

100+ Environment Questions for NDA & CDS 2023

Q1. In which of the following states/union territories is/are snow leopard found?

1. Jammu & Kashmir
2. Himachal Pradesh
3. Uttar Pradesh

Select the correct answer using the codes given below:

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

Q2. “Katarniaghat Wildlife Sanctuary” is part of crocodile conservation project is located in which of the following state?

- (a) Tamil Nadu
- (b) Maharashtra
- (c) Uttar Pradesh
- (d) Odisha

Q3. Which of the following initiatives are covered under the National Mission for Enhanced Energy Efficiency (NMEEE)?

1. Perform Achieve and Trade
2. Market Transformation for Energy Efficiency Energy Efficiency Financing Platform (EEP)
3. Framework for Energy Efficient Economic Development (FEEED)

Which of the statements given above is/are correct?

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

Q4. Consider the following statements regarding REDD+:

1. It is a climate change mitigation solution developed by parties to United Nations Framework Convention on Climate Change (UNFCCC).
2. It incentivizes countries to keep their forest standing by offering result-based payments for reduced carbon emissions.

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

TEST SERIES
ENGLISH



AAI 2023
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50+ TOTAL TESTS

Q5. Consider the following statements regarding Accelerating CCS Technologies (ACT) initiative:

1. It is an international initiative to facilitate research development in CO₂ capture, transport, utilization and storage.
2. India is member of the ACT initiative.

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

Q6. Consider the following statements regarding the Climate & Clean Air Coalition (CCAC):

1. It aims at protecting the climate through actions to reduce short-lived climate pollutants.
2. India is a state partner of the CCAC.

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

Q7. Consider the following statements regarding ClimateSmart Cities Assessment Framework.

1. Its objective is to provide a roadmap for Indian cities to combat climate change while planning their investments within the city
2. NITI Aayog is implementing the ClimateSmart Cities Assessment Framework.

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

Q8. Which of the following international conventions/protocols is/are related to the Ozone layer depletion?

1. Montreal Protocol
2. Kyoto Protocol
3. Stockholm Convention

Which of the statements given above is/are correct?

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

Q9. Consider the following statements regarding Vienna Convention

1. The Vienna Convention is the first international agreement dedicated to the protection of the ozone layer.
2. World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) are two scientific assessment panels were established under this

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

Q10. In ecosystem, the organisms which are incapable of producing their own food are called as?

1. Autotrophs
2. Heterotrophs
3. Saprotrophs

Which of the statements given above is/are correct?

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

Q11. Consider the following statements regarding the conservation status of Leopard (*Panthera pardus*)?

1. Listed in Appendix I of the Convention on International Trade of Endangered Species Wild Fauna and Flora (CITES)
2. Listed in Schedule I of the Wildlife (Protection) Act 1972
3. Listed as Vulnerable under IUCN Red List

Which of the statements given above is/are correct?

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

Q12. Which of the following species can be found in the Tso Kar wetland?

1. Black-necked Crane (*Grus nigricollis*)
2. Great Crested Grebe (*Podiceps cristatus*)
3. Bar-headed Geese (*Anser indicus*)

Select the correct answer using the code given below:

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

Q13. Consider the following statements regarding the “Indian Bullfrog”:

1. It is native to the Indian subcontinent and is the largest frog in India.
2. It is one of the invasive species on the islands of Andaman and Nicobar.

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

Q14. Which of the following is/are Old World Monkeys?

1. Tamarins
2. Macaques
3. Baboons

Which of the statements given above is/are correct?

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

Q15. Consider the following statements

1. Sponges are complex, many-celled organisms.
2. While most sponges are found in the ocean, numerous species are also found in fresh water and estuaries.

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

Q16. Consider the following statements regarding the Indian pangolin:

1. It has sticky tongue, which is longer than its body, is specially adapted for reaching and lapping up insects in deep crevices.
2. It is listed as vulnerable on IUCN Red List.

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

Q17. Consider the following statements regarding the Chinkara or Indian gazelles (*Gazella bennettii*): 1. It is an endemic species of India.

2. It is classified as endangered in the IUCN Red List.

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

Q18. The Slender Loris species, sometimes seen in news is endemic to which of the following area?

- (a) Eastern Ghats
- (b) Western Ghats
- (c) North Himalayas
- (d) North Eastern Himalayas

Q19. Consider the following statements regarding “National Air Quality Index”:

1. It was launched in April, 2019 starting with 14 cities to disseminate air quality information.
2. Carbon monoxide and Particulate Matter 2.5 are part of National Air Quality Index.

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

Q20. The Global Methane Assessment: 2030 Baseline Report was launched at COP27 and is produced by the

- (a) Climate and Clean Air Coalition
- (b) UNEP.
- (c) UNFCCC
- (d) Both a and b

Q21. The 'Wise Use' Approach concept is adopted by which of the following convention?

- (a) Ramsar Convention on Wetlands
- (b) Convention on Conservation of Migratory Species
- (c) Convention on Biological Diversity
- (d) International Plant Protection Convention

Q22. Which among the following greenhouse gases emissions are to be controlled as mentioned in the Kyoto protocol

1. Methane (CH_4)
2. Sulphur hexafluoride (SF_6)
3. Sulphur dioxide (SO_2)
4. Carbon dioxide (CO_2)
5. Carbon Monoxide(CO)

Select the correct code from below:

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

Q23. Which among the following greenhouse gas was added by the Doha amendment to the Kyoto Protocol to reduce greenhouse gas emissions

- (a) Sulphur hexafluoride (SF_6)
- (b) Carbon Monoxide(CO)
- (c) Nitrogen trifluoride (NF_3)
- (d) hydrofluorocarbons (HFCs)

Q24. Which among the following is correct about the Kyoto protocol

- (a) It established an adaptation fund to finance developing countries Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change.
- (b) It was replaced by Paris Climate Accords 2015
- (c) it established legally binding commitments to reduce emissions of greenhouse gases for all the countries
- (d) It was signed in 2012.

Q25. The UN Framework Convention on Climate Change (UNFCCC) was first adopted via-

- (a) Bonn convention
- (b) Berlin mandate
- (c) Montreal protocol
- (d) Earth Summit Rio de Janeiro

Q26. The Kigali Amendment to the Montreal Protocol is an international agreement to gradually reduce the consumption and production of

- (a) Perfluorocarbons (PFCs)
- (b) Hydrofluorocarbons (HFCs)
- (c) Hydro Bromo fluorocarbons (HFCs)
- (d) Methyl bromide

Q27. Which of the following pollutants are considered as the Primary Air Pollutant?

1. Nitrogen Oxides
2. Photochemical smog
3. Hydrocarbons

Select the correct code from below:

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

Q28. Consider the following statements regarding Paris Agreement

1. The Paris Agreement is a legally binding international treaty on climate change.
2. the aim of the Paris Agreement limiting global warming to well below 2 degrees Celsius and preferably to 1.5C, compared to pre-industrial levels.
3. Under the accord, every participating country originally had until the end of 2020 to submit new or updated "nationally determined contributions" or "NDCs"

Which of the statements given above is/are correct?

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

Q29. Consider the following statements regarding Kaziranga National Park

1. It is home to critically endangered one-horned rhinoceros.
2. It is a UNESCO world heritage site.

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

Q30. Consider the following statements regarding India's Nationally Determined Contributions (NDCs) under Paris accords

1. Lower emissions intensity of its GDP by 33-35% compared to 2006 levels by 2030;
2. Increase total cumulative electricity generation from fossil-free energy sources to 50% by 2030
3. Create an additional carbon sink of 2.5 to 3 billion tons through additional forest and tree cover

Which of the statements given above is/are correct?

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

Q31. Consider the following statements regarding National Clean Air Programme (NCAP)

1. It was launched for such cities, seeking to bring a 20-30 per cent reduction in pollution levels from PM2.5 and PM10 particles by 2024
2. The year 2015 pollution levels were selected as a base for reducing pollution
3. The goals under this are non-binding.
4. A non-attainment city under this is one whose air did not meet the national ambient air quality standards from 2011 to 2015.

Which of the statements given above is/are correct?

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

Q32. Consider the following statements regarding carbon capture and utilization (CCU) technologies

1. CCU technologies use energy to convert CO₂ into fuels.
2. CCU can store the CO₂ for long periods.
3. CCU technologies always have a net-zero emission in their processes

Which of the statements given above is/are correct?

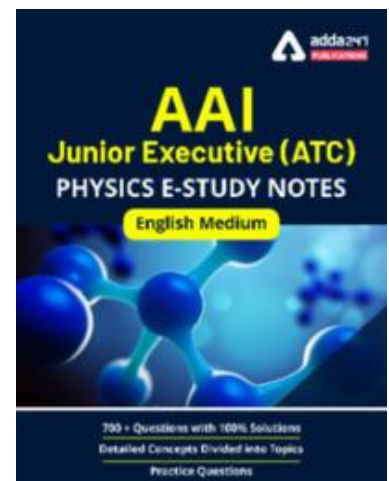
- (a) 1 and 2
- (b) 2 and 3
- (c) 1 only
- (d) 1, 2 and 3

Q33. Which of the following has released Global Risks Report 2022?

- (a) UNEP
- (b) IPCC
- (c) World Economic forum
- (d) German Watch

Q34. Sustainable Cities India program' which intends to enable cities to decarbonize in a systematic and sustainable way is a flagship program of-

- (a) World economic forum
- (b) UNEP
- (c) NITI Ayog
- (d) UNDP



Q35. Razzaza Lake recently seen in news is located in-

- (a) Turkey
- (b) Iran
- (c) Iraq
- (d) Sudan

Q36. Consider the following pairs regarding Coastal Regulation Zone (CRZ) norms 2019

1. CRZ-III A-No Development Zone (NDZ) of 50 meters from the High Tide Line (HTL)
2. CRZ-III B-No Development Zone of 100 meters from the High Tide Line (HTL)
3. CRZ-IV: No restriction on the traditional fishing for the aquatic area from low tide line up to territorial limits

Which of the pair/s given above is/are correct?

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

Q37. The Green Growth Equity Fund (GGEF) is a joint initiative of India with which of the following country?

- (a) United Kingdom
- (b) Russian Federation
- (c) United States of America
- (d) Japan

Q38. Which of the following right(s) is/are provided for by the Scheduled Tribes (Recognition of Forest Rights) Act, 2006?

- 1.Right to own, use or dispose of minor forest produce.
- 2.Right of conversion of leases issued by any local authority or any state government on forest land to titles.
- 3.Rights of settlement and conversion of forest villages revenue villages.

Which of the statements given above is/are correct?

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

Q39. Consider the following statements

1. Bamboo is classified as a tree under the Indian Forest Act.
2. Bamboo has potential for its use as a clean source of energy.

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

Q40. Consider the following statements regarding National Board for Wildlife (NBWL):

1. It is a statutory body constituted under Environment Protection Act 1984.
2. The Prime Minister is the chairperson of the board.

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

Q41. Consider the following statements regarding Hawksbill Turtle

1. It is the first reptile recorded with the bio fluorescent characteristics
2. It is listed as vulnerable under the IUCN Red List.

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

Q42. Consider the following statements regarding Laboratory for the Conservation of Endangered Species (LaCONES)

1. It is a part of the Centre for Cellular and Molecular Biology (CCMB) under the Council of Scientific and Industrial Research (CSIR).
2. India's 1st National Wildlife Genetic Resource Bank (NWGRB) is being functioned at LaCONES, Hyderabad

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

Q43. Consider the following statements regarding Bamboo Oasis on Lands in Drought (BOLD)

1. The project serves the combined national objectives of reducing desertification and providing livelihood and multi-disciplinary rural industry support
2. It is a unique scientific exercise initiated by the Ministry of Tribal Affairs.

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

Q44. Consider the following statements regarding Himalayan Yak

1. It is a high-altitude animal, usually found 2,000-5,000 meters above sea level.
2. It is listed as „Vulnerable“ under the IUCN Red List of Threatened Species

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

Q45. Consider the following pairs

1. Minamata Convention - Persistent Organic Pollutants (POPs)
2. Chemical Weapons Convention (CWC) - Only Mercury based pollutants
3. Rotterdam Convention - Hazardous Chemicals and Pesticides

Which of the pair/s given above is/are correct?

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

Q46. Consider the following statements regarding Gross Environment Product (GEP)

1. It reflects the aggregated annual value of goods and services provided by ecosystems to people in a given region.
2. Karnataka is the first state in India to introduce

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

Q47. Which of the following statement is correct regarding a recent report titled, "Status of Leopards, Co-predators, and Megaherbivores in India, 2018":

- (a) It was launched by the International Union for Conservation of Nature (IUCN)
- (b) Srivilliputhur Grizzled Squirrel Wildlife Sanctuary in TN had the largest leopard population in India
- (c) Indian Leopard has been listed as –Near Threatened|| under the IUCN Red List of Threatened Species
- (d) None of the above

Q48. Consider the following statements regarding Earth Overshoot Day

1. UN-Environment Programme (UNEP) partnered with World Wide Fund for Nature to launch the first global Earth Overshoot Day campaign.
2. Earth Overshoot Day is computed by dividing the planet's biocapacity by humanity's Ecological Footprint and multiplying by 365.

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

Q49. Consider the following statements regarding International Nitrogen Initiative (INI)

1. It was set up in 2003 under the UNESCO's International GeosphereBiosphere Program (IGBP).
2. INI conferences will be held every three years on different continents
3. INI 2021 was hosted by India's Ministry of Environment, Forests and Climate Change

Which of the statements given above is/are correct?

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

Q50. Consider the following statements regarding blackbuck

1. In India, they are found only in northwestern states such as, Gujarat, Rajasthan, Punjab, and Haryana.
2. In India, hunting of blackbuck is prohibited under Schedule I of the Wildlife Protection Act of 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

Q51. Consider the following statements regarding Intergovernmental Panel on Climate Change (IPCC)

1. IPCC is a joint initiative of the World Meteorological Organization (WMO) and the United Nations Development Programme (UNDP).
2. IPCC reports are a key input into international climate change negotiations

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

Q52. The burning of coal produces

1. Lead
2. Mercury
3. Nitrogen oxides
4. Sulfur dioxide

Select correct code:

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

Q53. Consider the following statements regarding Carbon offsetting

1. Carbon offsetting allows a country to help reach its own emissions reduction targets by funding emission reductions in another country.
2. The United Nation's Clean Development Mechanism (CDM) set up under the 1997 Kyoto Protocol is the first major Carbon offsetting scheme.
3. Carbon offsets can't be bought by individuals.

Which of the statements given above is/are correct?

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

Q54. Consider the following statements regarding Sperm whales.

1. Sperm whales are a protected species under the Wildlife Protection Act.
2. Ambergris is a waxy substance that originates from the digestive system of sperm whales.
3. In India, Ambergris is a tradable commodity.

Which of the statements given above is/are correct?

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

Q55. Consider the following statements regarding Green Hydrogen

1. Green Hydrogen is the hydrogen generated through renewable energy sources and the carbon generated from the process is captured and stored without dispersing it in the atmosphere.
2. Due to the very high density of hydrogen, it does not require large volumes for its storage

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

Q56. Consider the following statements regarding

1. Operation Birbil : Tackle the illegal trade of live birds
2. Operation Freely : Tackle illegal trade in wild cat and wild bird species.
3. Operation Wildnet : Tackle the illegal wildlife trade over internet using social media platforms

Which of the Pair/ given above is/are correct?

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

Q57. Consider the following statements

1. The National Board for Wildlife (NBWL) is a “statutory board” constituted under the Wild Life (Protection) Act, 1972.
2. National Board for Wildlife has the power to review all wildlife-related matters and approve projects in and around national parks and sanctuaries

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

Q58. Consider the following statements

1. Buxa tiger reserve is located in West Bengal.
2. Buxa tiger reserve is known for its high tiger density in the region.

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

Q59. Consider the following statements

1. Approval for the use of forest land for non-forestry use is granted under the provisions of the Forest (Conservation) Act, 1980.
2. Protected areas, including national parks, are not allowed for non-forestry purposes.

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

Q60. Consider the following statements regarding tagging of Olive Ridley sea turtles.

1. It would help identify the migration path and places visited by the Olive Ridley sea turtles after congregation and nesting
2. Tagging of Olive Ridley sea turtles is undertaken in Odisha every year before mass nesting.

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

Q61. Which of the following regions of India is the natural habitat of the `Great Indian Hornbill`?

- (a) Sand deserts of northwest India
- (b) Great Himalayan Range
- (c) Salt marshes of western Gujarat
- (d) Western Ghats

Q62. Consider the following statements regarding National Green Tribunal (NGT).

1. The exercise of power by the National Green Tribunal is always circumscribed by the receipt of applications.
2. The Tribunal performs vital roles that are preventative, ameliorative or remedial in nature.
3. NGT deal with all environmental issues both as original and also as an appellate authority

Which of the statements given above is/are correct?

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

Q63. Consider the following statements

1. The UN Framework Convention on Climate Change (UNFCCC), is an international agreement that acknowledges the differentiated responsibility of nations
2. UNFCCC explicitly mentions for compensation for loss and damage from climate disasters.

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

Q64. Consider the following statements regarding s Mudumalai Tiger Reserve

1. It is a part of the Nilgiri Biosphere Reserve.
2. It is completely surrounded by Wayanad Wildlife Sanctuary.
3. It is drained by the Moyar River

Which of the statements given above is/are correct?

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

- Q65.** Consider the following statements regarding Common but differentiated responsibilities (CBDR)
1. Common but differentiated responsibilities (CBDR) is the foundational principle of United Nations Environment Programme (UNEP).
 2. It was the first international legal instrument to address climate change and address negative impacts to global environment.
 3. It establishes that all states are responsible for addressing global environmental destruction yet not equally responsible

Which of the statements given above is/are correct?

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

Q66. What is the 'Greenhouse Gas Protocol'?

- (a) It is an international accounting tool for government and business leaders to understand, quantify and manage greenhouse gas emissions.
- (b) It is an initiative of the United Nations to offer financial incentives to developing countries to reduce greenhouse gas emissions and to adopt eco-friendly technologies.
- (c) It is an inter-governmental agreement ratified by all the member countries of the United Nations to reduce greenhouse gas emissions to specified levels by the year 2022.
- (d) It is one of the multilateral REDD+ initiatives hosted by the World Bank

Q67. Consider the following statements regarding 'Agenda 21

1. It is a global action plan for sustainable development
2. It originated in the World Summit on Sustainable Development held in Johannesburg in 2002.

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

Q68. Consider the following statements regarding National Clean Air Programme (NCAP)

1. It is a pollution control initiative of NITI Aayog.
2. It was notified under the Environment Protection Act, 1986.
3. It includes 102 non-attainment cities, which were identified by State Pollution Control Board (SPCB) on the basis of their ambient air quality data.

Which of the statements given above is/are incorrect?

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

Q69. Consider the following statements regarding binturong or bearcat,

1. It is a carnivore arboreal mammal found in South and South East Asia
2. It has been recently assessed as endangered on the IUCN Red List and included in Schedule I of the Wildlife Protection Act of 1973

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

Q70. State of Global Water Resources report was recently published by

- (a) World economic forum
- (b) World Meteorological Organization
- (c) UNFCCC
- (d) World bank

Q71. Which of the following statements regarding Flyash is incorrect?

- (a) Major constituents of fly ash are arsenic, beryllium, boron and cadmium
- (b) Currently in India, 63% of the fly ash produced is utilized
- (c) It is used for soil stabilization
- (d) All are correct

Q72. Photochemical smog is a resultant of the reaction among

- (a) NO₂, O₃ and peroxyacetyl nitrate in the presence of sunlight
- (b) CO, O₂ and peroxyacetyl nitrate in the presence of sunlight
- (c) CO, CO₂ and NO₂ at low temperature
- (d) High concentration of NO₂, O₃ and CO in the evening

Q73. In India, 'extended producer responsibility' was introduced as an important feature in which of the following?

- (a) The Bio-medical Waste (management and handling) rules, 1998
- (b) The Recycled Plastic (manufacturing and usage) rules, 1999
- (c) The e- Waste (Management and handling) rules, 2011
- (d) The food safety and standard regulations, 2011

Q74. Why is there a great concern about the microbeads that are released into environment?

- (a) They are considered harmful to marine ecosystem
- (b) They are considered to cause skin cancer in children
- (c) They are small enough to be absorbed by crop plants in irrigated fields
- (d) They are often found to be used as food adulterants

Q75. In the cities of our country, which among the following atmospheric gases are normally considered in calculating the value of Air Quality Index?

1. Carbon dioxide
2. Carbon monoxide
3. Nitrogen dioxide
4. Sulfur dioxide
5. Methane

Select the correct answer using the code given below.

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

Q76. Regarding “carbon, credits”, which one of the following statements is not correct?
(a) The carbon credit system was ratified in conjunction with the Kyoto Protocol
(b) Carbon credits are awarded to countries or groups that have reduced greenhouse gases below their emission quota
(c) The goal of the carbon credit system is to limit the increase of carbon dioxide emission
(d) Carbon credits are- traded at a price fixed from time to time by the United Nations Environment Programme

Q77. Stockholm Conference, 1972, is related to
(a) Persistent Organic Pollutants
(b) Sustainable Development
(c) Transboundary movement of oil and gas
(d) Millennium Development Goals (MDGs)

Q78. which of the following statements regarding ‘Global Environment Facility’ is correct?
(a) It serves as a financial mechanism for ‘Convention on Biological Diversity’ and ‘United Nations Framework Convention on Climate Change’.
(b) It undertakes scientific research on environmental issues at the global level
(c) It is an agency under OECD to facilitate the transfer of technology and funds to underdeveloped countries with a specific aim to protect their environment.
(d) All are correct

Q79. Recently the **Falkenmark Index** was in news. It is an indicator of
(a) People living below the poverty line
(b) Water stress level
(c) Amount of trans fat in food
(d) Vehicular emission depleting Air quality

Q80. Consider the following statements
1. The stratosphere has a higher concentration of greenhouse gases than the troposphere.
2. Unlike the troposphere, the stratosphere experiences higher temperatures with increasing altitude.
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

Q81. Which of the following statements regarding Ecotone is incorrect?
(a) Ecotones are the areas that act as a transition or boundary between two ecosystems.
(b) They protect ecosystems by acting as buffer zones.
(c) They serve as bridges of ‘gene flow’ between different ecosystems.
(d) All are correct

Q82. Consider the following statements regarding Soil Mulching

1. It reduces soil salinity by reducing evaporation.
2. It modifies the microclimate of the soil and the air in which the plant grows.
3. It totally restricts reptile movement and rodent activities.

Which of the statements given above is/are correct?

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

Q83. Consider the following statements regarding Neritic zone

1. It is a region of shallow depth up to 200 meters.
2. This constitutes the edge of the continental shelf.
3. This region has very less sunlight and hence does not support phytoplankton growth

Which of the statements given above is/are correct?

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

Q84. Consider the following statements

1. It is a migratory bird species native to East Asia
2. In this species, males are more colourful than females
3. It rarely visits India as it does not fall in the usual migratory route of the species

Identify the above:

- (a) Siberian Cranes
- (b) Greater Flamingo
- (c) Mandarin Duck
- (d) Bluethroat Bird

Q85. Consider the following statements regarding Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES):

1. It is an independent intergovernmental body established by States to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity
2. India is its member since its inception in 2012.

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

Q86. Which one of the following terms describes not only the physical space occupied by an organism, but also its functional role in the community of organisms?

- (a) Ecotone
- (b) Ecological niche
- (c) Habitat
- (d) Home range

Q87. In the context of ecosystem productivity, marine upwelling zones are important as they increase the marine productivity by bringing the: Consider the following statements regarding

1. Decomposer microorganisms to the surface.
2. Nutrients to the surface.
3. Bottom-dwelling organisms to- the surface.

Which of the statements given above is/are correct?

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



Q88. Which one of the following is the correct sequence of ecosystems in the order of decreasing productivity?

- (a) Oceans, lakes, grasslands, mangroves
- (b) Mangroves, oceans, grasslands, lakes
- (c) Mangroves, grasslands, lakes, oceans
- (d) Oceans, mangroves, lakes, grasslands

Q89. Which one of the following is the process involved in photosynthesis?

- (a) Potential energy is released to form free energy
- (b) Free energy is converted into potential energy and stored
- (c) Food is oxidized to release carbon dioxide and water
- (d) Oxygen is taken, and carbon dioxide and water vapour are given out

Q80. In the grasslands, trees do not replace the grasses as a part of an ecological succession because of

- (a) Insects and fungi
- (b) limited sunlight and paucity of nutrients
- (c) Water limits and fire
- (d) None of the above

Q91. Consider the following statements

1. Sangai deer is the state animal of Manipur.
2. It is not found anywhere else other than Keibul Lamjao National Park.

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

Q92. Which of the following statements is correct regarding Wetlands as mentioned in the Wetlands (Conservation and Management) Rules, 2017?

- (a) A wetland includes areas of marine water, the depth of which at low tide does not exceed six meters.
- (b) A wetland includes river channels and paddy fields.
- (c) A wetland includes man-made water bodies/tanks specifically constructed for drinking water purposes.
- (d) A wetland includes man-made structures specifically constructed for aquaculture and salt production.

Q93. Consider the following statements

1. Blue carbon is the carbon stored in coastal and marine ecosystems.
2. Coastal ecosystems such as mangroves, tidal marshes, and seagrass meadows sequester and store less carbon per unit area than terrestrial 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

Q94. Consider the following statements

1. Benthos is unattached organisms that live at the air-water interface.
2. Nektons are those animals that are able to swim and move independently of water currents.
3. Neustons are organisms that live at the bottom of the water mass.

Which of the statements given above is/are correct?

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

Q95. Consider the following statements regarding Subtidal Zone:

1. It is the uppermost of the neritic zone and below the ocean's intertidal zone.
2. This zone is never exposed to the atmosphere.

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

Q96. Consider the following statements regarding coral reefs:

1. Corals generally flourish in clear temperate oceans.
2. Warmer water temperatures can result in coral bleaching.
3. Not all bleaching events are due to warm water.

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

Q97. Consider the following statements

1. Wular Lake is one of the biggest freshwater lakes in Asia.
2. Chilika Lake is the largest saline water lake in India.
3. Vembanad Lake is a notified National Geo-heritage Monument.

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

Q98. Consider the following statements

1. Ecology is an area where an organism lives.
2. The environment contains Producers, Consumers, Decomposers, and their relationships.
3. An ecosystem can be almost everything or a small region.

Which of the statements given above is/are correct?

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

Q99. Consider the following statements

1. All habitats are environments, but all environments are not habitats.
2. Habitat is always a preference of one species.

Which of the statements given above is/are correct?

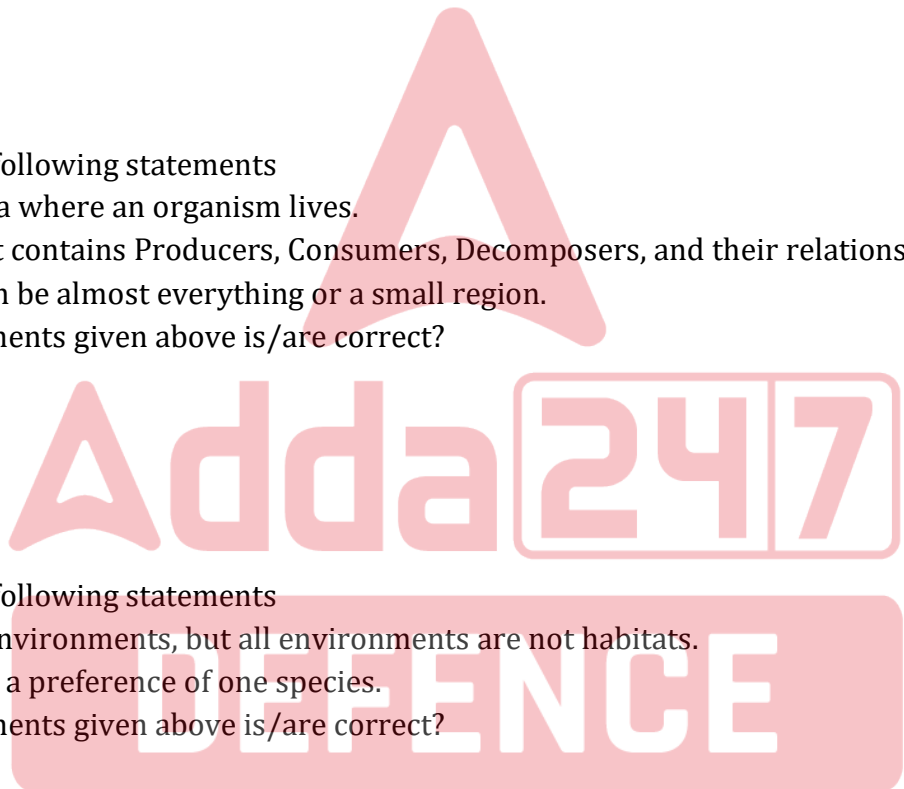
- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Q100. Consider the following statements

1. Autecology is the study of the community of living organisms as a unit.
2. Synecology is the study of individual species or individuals in relation to the environment.

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



Solutions

S1. Ans.(b)

Sol. Snow leopard is the icon of high mountains of Asia. In India, they inhabit the higher Himalayan and Trans-Himalayan landscape in an altitudinal range between approximately 3,000 m to 5,400 m above MSL, spanning c. 100,000 km² in the five states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh. This area contributes to about 5% of the global snow leopard range. Long term research and conservation efforts in India have made it one of the best researched snow leopard range countries in the world.

S2. Ans.(c)

Sol. Project Crocodile was introduced in 1975. The primary focus was on breeding and rearing in captivity. The initiative was taken by the Government of India in association with the Food and Agriculture Organization and United Nations Development Fund. Due to the implementation of this project, there is an increase in the population of crocodiles, which has saved them from extinction. The protected areas include National Chambal Sanctuary and Katarniaghat Wildlife Sanctuary. The Katarniaghat Wildlife Sanctuary is a protected area in the Upper Gangetic plain in Uttar Pradesh, India and covers an area of 400.6 km² in the Terai of the Bahraich district.

S3. Ans.(d)

Sol. NMEEE consist of four initiatives to enhance energy efficiency in energy intensive industries which are as follows:

Perform Achieve and Trade Scheme (PAT) - Implementing a market assisted compliance mechanism to accelerate implementation of cost effective improvements in energy efficiency in large energy-intensive industries

Market Transformation for Energy Efficiency (MTEE) - Accelerating the shift to energy efficient appliances in specific application through innovative measures to make the products more affordable.

Energy Efficiency Financing Platform (EEFP) - Facilitating Financial Institutions to invest in Energy Efficiency Projects and Programmes

Framework for Energy Efficient Economic Development (FEEED) - Developing fiscal instruments to leverage financing for Energy Efficiency through risk mitigation:

Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE) and Venture Capital Fund for Energy Efficiency (VCFEE) to promote energy efficiency National Energy Conservation Award and Painting Competition

S4. Ans.(c)

Sol. Statement 1 is correct. Reducing emissions from deforestation and forest degradation (REDD+) is a mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC). Statement 2 is correct. It creates a financial value for the carbon stored in forests by offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. Developing countries would receive results-based payments for results-based actions.

S5. Ans.(c)

Sol. Statement 1 is correct. Accelerating CCUS Technologies (ACT) is an initiative to facilitate the emergence of CO₂ Capture, Utilisation and Storage (CCUS) via transnational funding of projects aimed at accelerating and maturing CCUS technology through targeted innovation and research activities. ACT is an ERA NET Cofund, which is a tool established by the European Commission under the Horizon 2020 programme for research and innovation. Statement 2 is correct. The ACT members are funding agencies from: The Alberta province in Canada, Denmark, France, Germany, Greece, India, Italy, the Netherlands, Norway, the Nordic Region, Romania, Spain, Switzerland, Turkey, UK, and the USA. # Department of Science & Technology (DST) recently invited proposals from Indian researchers in the area of Carbon Capture, Utilisation & Storage (CCUS) under ACT initiative

S6. Ans.(c)

Sol. Statement 1 is correct. The Climate and Clean Air Coalition is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations committed to improving air quality and protecting the climate through actions to reduce short-lived climate pollutants. Statement 2 is correct. In 2012, the governments of Bangladesh, Canada, Ghana, Mexico, Sweden and the United States, along with the United Nations Environment Programme (UNEP), came together to initiate efforts to treat short-lived climate pollutants as an urgent and collective challenge. The coalition has 70 state partners. India announced it was joining the Climate & Clean Air Coalition during on 2019 World Environment Day. India works with Coalition partners to implement National Clean Air Programme, leveraging the Coalition's action-oriented partnership platform to help define priority actions that reduce air pollution and achieve development and climate co-benefits. The United Nations General Assembly adopted the resolution to hold an International Day of Clean Air for blue skies in 2019. The first International Day of Clean Air for blue skies is being observed on September 7, 2020.

S7. Ans.(a)

Sol. Statement 1 is correct. The ClimateSmart Cities Assessment Framework is a first-of-its-kind assessment framework on climate relevant parameters. Launched in 2019 by MoHUA, the objective is to provide a clear roadmap for Indian cities towards combating climate change while planning their actions within the city including investments. The framework has 28 indicators across five categories namely; (i) Energy and Green Buildings, (ii) Urban Planning, Green Cover & Biodiversity, (iii) Mobility and Air Quality, (iv) Water Management and (v) Waste Management. Statement 2 is incorrect. National Institute of Urban Affairs (NIUA) with support from the Ministry of Housing and Urban Affairs (MoHUA) has established the Climate Centre for Cities. The Centre is implementing the ClimateSmart Cities Assessment Framework 2.0 and aims to support cities in driving climate actions.

S8. Ans.(a)

Sol. The Montreal Protocol 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.

The Kyoto Protocol was an international treaty which extended the 1992 United Nations Framework Convention on Climate Change that commits state parties to reduce greenhouse gas emissions, based on the scientific consensus that global warming is occurring and that human-made CO₂ emissions are driving it

Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, signed on 22 May 2001 in Stockholm and effective from 17 May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants

S9. Ans.(c)

Sol. The Vienna Convention is the first international agreement dedicated to the protection of the ozone layer. The Convention commits all countries to take measures to protect human health and the environment resulting from modifications to the ozone layer.

With respect to the Vienna Convention's provisions on scientific cooperation, Parties are required to undertake and share the results of their research, scientific assessments and monitoring. In addition, two scientific assessment panels were established, under the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP): one to periodically assess the state ozone layer, and the other to assess the environmental effects of ozone depletion.

S10. Ans.(c)

Sol. Consumers – Heterotrophs or phagotrophs (other nourishing): Consumers are incapable of producing their own food (photosynthesis). They depend on organic food derived from plants, animals or both.

S11. Ans.(d)

Sol. Leopard (*Panthera pardus*) is the most widely distributed and adaptable member of the family Felidae. However, their current distribution and numbers have significantly decreased across the range due to habitat loss, prey depletion, conflict and poaching over the last century. This have resulted in changing the species status from 'Near Threatened' to 'Vulnerable' by IUCN. It is also listed in Appendix I of the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) and in Schedule I of the Wildlife (Protection) Act 1972 in India providing it with the highest level of protection.

S12. Ans.(d)

Sol. The Tso Kar Basin is a high-altitude wetland complex, consisting of two principal waterbodies, Startsapuk Tso, a freshwater lake of about 438 hectares to the south, and Tso Kar itself, a hypersaline lake of 1800 hectares to the north, situated in the Changthang region of Ladakh. The Tso Kar Basin is an A1 Category Important Bird Area (IBA) as per Bird Life International and a key staging site in the Central Asian Flyway. The site is also one of the most important breeding areas of the Black-necked Crane (*Grus nigricollis*) in India. This IBA is also the major breeding area for Great Crested Grebe (*Podiceps cristatus*), Bar-headed Geese (*Anser indicus*), Ruddy Shelduck (*Tadorna ferruginea*), Brown-headed Gull (*Larus brunnicephalus*), Lesser Sand-Plover (*Charadrius mongolus*) and many other species.

S13. Ans.(c)

Sol. The Indian bullfrog *Hoplobatrachus tigerinus* (native to the Indian subcontinent) has rapidly invaded the Andaman Islands after it was introduced there in the early 2000s. In human-dominated areas, it now shares space with other native (and often endemic) frog species. The bullfrogs are prolific breeders: they have short breeding seasons, and each egg clutch can contain up to 5,750 eggs. Its tadpoles are carnivorous and eat other tadpoles (including their own species). It is native to the Indian subcontinent (Afghanistan, Bangladesh, India, Myanmar, Nepal and Pakistan) and is the largest frog in India.

S14. Ans.(b)

Sol. The monkeys are divided into two main groups—Old World and New World monkeys. The term “old world” refers to the areas (Europe, Africa, and Asia) known to the Europeans prior to the discovery of the “new world” (the Americas). ☐New World monkeys are members of five different primate families (Callitrichidae, Cebidae, Aotidae, Pitheciidae, and Atelidae) and consist of almost exclusively arboreal (tree-dwelling) species like marmosets, tamarins, capuchins, and spider monkeys. ☐Old World monkeys belong to the family Cercopithecidae and consist of species such as macaques, baboons, and vervet monkeys. ☐These monkeys spend much more of their time on the ground, but can be found in habitats ranging from the rainforest to the savannah to the mountains.

S15. Ans.(b)

Sol. Sponges have been around for a very long time, with certain species having a fossil record that dates back approximately 600 million years to the earliest (Precambrian) period of Earth's history. The approximately 8,550 living sponge species are scientifically classified in the phylum Porifera, which is comprised of four distinct classes: the Demospongiae (the most diverse, containing 90 percent of all living sponges), Hexactinellida (the rare glass sponges), Calcarea (calcareous sponges), and Homoscleromorpha (the rarest and simplest class, only recently recognized, with approximately 117 species). While sponges, like corals, are immobile aquatic invertebrates, they are otherwise completely different organisms with distinct anatomy, feeding methods, and reproductive processes. The main differences are: Corals are complex, many-celled organisms. Sponges are very simple creatures with no tissues. All corals require saltwater to survive. While most sponges are found in the ocean, numerous species are also found in fresh water and estuaries.

S16. Ans.(a)

Sol. Indian pangolin. Statement 1 is correct: Of the eight extant species of pangolin, the Indian Pangolin *Manis crassicaudata* and Chinese Pangolin *M. pentadactyla* occur in India. Indian Pangolin is a large anteater covered dorsally by 11-13 rows of scales.

- The adult male is about one-third larger than the female. A terminal scale is also present on the ventral side of the tail of the Indian Pangolin, which is absent in the Chinese Pangolin.
- Its sticky tongue, which is longer than its body, is specially adapted for reaching and lapping up insects in deep crevices.
- To tear open the anthills or termite mounds, it uses the powerful forelimbs that are armed with three disproportionately long claws. In sharp contrast, the hind legs have tough soles and short, blunt nails on the five toes. Statement 2 is incorrect: Listed in Schedule I of Wildlife (Protection) Act, 1972 and as Endangered on IUCN Red List.

S17. Ans.(d)

Sol. Indian gazelles or chinkara (*Gazella bennettii*), are primarily found in the northwestern region of India in the state of Rajasthan.

- Their distribution extends from south of the Krishna River, as far east as central India, and into the north-central region of Iran (east of the Zagros Range and south of the Alborz).
- Sixty to 70 percent of the global population of Indian gazelles is presently found in western Rajasthan.
- Indian gazelles can thrive in a variety of habitats. They have been observed in dry deciduous forests, open woodlands, and dry areas such as sand dunes, semi-arid deserts, and arid valleys that have an annual rainfall of 150 to 750 mm.
- Indian gazelles are facultative drinkers and can withstand relatively long intervals between visits to water points by conserving metabolic water and taking advantage of water found in vegetation.
- According to the IUCN Red List, the total population size of Chinkara is around 50,000-70,000 mature individuals. There are also estimated populations of this species in the following areas: in India (in 2011) there were more than 100,000 animals with 80,000 animals living in the Tahr Desert; in Iran – around 1,300 animals.
- Currently, Chinkara are classified as Least Concern (LC) on the IUCN Red List but their numbers today are decreasing.

S18. Ans.(a)

Sol. Lorises are unique tiny creatures that live on trees. Endemic to the Eastern Ghats they are distributed in select pockets across Tamil Nadu, Andhra Pradesh and Kerala. The patch of deciduous shrub forest in Ayyalur, situated on the Dindigul-Tiruchi-Karur border has been identified as an international hotspot for the Grey Slender Loris by IUCN (International Union for Conservation of Nature).

- IUCN has listed them as Endangered, whereas they are listed under the Schedule I of the Wildlife (Protection) Act of India, 1972, according them the highest level of legal protection.

S19. Ans.(b)

Sol. National Air Quality Index was launched by the Prime Minister in April, 2015 starting with 14 cities to disseminate air quality information. The AQI has six categories of air quality, viz Good, Satisfactory, Moderately Polluted, Poor, Very Poor and Severe with distinct colour scheme. Each of these categories is associated with likely health impacts. AQI considers eight pollutants (PM10, PM 2.5, NO₂, SO₂, CO, O₃, NH₃ and Pb) for which (up to 24-hourly averaging period) National Ambient Air Quality Standards are prescribed.

S20. Ans.(d)

Sol. The Global Methane Assessment: 2030 Baseline Report was launched at COP27 and is produced by the Climate and Clean Air Coalition and UNEP.

S21. Ans.(a)

Sol. 'Wise Use' Approach:

- The wise use approach was coined in 1972. The 'wise use approach of Ramsar Convention is globally recognized as the central tenet of wetland management.
- As endorsed by Contracting Parties of the Ramsar Convention, the wise use of wetlands is "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development".
- The wise use approach recognizes that stemming wetland loss and degradation requires the incorporation of linkages between people and wetlands, and thereby emphasizes that human use of these ecosystems on a sustainable basis is compatible with conservation.

S22. Ans.(c)

Sol. The Kyoto Protocol was an international treaty that extended the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions, The Kyoto Protocol applied to the seven greenhouse gases listed in Annex A: carbon dioxide (CO₂), Methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆), Nitrogen trifluoride (NF₃). [8]. Nitrogen trifluoride was added for the second compliance period during the Doha Round

Source: <https://www.oecd.org/dev/1923119.pdf>

S23. Ans.(c)

Sol. The Kyoto Protocol was an international treaty that extended the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions, The Kyoto Protocol applied to the seven greenhouse gases listed in Annex A: carbon dioxide (CO₂), Methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆), Nitrogen trifluoride (NF₃)

Nitrogen trifluoride was added for the second compliance period during the Doha Round

Source: <https://www.oecd.org/dev/1923119.pdf>

S24. Ans.(c)

Sol. The Kyoto Protocol was an international treaty that extended the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions.

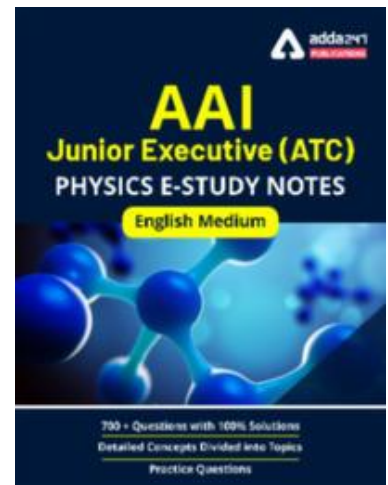
- The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005.
- A second commitment period was agreed to in 2012 to extend the agreement to 2020, known as the Doha Amendment.

Negotiations were held in the framework of the yearly UNFCCC Climate Change Conferences on measures to be taken after the second commitment period that is Doha amendment ended in 2020. This resulted in the 2015 adoption of the [Paris Agreement](#), which is a separate instrument under the UNFCCC rather than an amendment of the Kyoto Protocol.

The main feature of the Protocol is that it established legally binding commitments to reduce emissions of greenhouse gases for Annex I Parties that are developed countries

The Adaptation Fund (AF) was established in 2001 to finance concrete adaptation projects and programs in developing countries Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change. The Adaptation Fund is financed with a share of proceeds from the clean development mechanism (CDM) project activities and other sources of funding

Source: <https://unfccc.int/Adaptation-Fund>.

**S25. Ans.(d)**

Sol. The UN Framework Convention on Climate Change (UNFCCC), adopted at the 1992 Earth Summit is one of the first international treaties on the topic. It stipulates that parties should meet regularly to address climate change, at the Conference of Parties or COP. It forms the foundation for future climate agreements

S26. Ans.(c)

Sol. The Kigali Amendment to the Montreal Protocol is an international agreement to gradually reduce the consumption and production of hydrofluorocarbons (HFCs). It is a legally binding agreement designed to create rights and obligations in international law.

The Montreal Protocol was originally created to preserve and restore the ozone layer, and it worked. The Protocol was an agreement between participating countries to phase out certain ozone-depleting gases. HFCs were used to replace the substances banned in that agreement because they have zero impact on the ozone. However, HFCs are powerful greenhouse gases that contribute to climate change, so this amendment adds HFCs to the list of chemicals that countries promise to phase out.

S27. Ans.(c)

Sol. Photochemical smog is a secondary pollutant.

Primary Air Pollutant: Primary air pollutants - Materials that when released pose health risks in their unmodified forms or those emitted directly from identifiable sources.

S28. Ans.(d)

Sol. The Paris Agreement is a legally binding international treaty on climate change that was adopted by 196 countries in December 2015 with the aim of limiting global warming to well below 2 degrees Celsius and preferably to 1.5C, compared to pre-industrial levels.

Under the accord, every participating country originally had until the end of 2020 to submit new or updated "nationally determined contributions" or "NDCs".

S29. Ans.(b)

Sol. Kaziranga National park's area is home to more than 2200 Indian one-horned rhinoceros (IUCN: Vulnerable), approximately 2/3rd of their total world population.

Formed in 1908 on the recommendation of Mary Curzon, the park is located at the edge of the Eastern Himalayan biodiversity hotspots – Golaghat and Nagaon district.

In the year 1985, the park was declared a World Heritage Site by UNESCO.

S30. Ans.(b)

Sol. India's Nationally Determined Contributions (NDCs) aim to achieve sustainable development within the framework of 8 quantitative and qualitative NDCs.

India's plan as per its quantified NDC targets is to:

- lower emissions intensity of its GDP by 33-35% compared to **2005(NOT 2006)** levels by 2030;
- increase total cumulative electricity generation from fossil-free energy sources to **40%(NOT 50%) by 2030**;
- create additional carbon sink of 2.5 to 3 billion tons through additional forest and tree cover

S31. Ans.(c)

Sol. The National Clean Air Programme (NCAP) was launched for such cities, seeking to bring a 20-30 per cent reduction in pollution levels from PM2.5 and PM10 particles by 2024, using 2017 pollution levels as a base.

- The goal is non-binding.
- A non-attainment city is one whose air did not meet the national ambient air quality standards from 2011 to 2015.
- Most of the 132 "non-attainment" cities in India, that is cities with poor levels of air quality have either "marginally improved" or increased their levels of air pollution since 2019 when the National Clean Air Programme (NCAP) was launched, a new analysis has found.
- Varanasi was able to achieve the largest reduction in air quality levels (52 per cent in PM2.5 levels and 54 per cent in PM10 levels).

S32. Ans.(c)

Sol. CCU technologies take carbon dioxide out of the atmosphere, either capturing it directly from the air or absorbing it from polluting sources, and puts it to use in processes such as making fuel, plastics, and concrete. Unlike straightforward carbon capture technology, CCU doesn't store CO2 for long periods. CCU technologies either use energy to convert CO2 into fuels or use CO2 itself to drive other industrial processes like oil extraction or growing plants.

A recent study has observed that Most [carbon capture](#) and utilization (CCU) technologies, emit more carbon than they capture, and hence the processes do not have zero-emission

S33. Ans.(c)

Sol. Global Risks Report 2022 was released by World Economic Forum.

As per this densely populated countries that are highly dependent on agriculture, such as India, are especially vulnerable to climate insecurity. Decarbonization in cities is a real opportunity to keep global warming well below 2°C and cities in India can make an enormous contribution in reaching this goal.

S34. Ans.(a)

Sol. Recently, the World Economic Forum and the National Institute of Urban Affairs (NIUA) signed an MoU to collaborate on a jointly designed 'Sustainable Cities India program'. 'Sustainable Cities India' intends to enable cities to decarbonize in a systematic and sustainable way that will reduce emissions and deliver resilient and equitable urban ecosystems.

S35. Ans.(b)

Sol. One of Iraq's largest lakes, the man-made Razzaza is seeing a significant decline in water levels and has been hit by pollution and high levels of salinity.

Razzaza Lake is the latest victim of a water crisis in Iraq, known as the "Land Between the Two Rivers", the Tigris, and the Euphrates.

Razzaza Lake, also known as Lake Milh, Arabic for Salt Lake, is located between Iraq's governorates of Anbar and Karbala. It's the second largest lake in Iraq and is part of a wide valley that includes the lakes of Habbaniyah, Tharthar, and Bahr al-Najaf.

S36. Ans.(c)

Sol. CRZ-III as per the CRZ guidelines 2011 was Areas that are relatively undisturbed and do not fall under either Category I or II and also include rural and urban areas that are not substantially developed. Between 0-200 meters from HTL is a No Development Zone where no construction shall be permitted.

In **CRZ guidelines 2019** two separate categories have been stipulated. In the densely populated rural areas (CRZ-IIIA) with a population density of 2,161 per sq km as per the 2011 Census, the no-development zone is now 50 m from the high-tide level, as against the 200 m stipulated earlier.

The CRZ-IIIB category (rural areas with population density below 2,161 per sq km) continues to have a no-development zone extending up to 200 m from the high-tide line.

CRZ-IV: The aquatic area from low tide line up to territorial limits is classified as CRZ-IV including the area of the tidally influenced water body. There is no restriction on the traditional fishing undertaken by local communities.

No untreated sewage or solid waste shall be let off or dumped in these areas.

S37. Ans.(a)

Sol. The Green Growth Equity Fund (GGEF) is a joint initiative of the United Kingdom and India to invest in renewable energy, clean transportation, water and waste management in India. The National Investment and Infrastructure Fund of India partnered with the Department for International Development (DFID), an arm of the UK government to launch the Green Growth Equity Fund ("GGEF"). Both have committed GBP 120 million each into the Fund. EverSource Capital, an equal joint venture between Everstone Group and Lightsources BP was selected as the fund manager for GGEF.

S38. Ans.(d)

Sol. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 recognizes and vest forest rights in forest dwelling Scheduled Tribes (FDSTs), where they are scheduled, with respect to forest land and their habitat. Some of the rights are: -living in the forest for habitation or for self-cultivation for livelihood; -right of ownership, access to collect, use, and dispose of minor forest produce, -rights of settlement and conversion of all forest villages, old habitation, un-surveyed villages and other villages in forests, whether recorded, notified or not into revenue villages; -conversion of pattas or leases issued by any local authority or any state government on forest land to titles, and other traditional customary rights. -customary rights exclude hunting, trapping or extracting body parts of any wild animal.

S39. Ans.(b)

Sol. Statement 1 is incorrect. The Indian Forest Act 1927 says “forest produce” is what is found in or brought from a forest. This originally included bamboo as trees. The Parliament amendment the act in 2017 to exclude bamboo from the definition of tree under the Indian Forest Act, claiming it would improve the earnings of tribals and dwellers living around forests.

Statement 2 is correct. Bamboo pellets are considered reliable biomass energy sources in certain parts of the world. In terms of mass and energy density, pellets from bamboo have characteristics superior to other biomass products, such as woodchips and briquettes. Such higher density allows for easy and cost-effective transportation and greater efficiency in energy generation with suitable properties for residential and industrial use.

S40. Ans.(b)

Sol. Statement 1 is incorrect. National Board for Wildlife (NBWL) is a statutory body constituted under Wildlife Protection Act, 1972. The functions of the board are also enumerated under the act. The WLPA mandates that without the approval/recommendation of the NBWL, construction of tourist lodges, alteration of the boundaries of PAs, destruction or diversion of wildlife habitat and de-notification of Tiger Reserves, cannot be done.

Statement 2 is correct. The Prime minister is the chairperson of the board while Minister of Environment, Forests & Climate Change is the Vice-Chairperson. # Action Plan for Vulture Conservation 2020-2025 has been approved by the National Board for Wildlife (NBWL) recently.

S41. Ans.(a)

Sol. Hawksbill Turtle

- There are five species in Indian waters i.e. Olive Ridley, Green turtle, Loggerhead, Hawksbill, Leatherback.
- Hawksbill sea turtles have a wide range, found predominantly in tropical reefs of the Indian, Pacific, and Atlantic Ocean
- The Hawksbill turtle is listed as 'Critically Endangered' on the IUCN Red List of Threatened Species.
- They are protected in the Indian Wildlife Protection Act of 1972, under Schedule I.s

S42. Ans.(c)

Sol. Project LaCONES

- In order to support effective conservation measures include both in situ and ex situ using biotechnological tools and techniques in an innovative manner, LaCONES was established.
- Project LaCONES was established in 1998 with the support from Dept. of Biotechnology (DBT), Central Zoo Authority of India (CZA), Council of Scientific and Industrial Research (CSIR), and Government of Andhra Pradesh.
- The laboratory was itself established in 2007
- This laboratory would strive to promote excellence in conservation biotechnology and serve for conservation of endangered wildlife in India.
- National Wildlife Genetic Resource Bank (NWGRB) was established in 2018 at the Centre for Cellular and Molecular Biology's (CCMB's) Laboratory of Conservation of Endangered Species (LaCONES) facility in Hyderabad, Telangana.
- It is India's first genetic resource bank where genetic material will be stored for posterity which will further the cause of conservation of endangered and protected animals.

S43. Ans.(a)

Sol. Project BOLD (Bamboo Oasis on Lands in Drought) has been recently launched by the Khadi and Village Industries Commission (KVIC).

- It is the first of its kind exercise in India which was launched from the tribal village NichlaMandwa in Udaipur, Rajasthan. Project BOLD
- It is a unique scientific exercise serving the combined national objectives of reducing desertification and providing livelihood and multi-disciplinary rural industry support.
- It seeks to create bamboo-based green patches in arid and semi-arid land zones.
- 5000 saplings of special bamboo species – BambusaTulda and BambusaPolymorpha specially brought from Assam – have been planted over 25 bighas (16 acres approx) of vacant arid Gram Panchayat land.
- KVIC has thus created a world record of planting the highest number of bamboo saplings on a single day at one location.
- The project is aligned with Prime Minister Shri Narendra Modi's call for reducing land degradation and preventing desertification in the country.

S44. Ans.(c)

Sol. Himalayan Yak

- It is a high-altitude bovine cousin of the cow grazes across the grasslands of the Tibetan Plateau.
- It is a long-haired bovine found throughout the Himalayan region of India.
- It is found throughout the Himalayan region of the Indian subcontinent, the Tibetan Plateau, Northern Myanmar, Yunnan, Sichuan, and as far north as Mongolia and Siberia.
- It is a –flagship species|| and indicates the health of the ecosystem within which it lives.

S45. Ans.(b)

Sol. International Chemical Conventions

- The Chemical Weapons Convention (CWC) is an arms control treaty prohibiting the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons by States Parties.
- India is a signatory and party to the Convention.
- The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury and its compounds.

The following conventions are ratified by India 1. Stockholm Convention on Persistent Organic Pollutants (POPs): To protect human health and the environment from the harmful effects of POPs (i.e. toxic chemicals). 2. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. 3. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

S46. Ans.(a)

Sol. Gross Environment Product (GEP) is an assessment system to measure the ecosystem services of any area.

- It reflects the aggregated annual value of goods and services provided by ecosystems (forests, water bodies, oceans, etc.) to people in a given region, such as at district levels, state, and country.
- It entails the establishment of a natural capital accounting framework by integrating ecological benefits into common measures of economic growth such as GDP.
- It summarizes the value of ecosystem services in a single monetary metric
- Uttarakhand is the first state in India to introduce the Gross Environment Product (GEP)

S47. Ans.(d)**Sol.** Highlights of the report

- Panna Tiger Reserve in Madhya Pradesh had the largest leopard population in India at about 273 leopards followed by Sariska (at about 231 leopards).
- Buxa and Palamau which recorded no presence of tigers during 2018 estimation, had sizeable populations of leopards.
- Srivilliputhur Grizzled Squirrel Wildlife Sanctuary had the highest leopard density of 20.43 in the entire Western Ghats landscape. Indian Leopard
- Indian Leopard was listed as Vulnerable under the IUCN Red List of Threatened Species.
- It is also listed in Appendix I of the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) and in Schedule I of the Wildlife (Protection) Act 1972 in India providing it with the highest level of protection.

S48. Ans.(b)**Sol.** Earth Overshoot Day

- The day marks the date when humanity's demand for ecological resources (fish and forests, for instance) and services in a given year exceeds what the Earth can regenerate in that year. the UK think tank New Economics Foundation, partnered with Global Footprint Network in 2006 to launch the first global Earth Overshoot Day campaign.
- The Ecological Footprint is a metric that comprehensively compares human demand on nature against nature's capacity to regenerate.
- Earth Overshoot Day is computed by dividing the planet's biocapacity (the number of ecological resources Earth is able to generate that year), by humanity's Ecological Footprint (humanity's demand for that year), and multiplying by 365, the number of days in a year:
- $(\text{Earth's Biocapacity} / \text{Humanity's Ecological Footprint}) \times 365 = \text{Earth Overshoot Day}$

S49. Ans.(a)**Sol.** The eighth triennial conference of the International Nitrogen Initiative (INI) was hosted recently by Germany's Federal Environment Agency (Umweltbundesamt- UBA).

International Nitrogen Initiative

- The International Nitrogen Initiative (INI) was set up in 2003 under the sponsorship of the Scientific Committee on Problems of the Environment (SCOPE) and the International Geosphere-Biosphere Program (IGBP). The key aims of the INI are to:
 1. Optimize nitrogen's beneficial role in sustainable food production,
 2. Minimize nitrogen's negative effects on human health and the environment resulting from food and energy production.
- The program is currently a sustained partner of Future Earth.
- The INI holds a conference every three years on different continents to discuss ideas and exchange knowledge on nitrogen issues.

S50. Ans.(b)**Sol.** Blackbucks

It inhabits several protected areas of India, including

1. Gujarat: Velavadar Wildlife Sanctuary, Gir Forest National Park.
2. Bihar: Kaimur Wildlife Sanctuary;
3. Maharashtra: Great Indian Bustard Sanctuary;
4. Madhya Pradesh: Kanha National Park.
5. Rajasthan: Tal Chhapar Sanctuary, National Chambal Sanctuary, Ranthambhore National Park.
6. Karnataka: Ranibennur Blackbuck Sanctuary;
7. Tamil Nadu: Point Calimere Wildlife and Bird Sanctuary, Vallanadu Wildlife Sanctuary, Guindy National Park.

S51. Ans.(a)**Sol.** Created in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). IPCC reports are also a key input into international climate change negotiations.

- The IPCC is an organization of governments that are members of the United Nations or WMO. Thousands of people from all over the world contribute to the work of the IPCC. The IPCC does not conduct its own research. The Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations to provide the public with scientific information on climate change.

S52. Ans.(d)**Sol.** When coal is burned it releases a number of airborne toxins and pollutants. They include Carbon dioxide, mercury, lead, sulfur dioxide, nitrogen oxides, particulates, and various other heavy metals. Health impacts can range from asthma and breathing difficulties to brain damage, heart problems, cancer, neurological disorders, and premature death.**S53. Ans.(a)****Sol.** Carbon offsetting allows a country to help reach its own emissions reduction targets by funding emission reductions in another country. Companies are also increasingly using carbon credits to offset their emissions. The first major offsetting scheme, the U.N.s clean development mechanism (CDM), was set up under the 1997 Kyoto Protocol, in which 190 countries agreed on country-by-country emission reduction targets. The scheme was designed to help fund emission reduction projects in developing countries, while also providing offset credits to the developed world to help meet its Kyoto targets. More than 8,100 projects in 111 countries have registered with the CDM scheme, which has handed out over 2 billion carbon credits, called Certified Emission Reductions (CERs), representing 2 billion tonnes of carbon dioxide reduction. Projects registered under the scheme range from capturing and using methane gasses in pig manure to creating electricity to replacing traditional wood and coal-burning cookstoves with cleaner alternatives such as ethanol. Offsets can be bought by individuals, companies or countries**S54. Ans.(a)****Sol.** Ambergris, which means gray amber in French, is a waxy substance that originates from the digestive system of the protected sperm whales.

While there is a ban on possession and trade of ambergris in countries like the USA, Australia, and India, in several other countries it is a tradable commodity, though with limitations in some of them. In the Indian context, the sperm whales are a protected species under Schedule 2 of the Wildlife Protection Act and possession or trade of any of its by-products, including Ambergris and its byproducts, is illegal under provisions of the Wildlife Protection Act, 1972

S55. Ans.(d)

Sol. While hydrogen generated through renewable energy sources is green, it is blue when the carbon generated from the process is captured and stored without dispersing it in the atmosphere. When the carbon is not captured, the generated hydrogen is labeled grey.

- The major challenge in the usage of green hydrogen will be its storage. Given the very low density of hydrogen, it will require large volumes for its storage.
- Alternatively, if one chooses to store it in the liquid form, reducing the storage space requires the maintenance of temperatures as low as minus 253° C. This will entail huge costs.
- The 'production cost' of 'Green hydrogen' has been considered to be a prime obstacle to the usage of green hydrogen

S56. Ans.(b)

Sol. The agency also conducted "Operation Birbil" to curb illegal trade in wild cat and wild bird species. The other operations include "Operation Freefly" on the illegal trade of live birds and "Operation Wetmark" to ensure the prohibition of the sale of meat of wild animals in wet markets across the country. "Operation Wildnet", "Operation Wildnet-II", "Operation Wildnet-III" and "Operation Wildnet-IV" were aimed to draw the attention of the enforcement agencies within the country to focus their attention on the ever-increasing illegal wildlife trade over the internet using social media platforms.

S57. Ans.(c)

Sol. About National Board for Wildlife:

- It is a "Statutory Organization" constituted under the Wildlife Protection Act, 1972.
- Its roles are "advisory" in nature and advise the Central Government on framing policies and measures for the conservation of wildlife in the country.
- Primary function of the Board is to promote the conservation and development of wildlife and forests.
- It has the power to review all wildlife-related matters and approve projects in and around national parks and sanctuaries.
- No alternation of boundaries in national parks and wildlife sanctuaries can be done without the approval of the NBWL.
- The NBWL is chaired by the Prime Minister

S58. Ans.(a)

Sol. An increase in the forest density and the big cat prey base, especially deer, had attracted a Royal Bengal tiger, the first such sighting in 23 years, to the Buxa reserve in Airpurduar district in north Bengal.

S59. Ans.(b)

Sol. A total of 82,893.61 ha of forest land has been approved for non-forestry use under the Forest (Conservation) Act, 1980, from April 2016 to March 2021. 206 proposals involving 4,118.109067 ha area within Protected Areas, including national parks and sanctuaries, have been recommended by the Standing Committee of the National Board for Wildlife in 2020 and 2021. Among the State/UT-wise approved areas for use of forest land for the non-forestry purpose, Jammu and Kashmir had the least: 1.20 ha, all of which was approved in 2020-21. Madhya Pradesh had the highest, with 19638.41 ha being approved for diversion.

S60. Ans.(a)

Sol. Scientists have resumed tagging Olive Ridley sea turtles at Rushikulya rookery along the Odisha coast, which would help them identify the migration path and places visited by the marine reptiles after congregation and nesting. Researchers of the Zoological Survey of India (ZSI) are carrying out tagging of Olive Ridley turtles. The exercise was undertaken in Odisha in January 2021 after a span of about 25 years and 1,556 turtles had been tagged.

S61. Ans.(d)

Sol. The great Indian hornbill is one of the larger members of the hornbill family. It is found in the Indian subcontinent and Southeast Asia. It is naturally found in Western Ghats.

S62. Ans.(b)

Sol. The Supreme Court has declared the National Green Tribunal's (NGT) position as a "unique" forum endowed with suo motu powers to take up environmental issues across the country. "The exercise of power by the NGT is not circumscribed by the receipt of applications. When substantial questions relating to the environment arise and the issue is civil in nature and those relate to the Act, the NGT, in our opinion, even in the absence of an application, can self-ignite action either towards amelioration or towards prevention of harm," a three-judge Bench held in a judgment

The Tribunal has to perform equally vital roles that were preventative, ameliorative or remedial in nature. "The functional capacity of the NGT was intended to leverage wide powers to do full justice in its environmental mandate," The judgment described the NGT "as a complimentary, competent, specialised forum to deal with all environmental multidisciplinary issues both as original and also as an appellate authority, which complex issues were hitherto dealt with by the High Courts and the Supreme Court". "Unlike the civil courts, which cannot travel beyond the relief sought by the parties, the NGT is conferred with power of moulding any relief," the court stated.

S63. Ans.(a)

Sol. The UN Framework Convention on Climate Change (UNFCCC), the 1994 international agreement that lays down the broad principles of the global effort to fight climate change, acknowledges the differentiated responsibility of nations. It makes it clear that rich countries must provide both the finance and the technology to developing nations to help tackle climate change. However, the UNFCCC does not mention loss and damage. In 2009, developed countries agreed to provide US\$ 100 billion every year from 2020 to help developing nations fight climate change. However, they are struggling to fulfill this promise. It was after much struggle that developing countries and environment groups managed to establish a separate channel on loss and damages. The Warsaw International Mechanism (WIM) for Loss and Damages, set up in 2013, was the first formal acknowledgment of the need to compensate developing countries struck by climate disasters.

S64. Ans.(c)

Sol. Mudumalai Tiger Reserve (MTR): Mudumalai Tiger Reserve is located in the Nilgiris District of Tamil Nadu state at the tri-junction of three states, viz, Karnataka, Kerala and Tamil Nadu. It is a part of the Nilgiri Biosphere Reserve (1st Biosphere Reserve in India). It is surrounded by Wayanad Wildlife Sanctuary (Kerala) in the West, Bandipur National Park (Karnataka) in the North, Mukurthi National Park and Silent Valley in the South. It is drained by the Moyar River and several tributaries, which harbour 38 fish species

S65. Ans.(b)

Sol. Common but differentiated responsibilities (CBDR), principle of international environmental law establishing that all states are responsible for addressing global environmental destruction yet not equally responsible. It was the first international legal instrument to address climate change and the most comprehensive international attempt to address negative impacts to global environment. The foundational principle of the UN Framework Convention on Climate Change (UNFCCC), which is common but differentiated responsibilities (CBDR)

**S66. Ans.(a)**

Sol. The Greenhouse Gas Protocol (GHG Protocol) is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. It is a decade-long partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). It is working with businesses, governments, and environmental groups around the world to build a new generation of credible and effective programs for tackling climate change.

S67. Ans.(a)

Sol. Agenda 21 is a non-binding, voluntarily implemented action plan of the United Nations with regard to sustainable development. It is a product of the Earth Summit (UN Conference on Environment and Development) held in Rio de Janeiro, Brazil, in 1992.

S68. Ans.(d)

Sol. What is the National Clean Air Programme (NCAP)?

It was launched by the MoEFCC in January 2019. It is the first ever effort in the country to frame a national framework for air quality management with a time-bound reduction target. The programme will not be notified under the Environment Protection Act or any other Act to create a firm mandate with a strong legal back up for cities and regions to implement NCAP in a time bound manner for effective reduction. The plan includes 102 non-attainment cities, across 23 states and Union territories, which were identified by Central Pollution Control Board (CPCB) on the basis of their ambient air quality data between 2011 and 2015.

What are Non-attainment?

Non-attainment cities are those which have been consistently showing poorer air quality than the National Ambient Air Quality Standards. These include Delhi, Varanasi, Bhopal, Kolkata, Noida, Muzaffarpur, and Mumbai.

S69. Ans.(a)

Sol. The binturong also known as the bearcat, is a viverrid native to South and Southeast Asia. The binturong is essentially arboreal. The binturong is one of only two carnivores that has a prehensile tail. The other is the kinkajou.

It has been assessed as Vulnerable on the IUCN Red List because of a declining population trend that is estimated at more than 30% since the mid-1980s. It is included in the CITES Appendix III and in Schedule I of the Wild Life Protection Act 1973, so that it has the highest level of protection.

S70. Ans.(b)

Sol. The World Meteorological Organization has published its first State of Global Water Resources report in order to assess the effects of climate, environmental and societal change on the Earth's water resources. The recent UN climate change conference, COP27, urged governments to further integrate water into adaptation efforts, the first-time Water has been referred to in a COP outcome document in recognition of its critical importance. The first edition of the report looks at streamflow, terrestrial water storage, and the cryosphere.

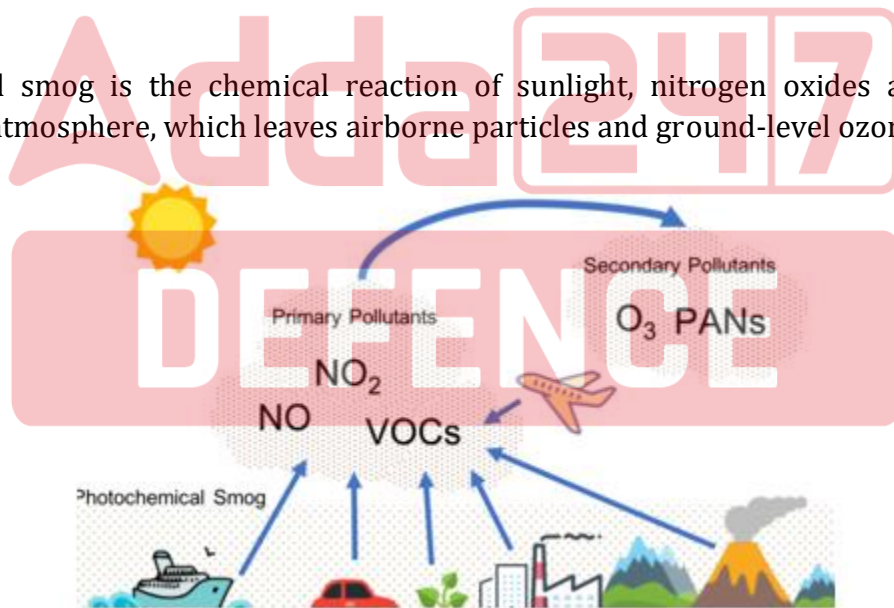
S71. Ans.(a)

Sol. Fly ash includes substantial amounts of silicon dioxide (SiO_2), aluminium oxide (Al_2O_3) and calcium oxide (CaO), not the above mentioned which are minor not major constituents in Fly Ash.

- Minor constituents include arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium, along with very small concentrations of dioxins and Polycyclic aromatic hydrocarbons (PAH) compounds
- Soil stabilization is the permanent physical and chemical alteration of soils to enhance their physical properties. Stabilization can increase the shear strength of a soil and/or control the shrink-swell properties of a soil, thus improving the load-bearing capacity of a sub-grade to support pavements and foundations.
- Stabilization can be used to treat a wide range of sub-grade materials from expansive clays to granular materials. Stabilization can be achieved with a variety of chemical additives including lime, fly ash, and Portland cement

S72. Ans.(a)

Sol. Photochemical smog is the chemical reaction of sunlight, nitrogen oxides and volatile organic compounds in the atmosphere, which leaves airborne particles and ground-level ozone.



S73. Ans.(c)

Sol. The e-Waste (Management and Handling) Rules, 2011 recognizes producers' liability for recycling and reducing e-waste in the country.

- Extended Producer Responsibility (EPR) is a policy approach under which producers are given a significant responsibility – financial and/or physical – for the treatment or disposal of post-consumer products.
- The Central Pollution Control Board (CPCB) has been given the Extended Producer Responsibility (EPR) authorisation under the new e-waste rules

S74. Ans.(a)

Sol. Bureau of Indian Standards (BIS) has classified microbeads as “unsafe” for use in cosmetic products. NGT had earlier directed the Centre to test cosmetic products containing microbeads after a plea sought ban on their use on the ground they are extremely dangerous for aquatic life and environment.

- Microbeads are tiny plastic substances measuring less than five millimeters that act as exfoliators (agents which remove dead cells) on skin and teeth when used in soap, toothpaste and other products. Many brands manufacturing beauty products use microbeads. The unregulated production and usage of plastic in microbeads in various cosmetic products and their excessive usage by the end user is leading to water pollution across the globe.
- Once in the water, microbeads can have a damaging effect on marine life, the environment and human health. This is due to their composition, ability to adsorb toxins and potential to transfer up the marine food chain.

S75. Ans.(b)

Sol. Eliminated the CO₂ from the option, because Carbon dioxide is not part of it. About National Air Quality Index

- Launched in 2014 with outline ‘One Number – One Colour -One Description’ for the common man to judge the air quality within his vicinity.
- The measurement of air quality is based on eight pollutants, namely: Particulate Matter (PM₁₀), Particulate Matter (PM_{2.5}), Nitrogen Dioxide (NO₂), Sulphur Dioxide (SO₂), Carbon Monoxide (CO), Ozone (O₃), Ammonia (NH₃), and Lead (Pb).
- AQI has six categories of air quality. These are: Good, Satisfactory, Moderately Polluted, Poor, Very Poor and Severe.
- It has been developed by the CPCB in consultation with IIT-Kanpur and an expert group comprising medical and air-quality professionals.

S76. Ans.(d)

Sol. Option D is incorrect as UNEP does not fix the price. It's market Driven.

A carbon credit is a generic term for any tradable certificate or permits representing the right to emit one tonne of carbon dioxide or the equivalent amount of a different greenhouse gas. Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of greenhouse gases (GHGs). One carbon credit is equal to one tonne of carbon dioxide or in some markets carbon dioxide equivalent gases. Carbon trading is an application of an emissions trading approach. Greenhouse gas emissions are capped and then markets are used to allocate the emissions among the group of regulated sources.

The goal is to allow market mechanisms to drive industrial and commercial processes in the direction of low emissions or less carbon intensive approaches than those used when there is no cost to emitting carbon dioxide and other GHGs into the atmosphere. Since GHG mitigation projects generate credits this approach can be used to finance carbon reduction schemes between trading partners and around the world.

Many companies sell carbon credits to commercial and individual customers who are interested in lowering their carbon footprint voluntarily. These carbon offsetters purchase the credits from an investment fund or a carbon development company that has aggregated the credits from individual projects. Buyers and sellers can also use an exchange platform to trade which is like a stock exchange for carbon credits. The quality of the credits is based in part on the validation process and sophistication of the fund or development company that acted as the sponsor to the carbon project. This is reflected in their price;

voluntary units typically have less value than the units sold through the rigorously validated Clean Development Mechanism.

S77. Ans.(b)

Sol. Stockholm Convention is related to Persistent Organic Pollutants while Stockholm. The conference is related to sustainable development.

S78. Ans.(c)

Sol. It is an independently operating financial organization. GEF is a multilateral financial mechanism that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities. It was set up as a fund under World Bank in 1991.

In 1992 at the Rio Earth Summit the GEF was restructured and moved out of the World Bank system to become a permanent separate institution. Since 1994 however the World Bank has served as the Trustee of the GEF Trust Fund and provided administrative services. It is based in Washington DC United States.

GEF serves as a financial mechanism for :

- Convention on Biological Diversity (CBD)
- 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
- India is both donor and recipient of GEF.

S79. Ans.(b)

Sol. NITI Aayog in association with Ministry of JAL Shakti and Ministry of Rural Development released Composite Water Management Index 2.0.

As per this index, India is experiencing a very significant water challenge, approximately 820 million people of India - living in twelve river basins across the country have per capita water availability close to or lower than 1000m³ – the official threshold for water scarcity as per the Falkenmark Index.

Falkenmark Indicator or Water Stress Index

- If the amount of renewable water per person per year in a country is
- **below 1,700 m³**, the country is said to be experiencing **water stress**.
- **below 1,000 m³**, it is said to be experiencing **water scarcity**.
- **below 500 m³**, it is experiencing **absolute water scarcity**

S80. Ans.(b)

Sol. Temperatures at the earth's surface have increased by between 0.2 and 0.4 degrees C in the past 30 years.

- This warming trend is attributed to higher concentrations of greenhouse gases – CO₂, methane, CFCs, and others – which warm both the earth's surface and lower atmosphere by holding heat in. Most of the atmospheric greenhouse gases are concentrated in the upper troposphere. The lower stratosphere, approximately between six and 30 miles above the Earth's surface, is mostly above the layer of greenhouse gases that trap heat. Hence, statement 1 is not correct.
- Temperatures decrease with altitude in the troposphere at a rate of about 6.5 degrees Celsius per kilometer, depending on the weather. While in the stratosphere, temperature increase with altitude. It is because the ozone layer absorbs the greater part of the solar ultraviolet radiation. The ozone layer is an absorbing agent that protects life on Earth. Hence, statement 2 is correct.

S81. Ans.(d)

Sol. All the statements are correct

S82. Ans.(a)

Sol. Reptile movement and rodent activities are experienced in some places as mulching inadvertently facilitates an environment for increased activities of burrowing reptiles and rodents. Hence statement 3 is not correct.

S83. Ans.(a)

Sol. Neritic: This is a region shallow enough (up to 200 m depth) to support plants rooted in the seafloor. This constitutes the edge of the continental shelf. This area is rich in the density and diversity of organisms owing to the penetration of light to this depth of the sea and owing to the presence of nutrients washed down from the land. Phytoplankton and zooplankton are abundant in this zone. Extensive communities of giant kelps, different types of fishes, snails, whales, sea-otters, sea-snakes and large squids, are found in this zone.

S84. Ans.(c)

Sol. Option c is correct.

S85. Ans.(c)

Sol. Both the statements are correct.

S86. Ans.(b)

Sol. NICHE;- Habitat and Niche are an important part of an ecosystem. They help in describing the interaction of an organism with its environment, including both biotic and abiotic agents. Ecology is the study of these interactions. A niche defines a particular role played by organisms in an ecosystem, i.e. profession. Niche is a species-specific and it supports only a single species. Niche is a subset of habitat. According to the competitive exclusion principle, no two species can occupy the same niche in the same environment for a long time. Ecological NICHE;- The term which not only describes the physical space occupied by an organism, but also its functional role in the community of organisms is called ecological niche Types of Niche are as follows;- 1) Habitat Niche, 2) Food Niche, 3) Reproductive Niche, 4) Physical and Chemical Niche.

S87. Ans.(b)

Sol. Since phytoplankton form the base of marine food webs, the world's most productive fisheries are located in areas of coastal upwelling that bring cold nutrient rich waters to the surface. On the other hand, in zones of coastal down welling, the surface layer of warm, nutrient-deficient water thickens as water sinks. Below image of Upwelling and Down welling of Nutrients;- Upwelling is a process in which currents bring deep, cold water to the surface of the ocean. Upwelling is a result of winds and the rotation of the Earth. Down welling is a kind of reverse upwelling. Instead of deeper water rising up, warm surface water sinks down. Upwelling and down welling patterns often alternate seasonally. Example :- Regions around the Grand Banks of Newfoundland are the world's largest fishing grounds. Mixing of warm Gulf Stream and cold Labrador currents make the region the most productive fishing ground on earth.

S88. Ans.(c)

Sol. So the correct sequence of ecosystem in the order decreasing productivity is: Mangroves > Grasslands > Lakes > Oceans. Productivity is the rate of biomass production. In other words, ecosystem productivity represents the total amount of energy (organic matter) fixed or stored by the autotrophs per unit time in the ecosystem. Productivity = production/unit area/unit time Productivity is divided in to two, primary productivity and secondary productivity the average ocean productivity is about 50 grams carbon per square meter per year. Average land productivity is 160 grams carbon per square meter per year. The productivity of the open ocean (ocean away from coasts) is comparable to desert production. The mangroves are highly 'productive'. Hence C is the answer

S89. Ans.(b)

Sol. Photosynthesis, the process by which green plants and certain other organisms transform light energy into chemical energy. During photosynthesis in green plants, light energy is captured and used to convert water, carbon dioxide, and minerals into oxygen and energy-rich organic compounds.

S90. Ans.(c)

Sol. In the grasslands, trees do not replace the grasses as a part of an ecological succession because of Water limits and fire. Two factors for evolution of temperate grassland biome, i) Extreme continental climate with limited supply of water due to low rainfall, ii) human activities mainly burning of vegetation."

S91. Ans.(c)

Sol. It is an endemic and rare subspecies of brow antlered deer found only in Manipur. It is the state animal of Manipur. Its habitat is restricted to the marshy wetland of Keibul Lamjao over the floating biomass in Loktak Lake which is locally called 'phumdi'. It is also one of the seven Ramsar sites of international importance. The habitat of the sangai is now protected as the Keibul Lamjao National Park. Keibul Lamjao is the only floating national park in India. Phumdi is the floating mass of entangled vegetation formed by the accumulation of organic debris and biomass with soil. While walking on the floating biomass, Sangai often balances itself which looks as if it is dancing on the green grassland and therefore popularly called as 'dancing deer' of Manipur. It is listed under the endangered category. Thus, Option C is correct.

S92. Ans.(a)

Sol. Statement (a) is correct: A wetland includes areas of marine water the depth of which at low tide does not exceed six meters.

Wetlands (Conservation and Management) Rules, 2017 and Ramsar Convention Wetlands (Conservation and Management) Rules, 2017:

- A wetland includes areas of marine water the depth of which at low tide does not exceed six meters.
- According to the Convention, wetlands include almost any habitat where water is a key to the environment and its wildlife.
- Wetlands include swamps, marshes, billabongs, lakes, salt marshes, mudflats, mangroves, coral reefs, fens, peat bogs, or bodies of water - whether natural or artificial, permanent or temporary.
- Water within these areas can be static or flowing; fresh, brackish, or saline; and can include inland rivers and coastal or marine water to a depth of six meters at low tide. There are even underground wetlands. Anywhere from estuaries, lakes, and rivers to underground aquifers, mangroves, coral reefs, and rice paddies count.

S93. Ans.(a)

Sol. Statement 2 is incorrect: Coastal ecosystems such as mangroves, tidal marshes, and seagrass meadows sequester and store more carbon per unit area than terrestrial forests.

S94. Ans.(b)

Sol. Statement 1 is incorrect: Benthic organisms are those found living at the bottom of the water mass. Statement 3 is incorrect: Neustons live at the air-water interface, e.g. floating plants.

Note That:

- **Neuston:** These organisms live at the air-water interface, e.g. floating plants.
- **Periphyton:** These are organisms that remain attached to stems and leaves of rooted plants or substances emerging above the bottom mud such as sessile algae.
- **Plankton:** Microscopic floating organisms such as algae, diatoms, protozoans, and larval forms are called plankton. This group includes both microscopic plants like algae (phytoplankton) and animals like crustaceans and protozoans (zooplankton).
- **Nekton:** This group contains powerful swimmers that can overcome the water currents.
- **Benthos:** The benthic organisms are those found living at the bottom of the water mass.

S95. Ans.(b)

Sol. Statement 1 is incorrect: Subtidal zone is the Lowermost part of the neritic zone and below the ocean's intertidal zone.

Zones of the ocean

- **Infralittoral zone-** This zone is dominated by algae and has a depth of about 16.40 feet below the low watermark.
- **Circalittoral zone-** This zone is dominated by the sessile animals like Oysters.
- **Subtidal zone-** It is the lowermost part of the neritic zone and below the ocean's intertidal zone. This zone is never exposed to the atmosphere.

S96. Ans.(b)

Sol. Statement 1 is incorrect: Corals generally flourish in clear tropical oceans usually between 30°N and 30°S of the equator.

Coral reefs and coral bleaching:

- Corals generally flourish in clear tropical oceans usually between 30°N and 30°S of the equator.
- They grow best in brightly lighted water about 5 to 10 meters deep. The suspended particles interfere with feeding.
- Corals live in saline water (27%).
- A coral reef can from to depth of 90 meters, but the growth rate declines rapidly after 5 to 10 meters depths.
- The reef-building corals are found within the 21°C isotherms.
- Corals are not near the mouths of rivers.
- Temperature below 18°C causes their death.
- The stunning colors in corals come from marine algae called zooxanthellae, which live inside their tissues.
- These algae provide the corals with an easy food supply thanks to photosynthesis, which gives the corals energy, allowing them to grow and reproduce.
- When corals get stressed, from things such as heat or pollution, they react by expelling this alga, leaving a ghostly, transparent skeleton behind. This is known as 'coral bleaching'.
- Some corals can feed themselves, but without the zooxanthellae most corals starve.
- **Warmer water temperatures can result in coral bleaching. When water is too warm, corals will expel the algae (zooxanthellae) living in their tissues causing the coral to turn completely white.**
- **Not all bleaching events are due to warm water.**

S97. Ans.(a)

Sol. Statement 3 is incorrect: Lonar Lake is a notified National Geo-heritage Monument, saline, soda lake, located at Lonar in Buldhana district, Maharashtra.

Lakes in India

- Wular Lake is one of the biggest freshwater lakes in Asia and it was formed as a result of tectonic activity.
- The Upper lake in Madhya Pradesh is the largest artificial lake in Asia.
- Chilika Lake in Odisha is the largest saline water lake in India.
- Vembanad Lake in Kerala is the longest lake in India.
- Cholamu Lake in Sikkim is the highest lake in India.
- Lonar Lake is a notified National Geo- heritage Monument, saline, soda lake, located at Lonar in Buldhana district, Maharashtra.

S98. Ans.(d)

Sol. Statement 1 is incorrect: Ecology is the study of interactions between organisms, organisms, and the surroundings occurring within an ecosystem or environment.

1. Statement 2 is incorrect: Ecosystem contains Producers, Consumers, Decomposers, and their relationships (tiny environment). It is the functional unit of the environment.
2. Statement 3 is incorrect: Environment can be almost everything or a small region.

S99. Ans.(c)

Sol. Both statements are correct

Difference between Habitat and Environment

- A habitat is a place where an organism lives in nature.
- The environment is the total of all physical, chemical, biotic, and cultural factors that affect the life of an organism in any way.
- All habitats are environments, but all environments are not habitats.
- Habitat is always a preference of one species.

S100. Ans.(c)

Sol. Statement 1 is incorrect: Autecology is the study of individual species or individuals in relation to the environment

Statement 2 is incorrect: Synecology is the study of the community of living organisms as a unit.

