement I is incorrect: Prior to Wildlife Protection Act of 1972, India only had five designated national parks. This was the first umbrella act which established schedules of protected plant and animal species.

Statement II is incorrect: It defines four types of protected areas viz. National Parks, Wildlife Sanctuaries, Community Reserves and Conservation Reserves. Biosphere reserves are setup under the Man and Biosphere Programme of UNESCO.

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Statement III is correct: State Government by notification if it considers that such area is of adequate ecological, faunal, floral, geomorphologic, natural or zoological significance. The boundary of the Sanctuary/National park will be fixed by the state Government by a notification. Alteration of the boundaries of a Sanctuary / national Park shall be made by a resolution passed by the Legislature of the State. No legislation is needed.

Statement IV is correct: Statutory bodies under this Act:

- Wildlife Crime Control Bureau
- National Board of Wildlife
- National Tiger Conservation Authority (under Ministry of Environment, Forest & Climate Change)

Thus, Option B is correct.

67. D

- Biodiversity is not uniformly distributed across the geographical regions of the earth. Certain regions of the world are very rich in biodiversity. We call such areas as “mega diversity zones”. We also refer to them as “hot-spots”.
- For example, India accounts for only 2.4 % of the land area of the world; but it contributes approximately 8% species to the global diversity due to existence of such pockets.
- Norman Myers, a British Ecologist, developed the concept of hot spots in 1988 to designate priority areas for in situ conservation. According to him, the hot spots are the richest and the most threatened reservoirs of biodiversity on the earth. The criteria for determining a hot spot are:
 - The area should support >1500 endemic species,
 - It must have lost over 70 % of the original habitat
- Twenty-five biodiversity hot spots have been identified in the world. These hot spots are characterized by posing exceptionally high biodiversity. For example the total area of these 25 hot spots cover 1.4% of the total land area, support 44% of plant and 35% terrestrial vertebrates.

Thus, Option D is correct.

68. A

69. D

Ozone can be destroyed by a number of free radical catalysts, the most important of which are – hydroxyl radical, nitric oxide radical, chlorine ion and bromine ion.

Thus, Option D is correct.

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70. A

In-situ conservation - Conserving the animals and plants in their natural habitats is known as in-situ conservation. Their established natural habitats are:

- National Parks
- Sanctuaries
- Biosphere Reserves
- Reserved Forests
- Protected Forests
- Nature Reserves

Ex-situ Conservation - Conserving the biodiversity outside the areas where they are naturally occurring is known as ex-situ conservation. Important centers for Ex-situ conservation:

- Seed Banks
- Botanical garden
- Zoological parks
- Horticultural and recreational gardens

Thus, Option A is correct.

71. A

- First and Second - Generation biofuels like ethanol and biodiesel respectively have a number of inherent limitations that make them less than ideal as a long-term replacement for petroleum. The primary feedstocks for first – generation ethanol (corn and sugarcane) and biodiesel (rapeseed, soybeans, and palm) are all food-based crops that compete for scarce cropland, fresh water, and fertilizers.
- "Third-Generation" algae biofuels and "Fourth-Generation" biofuels that are either created using petroleum-like hydro-processing, advanced bio-chemistry, or revolutionary processes like Joule's "solar-to-fuel" method that defies any other category of biofuels.

Thus, Option A is correct.

72. B

The National Tiger Conservation Authority is set up under the Chairmanship of the Minister for Environment and Forests.

Thus, Option B is correct.

73. D

74. B

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75. D

Acidification would lead certain marine organisms to emit less of the sulphur compounds that help to seed the formation of clouds and so keep the planet cool.

Atmospheric sulphur, most of which comes from the sea, is a check against global warming. Phytoplankton — photosynthetic microbes that drift in sunlit water — produces a compound called dimethylsulphide (DMS). Some of this enters the atmosphere and reacts to make sulphuric acid, which clumps into aerosols, or microscopic airborne particles. Aerosols seed the formation of clouds, which help cool the Earth by reflecting sunlight.

76. D

77. D

The Biological Diversity Act, 2002 came into force in 2003. The Act extends to the whole of India. The objectives of the Act are conservation, sustainable utilization and fair and equitable sharing of benefits arising out of the use of biological resources and associated knowledge. The Act is being implemented in a three-tiered institutional structure. The NBA is a body corporate established in accordance with the provisions of Section 8 of the Biological Diversity Act, 2002, at Chennai in 2003. It is an autonomous, statutory and regulatory organization which is intended to implement the provisions of Biological Diversity Act, 2002.

Thus, Option D is correct.

78. C

- National River Conservation Directorate - Ministry of Environment, Forests and Climate Change (MoEFCC)
- Central Ground Water Board - Ministry of Water Resources.

Thus, Option C is correct.

79. C

80. A

81. D

The World Government Summit was formed by a team of experts from different disciplines in an effort to bring government, business and civil society together at an international level with the goal of improving the lives of the seven billion people on the planet.

The World Government Summit is a global platform dedicated to shaping the future of government worldwide. Each year, the Summit sets the agenda for the next generation of governments with a

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focus on how they can harness innovation and technology to solve universal challenges facing humanity.

The World Government Summit is an annual event held in Dubai, UAE. It brings together leaders in government for a global dialogue about governmental process and policies with a focus on the issues of futurism, technology and innovation, as well as other topics. The summit acts as a knowledge exchange hub between government officials, thought leaders, policy makers and private sector leaders, and as an analysis platform for the future trends, issues and opportunities facing humanity. The summit hosts over 90 speakers from 150 participating countries along with over 4000 attendees.

Thus, Option D is correct.

82. A

Rhododendron is a genus of 1,024 species of woody plants in the heath family, either evergreen or deciduous, and found mainly in Asia, although it is also widespread throughout the highlands of the Appalachian Mountains of North America. It is the national flower of Nepal. Most species have brightly coloured flowers which bloom from late winter through to early summer.

The cold, moist slopes and deep valleys of the eastern Himalayas form a conducive habitat for the luxuriant growth of Rhododendron species. Arunachal Pradesh is home to the highest number with 119 taxa (74 species, 21 sub species and 24 varieties) of the Rhododendron. The small State of Sikkim is home to 42 taxa (25 species, 11 sub-species and six varieties) while 10 taxa are found in Manipur, four in Mizoram and 11 in Nagaland.

Thus, Option A is correct.

83. D

The Ashgabat agreement is a multi-modal transport agreement between Oman, Iran, Turkmenistan, Uzbekistan, Kazakhstan and India for creating an international transport and transit corridor facilitating transportation of goods between Central Asia and the Persian Gulf.

India has been admitted to Agreement on the Establishment of an International Transport and Transit Corridor” between Iran, Oman, Turkmenistan and Uzbekistan signed on April 25, 2011, known as the Ashgabat Agreement. All the four founding members have consented to the accession of India and India’s accession to the Agreement entered into force on February 3, 2018.

Ashgabat is the capital and the largest city of Turkmenistan in Central Asia.

Thus, Option D is correct.

84. B

‘Pelican Bird Festival-2018’ was held for first in Atapaka Bird Sanctuary on Kolleru Lake in Andhra Pradesh. It was jointly organised by Andhra Pradesh Tourism Authority (APTA) and Krishna district administration.

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During winter season, thousands of pelicans, painted storks and other birds migrate to Kolleru lake. During their stay they roost, breed and later fly away with their off springs. Recently, Atapaka Bird Sanctuary was recognised as one of the largest pelicanry in the world.

Thus, Option B is correct.

85. B

Prithvi is a tactical surface-to-surface short-range ballistic missile (SRBM) developed by DRDO of India under the Integrated Guided Missile Development Program (IGMDP). It is deployed by India's Strategic Forces Command.

Prithvi II class is also a single-stage liquid-fueled missile having a maximum warhead mounting capability of 500 kg, but with an extended range of 250 km (160 mi). It was developed with the Indian Air Force being the primary user. It was first test-fired on 27 January 1996 and the development stages were completed in 2004. This variant has been inducted into the army as well. In a test, the missile was launched with an extended range of 350 km (220 mi) and had improved navigation due to an inertial navigation system. The missile features measures to deceive anti-ballistic missiles. The missile was inducted into India's Strategic Forces Command in 2003, and it was the first missile developed under the IGMDP.

Thus, Option B is correct.

86. C

The Ministry of Women and Child Development is administering Swadhar Greh Scheme for relief and rehabilitation of women in difficult circumstances including the victims of sexual harassment.

The scheme envisions a supportive institutional framework for women victims of difficult circumstances so that they could lead their life with dignity and conviction. It envisages that shelter, food, clothing, and health as well as economic and social security are assured for such women. It also envisions that the special needs of these women are properly taken care of and under no circumstances they should be left unattended or abandoned which could lead to their exploitation and desolation.

Thus, Option C is correct.

87. B

An important drawback of commercial policy or the import tariff policy is the problem of inverted duty structure prevailing in different industries.

Inverted duty structure is a situation where import duty on finished goods is low compared to the import duty on raw materials that are used in the production of such finished goods. For example,

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suppose the tariff (import tax) on the import of tyres is 10% and the tariff on the imports of natural rubber which is used in the production of tyres is 20%; this is a case of inverted duty structure.

Thus, Option B is correct.

88. B

It is the tax paid on profit generated by an asset such as real estate, shares or share-oriented products held for a particular time-frame. The definition of Long-term Capital Gains, or LTCG, is different for various products.

Finance Minister Arun Jaitley, in his Union Budget speech, re-introduced LTCG tax on stocks. Investors will have to pay 10 per cent tax on profit exceeding Rs 1 lakh made from the sale of shares or equity mutual fund schemes held for over one year. Till now, LTCG was exempt from tax. The definition of a long-term investor in stocks for tax purposes is one year. LTCG tax on stocks was scrapped in 2004-05 by then finance minister P Chidambaram.

Thus, Option B is correct.

89. A

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister Shri Narendra Modi has given its approval for implementation of the Jal Marg Vikas Project (JMVP) for capacity augmentation of navigation on National Waterway-1 (NW-1) at a cost of Rs 5369.18 crore with the technical assistance and investment support of the World Bank. The Project is expected to be completed by March, 2023.

Major Impact:

- Alternative mode of transport that will be environment friendly and cost effective. The project will contribute in bringing down the logistics cost in the country.
- Mammoth Infrastructure development like multi-modal and inter-modal terminals, Roll on - Roll off (Ro-Ro) facilities, ferry services, navigation aids.
- Socio-economic impetus; huge employment generation.

The Jal Marg Vikas Project seeks to facilitate plying of vessels with capacity of 1,500-2,000 tonnes in the Haldia-Varanasi stretch of the River Ganga. The major works being taken up under JMVP are development of fairway, Multi-Modal Terminals, strengthening of river navigation system, conservancy works, modern River Information System (RIS), Digital Global Positioning System (DGPS), night navigation facilities, modern methods of channel marking etc.

Thus, Option A is correct.

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90. D

The India-UN Development Partnership Fund is a dedicated facility within the United Nations Fund for South-South Cooperation established in 2017. It is supported and led by the Government of the Republic of India, managed by the United Nations Office for South-South Cooperation, and implemented in collaboration with the United Nations system.

The India-UN Development Partnership Fund supports Southern-owned and led, demand-driven, and transformational sustainable development projects across the developing world, with a focus on least developed countries and small island developing states. United Nations agencies implement the Funds projects in close collaboration with partnering governments.

Thus, Option D is correct.

91. B

Honourable Finance minister Shri Arun Jaitley launched CriSidEx, India's first sentiment index for micro and small enterprises (MSEs) developed jointly by CRISIL and SIDBI.

CriSidEx is a composite index based on a diffusion index of 8 parameters, and measures MSE business sentiment on a scale of 0 (extremely negative) to 200 (extremely positive). The parametric feedback was captured through a survey of 1,100 MSEs in November-December.

The first reading of CriSidEx stood at 107, indicating mildly positive sentiment during October-December (or the 'survey quarter'). For January-March 2018 (or the 'next quarter'), the sentiment is expected to be more positive. CriSidEx will have 2 indices – one for the 'survey quarter' and another for the 'next quarter' once a trend emerges after few rounds of the survey, providing independent time series data.

Thus, Option B is correct.

92. B

Gujarat International Finance Tec-City (GIFT City) is a business district promoted by the Government of Gujarat through a joint venture company. GIFT City is India's first operational smart city and international financial services centre.

The International Financial Service Centre (IFSC) at Gift City, Gujarat has received a major boost with the Finance Minister proposing a unified regulator for the special finance zone along with tax benefits for non-residents and non-corporate entities operating there.

Thus, Option B is correct.

93. A

The Democracy Index is an index compiled by the UK-based company the Economist Intelligence Unit (EIU) that intends to measure the state of democracy in 167 countries, of which 166 are sovereign states and 165 are UN member states.

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Performance of India: The total score of 89 countries fell when compared to their ranking in 2016. India was one of the countries whose score declined the most. It fell ten places in the rankings from 32 to 42 as its score deteriorated by 0.58 points to 7.23 (on a scale of 0 to 10). In the 'media freedom ranking', India ranked 49 out of 167 countries that the index covered.

The index is based on 60 indicators grouped in five different categories measuring pluralism, civil liberties and political culture. In addition to a numeric score and a ranking, the index categorises countries as one of four regime types: full democracies, flawed democracies, hybrid regimes and authoritarian regimes.

The report shows that democracy is in decline across the world. It is the worst performance since 2010-11 in the aftermath of the global financial crisis.

Thus, Option A is correct.

94. C

- I. INS Vikramaditya : An Aircraft carrier
- II. INS Chakra : A nuclear-powered attack submarine
- III. INS Brahmaputra : A guided-missile frigate

Thus, Option C is correct.

95. D

Blockchain is a technology that allows for fast, secure and transparent peer-to-peer transfer of digital goods including money and intellectual property.

A blockchain, originally block chain, is a continuously growing list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a cryptographic hash of the previous block, a timestamp and transaction data. By design, a blockchain is inherently resistant to modification of the data.

A blockchain is anonymous, protecting the identities of the users. This makes blockchain a more secure way to carry out transactions. The algorithm used in blockchain reduces the dependence on people to verify the transactions.

Thus, Option D is correct.

96. A

IMAGE (Imager for Magnetopause-to-Aurora Global Exploration) is a NASA Medium Explorers mission that studied the global response of the Earth's magnetosphere to changes in the solar wind.

On March 25, 2000, NASA launched the IMAGE satellite atop a Delta II rocket. The unmanned orbiter kept an eye on the Earth's magnetosphere and how it reacts to the solar winds. Then on December 18,

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2005, radio contact was lost for unknown reason. After weeks of attempts by NASA to regain contact, the probe was written off for good.

Long lost NASA satellite has been found alive. NASA has confirmed it stumbled across radio transmissions from Imager for Magnetopause-to-Aurora Global Exploration (IMAGE) science satellite, which lost contact with mission control over 12 years ago

Thus, Option A is correct.

97. D

The report has been developed by NITI Aayog, with technical assistance from the World Bank, and in consultation with the Ministry of Health and Family Welfare (MoHFW).

States and UTs have been ranked in three categories namely, Larger States, Smaller States, and Union Territories (UTs), to ensure comparison among similar entities. The Health Index is a weighted composite Index, which for the larger States, is based on indicators in three domains: (a) Health Outcomes (70%); (b) Governance and Information (12%); and (c) Key Inputs and Processes (18%), with each domain assigned a weight based on its importance.

Among the Larger States, Kerala, Punjab, and Tamil Nadu ranked on top in terms of overall performance, while Jharkhand, Jammu & Kashmir, and Uttar Pradesh are the top three ranking States in terms of annual incremental performance. Jharkhand, Jammu & Kashmir, and Uttar Pradesh showed the maximum gains in improvement of health outcomes from base to reference year in indicators such as Neonatal Mortality Rate (NMR), Under-five Mortality Rate (U5MR), full immunization coverage, institutional deliveries, and People Living with HIV (PLHIV) on Anti-Retroviral Therapy (ART).

Kerala has topped the list of larger states on overall health performance in the Health Index report released by Niti Aayog while Uttar Pradesh appeared at the bottom among larger states in terms of overall performance.

Thus, Option D is correct.

98. B

The Central Institute of Agricultural Engineering (CIAE) is a higher seat of learning, research and development in the field of agriculture, situated in the lake city of Bhopal, Madhya Pradesh, India. It is an autonomous body, an Indian Council of Agricultural Research subsidiary, under the Ministry of Agriculture, Government of India.

CIAE was established on 15 February 1976 at Bhopal, with a view to provide a research platform for Agricultural Engineering. The early mandate was to address the areas of farm machinery, post harvest technology and energy in agriculture. However, the range of activity was later extended to cover Agro Industrial Extension, Instrumentation and Irrigation and Drainage Engineering.

Thus, Option B is correct.

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99. D

National Payments Corporation of India is the umbrella organisation for all retail payment systems in India, which aims to allow all Indian citizens to have unrestricted access to e-payment services.

Founded in 2008, NPCI is a not-for-profit organisation registered under section 8 of the Companies Act 2013. The organisation is owned by a consortium of major banks, and has been promoted by the country's central bank, the Reserve Bank of India.

Its recent work of developing Unified Payments Interface aims to move India to a cashless society with only digital transactions.

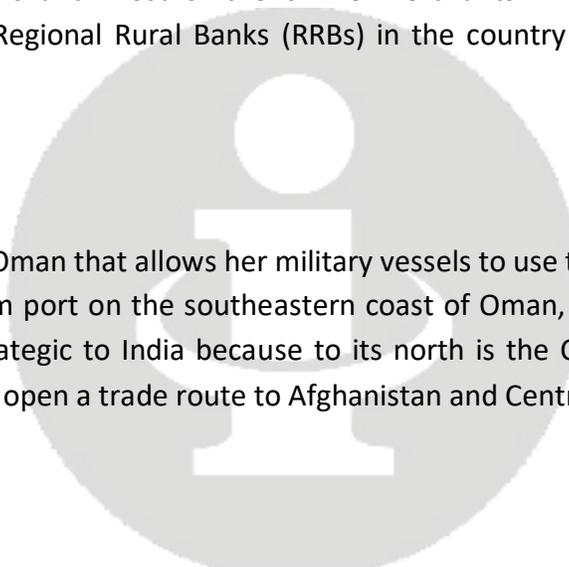
It has successfully completed the development of a domestic card payment network called RuPay, reducing the dependency on international card schemes. The RuPay card is now accepted at all the ATMs, Point-of-Sale terminals and most of the online merchants in the country. More than 300 cooperative banks and the Regional Rural Banks (RRBs) in the country have also issued RuPay ATM cards.

Thus, Option D is correct.

100. A

India signed a key pact with Oman that allows her military vessels to use the strategically located Duqm port and dry dock. The Duqm port on the southeastern coast of Oman, opening into the Arabian Sea and the Indian Ocean, is strategic to India because to its north is the Chabahar port in Iran. India is helping develop Chabahar to open a trade route to Afghanistan and Central Asia, bypassing Pakistan.

Thus, Option A is correct.



The Tradition of Success Continues ...

IAS - 2016

All India Rank

8th



SHWETA CHAUHAN
Roll No. : 0559310



Rank **21**
PRATHAP M



Rank **23**
NITISH KR. SINGH



Rank **26**
MALLIKA SUDHIR



Rank **30**
PRABHASH KUMAR



Rank **41**
AMKIT KHANDEI WAL



Rank **48**
RIZWANASHA SHAIK

MORE THAN 153 SELECTIONS ...

- Hirani A Mohankumar 113
- Nitish Agarwal 122
- Anand Shankar 127
- Sourav Jain 161
- Ratan B 178

IAS - 2015

All India Rank

18th



ANSHUL GUPTA
Roll No. : 0699076



Rank **21**
SHALINI DUHAN



Rank **40**
GAZAL BHARGAWA



Rank **42**
JATIN LAL



Rank **50**
ZEWAGE HANUAMIT K.



Rank **54**
RAVI PRAKASH



Rank **77**
ANKUR

MORE THAN 147 SELECTIONS ...

- Vinay Goyal 79
- Trilok Bansal 97
- Amarpreet K. Sandhu 102
- vinit Agrawal 128
- Agam Jain 133

IAS-2014



Rank **19**
ADITYA UPPAL



Rank **51**
PAMELA SATPATHY



Rank **89**
SHANTAMU SHARMA



Rank **99**
ADITYA RANJAN



Rank **100**
SHALINI DUHAN



Rank **114**
SHRUTI PANDEY

- Bhagyashri 125
- Ajay Kumar Bansal 138
- Rahul De 173
- Vinay Tiwari 193
- Naman Kumar 205

More than 142 Selections ...

IAS-2013



Rank **1**
GAURAV AGARWAL



Rank **17**
FAIZ AQ A. MUMTAZ



Rank **18**
ROMAN SAINI



Rank **19**
KOMAL MITTAL



Rank **31**
D. PADMAKUMAR



Rank **39**
NALINI ATUL

- Krishna Aditya 99
- Santosh K. Roy 107
- Sachin Gupta 150
- Sayak DAS 172
- Khitesh Gupta 184

More than 140 Selections ...

IAS-2012



Rank **5**
RUCHIKA KATTAL



Rank **10**
ASHISH GUPTA



Rank **32**
RAJENDRA K.V.



Rank **94**
HIMANSHU SHUKLA



Rank **125**
KOMAL MITTAL



Rank **207**
KUMAR ASHIMAV

- D. Amarkesh 217
- Swati Bhangalia 223
- Gaurav Agarwal 244
- Sachin Makkar 254
- Lucky Chauhan 276

More than 126 Selections ...

IAS-2011



Rank **5**
GOPALA SUNDARARAJ



Rank **13**
NAMIT MEHTA



Rank **97**
MEHA ARORA



Rank **132**
JEYSUNDHAR D.



Rank **137**
PRIYADARSHINI R.



Rank **151**
C. INDHU MATHY

- Neeraj Kumar 155
- MCV Maheswar R. 196
- Manvendra P.S. 242
- Jasjit Kaur 291
- Sachin Kr. Mishra 494

More than 115 Selections ...

IAS-2010



Rank **16**
SHRUTI SHARMA



Rank **24**
CHANDRA SEKHAR S.



Rank **59**
MIR. MOND. ALI



Rank **67**
RUGVED M. THAKUR



Rank **74**
ASTIK KR. PANDEY



Rank **92**
NAVEEN KUMAR

- Deepak Soni 120
- Priyadarshi 147
- Patil Vinayak V. 164
- Jain Mehl Bharat 186
- Kuldeep K.R. Jain 192

More than 103 Selections ...



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