

# 1. Solved Environment Prelims Questions 2011-18

- The questions from the previous 4-5 years' prelims papers help us understand the nature of questions asked in prelims and the trend the UPSC is following.
- Most of the questions given here are explained under the respective headings in the main notes.
- A lot of the questions are current affairs based (most of them are not relevant for future), so you need not lose heart.

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## 1.1 2011-2012

### Q1. Which one of the following is not a site for in-situ method of conservation of flora?

- a) Biosphere Reserves
  - b) Botanical Garden
  - c) National Park
  - d) Wildlife Sanctuary
- In situ conservation = on the site conservation without displacing the affected organism.
  - Ex situ conservation = conserving the organism in an artificial habitat by displacing it from its natural habitat.
  - Botanical Garden = Plants are bred in a protected environment far from their natural home, especially for research purposes. So, its Ex situ conservation.
  - Rest all along with protected forests and reserved forests are In situ conservation methods.

**Answer: b) Botanical Garden**

### Q2. What is the difference between the antelopes Oryx and Chiru?

- a) Oryx is adapted to live in hot and arid areas whereas Chiru is adapted to live in steppes and semi-desert areas of cold high mountains. .
- b) Oryx is poached for its antlers whereas Chiru is poached for its musk.
- c) Oryx exists in western India only whereas Chiru exists in north-east India only.
- d) None of the statements a, b, and c given above is correct.



- They are both antelopes.

**Answer: a)**

**Q3. Among the following States, which one has the most suitable climatic conditions for the cultivation of a large variety of orchids with minimum cost of production, and can develop an export oriented industry in this field?**

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- a) Andhra Pradesh
- b) Arunachal Pradesh
- c) Madhya Pradesh
- d) Uttar Pradesh
- Orchids are decorative flowering plants. They grow in regions with moderate climatic conditions (Sub-tropics with decent rainfall)
- They are typical to North-Eastern states.
- Great demand for these decorative flowering plants exists in South-East Asian region.

**Answer: b)**

**Q4. Consider the following:**

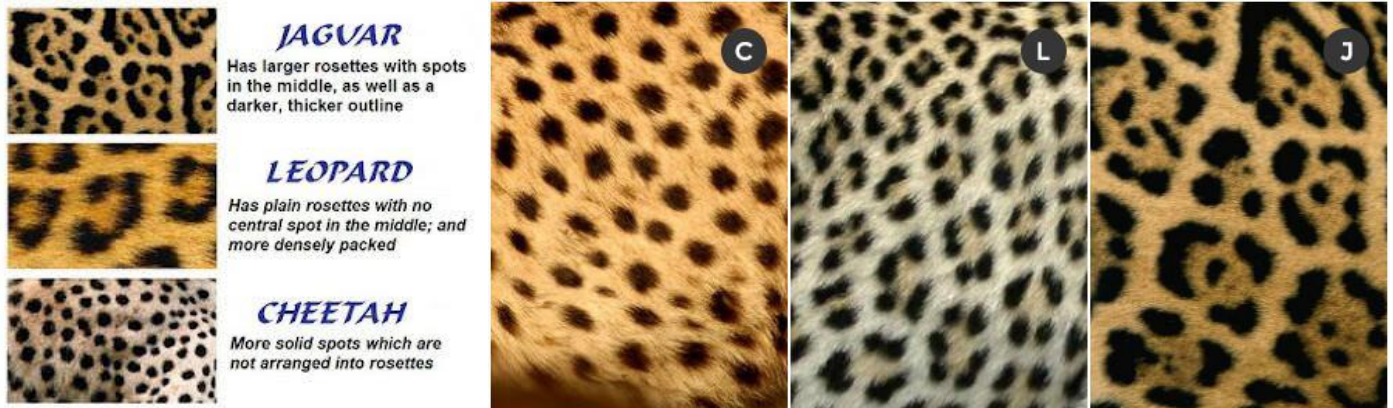
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- 1) Black-necked crane
- 2) Cheetah
- 3) Flying squirrel

4) Snow leopard

Which of the above are naturally found in India?

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



- Black-necked crane is commonly found in Tibetan and trans-Himalayan region. In winters they migrate to less colder regions of Indian Himalayas.
- Cheetah is an extinct species. They have gone extinct during pre-independence era. Reason: They were hunted down by various Indian kings and British officers.
- Flying Squirrels are found in many Indian forests.
- Snow leopard is an 'endangered' species found in the Himalayan ranges.

**Answer: b) 1, 3 and 4 only**

**Q5. A sandy and saline area is the natural habitat of an Indian animal species. The animal has no predators in that area but its existence is threatened due to the destruction of its habitat. Which one of the following could be that animal?**

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- a) Indian wild buffalo
  - b) Indian wild ass
  - c) Indian wild boar
  - d) Indian Gazelle
- Sandy saline area = Kutch region
  - Indian wild buffalo = Terai region

- Indian wild boar = can survive in different types of habitat: grasslands, taiga, tropical rainforests, but they prefer life in deciduous forests.
- Chinkara (Indian gazelle) = Thar desert

**Answer: b) Indian wild ass**

#### **Q6. Consider the following kinds of organisms**

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- 1) Bat
- 2) Bee
- 3) Bird

Which of the above is/are pollinating agent/agents?

- a) 1 and 2 only
  - b) 2 only
  - c) 1 and 3 only
  - d) 1, 2 and 3
- Pollination = transfer of pollen from stamen to pistil.
  - Bees are well known pollinators.
  - Birds help in pollination while trying to catch insects or trying to suck nectar.
  - Bats help in pollination while trying to catch insects. (Bats are pollinators – Mentioned several times in NCERT)

**Answer: All**

#### **Q7. The 'Red Data Books' published by the International Union for Conservation of Nature and Natural Resources (IUCN) contain lists of**

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- 1) Endemic plant and animal species present in the biodiversity hotspots.
- 2) Threatened plant and animal species.
- 3) Protected sites for conservation of nature & natural resources in various countries.

Which of the statement given above is/are correct?

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

d) 3 only

IUCN is an NGO. It publishes Red data book which contains a list of 'Threatened species' (vulnerable, endangered and critically endangered).

**Answer: b) 2 only**

**Q8. Which one of the following groups of animals belongs to the category of endangered species?**

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- a) Great Indian Bustard, Musk Deer, Red Panda and Asiatic Wild Ass
  - b) Kashmir Stag, Cheetal, Blue Bull and Great Indian Bustard
  - c) Snow Leopard, Swamp Deer, Rhesus Monkey and Saras (Crane)
  - d) Lion-tailed Macaque, Blue Bull, Hanuman Langur and Cheetal
- As of 2016, the status of most of these animals has changed. Outdated question.

**Q9. The Himalayan Range is very rich in species diversity. Which one among the following is the most appropriate reason for this phenomenon?**

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- a) It has a high rainfall that supports luxuriant vegetative growth.
- b) It is a confluence of different bio geographical zones.
- c) Exotic and invasive species have not been introduced in this region.
- d) It has less human interference.

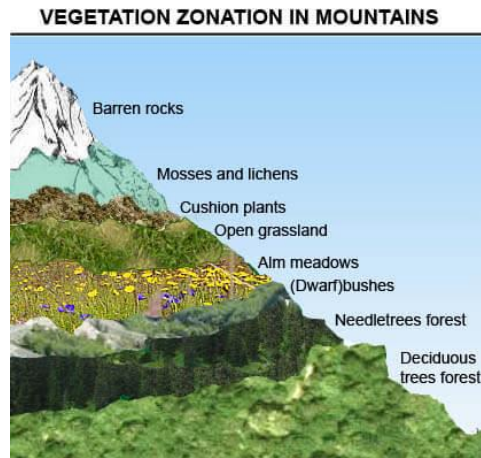
**Explanation:**

Options c) and d) are wrong statements.

Options a) and b) are correct statements.

Greater Diversity is due to

1. various types of forests found along the Himalayas Ranges [Shiwaliks, Himachal and Himadri].
2. Vertical zonation of vegetation [chief characteristic of Himachal and Himadri].



**Answer is b)**

**Q10. If a tropical rain forest is removed, it does not regenerate quickly as compared to a tropical deciduous forest. This is because**

- a) the soil of rain forest is deficient in nutrients
- b) propagules of the trees in a rain forest have poor viability
- c) the rain forest species are slow-growing
- d) exotic species invade the fertile soil of rain forest.

**Explanation:**

- a) the soil of rain forest is deficient in nutrients: Rainforest = Rainfall through the year. It rains almost every day = The top soil is continuously washed away = nutrients are also washed away = **leaching of nutrients** = very little fertility remains in top soil = most of the seeds don't germinate for years = regeneration is very slow (it takes decades). But the layer below top soil (sub-soil) is very fertile. So plants grow very quickly once their roots reach the sub-soil and if they receive enough sunlight.
- b) propagules of the trees in a rain forest have poor viability: Propagule = detachable structure that can give rise to a new plant, e.g. a bud, sucker, or spore [Asexual Reproduction in plants]. Seed bearing plants are more significant than Propagules in rainforest. So, propagules don't really matter.
- c) the rain forest species are slow-growing: The plant species in rainforests compete for sunlight. So, they grow as rapidly as they can.
- d) exotic species invade the **fertile** soil of rain forest: this statement is wrong as the rainforest soil is heavily leached. Hence, they are not fertile. But exotic invasive species are a threat to rain forests (E.g. Most plantation crops like rubber, palm etc.).

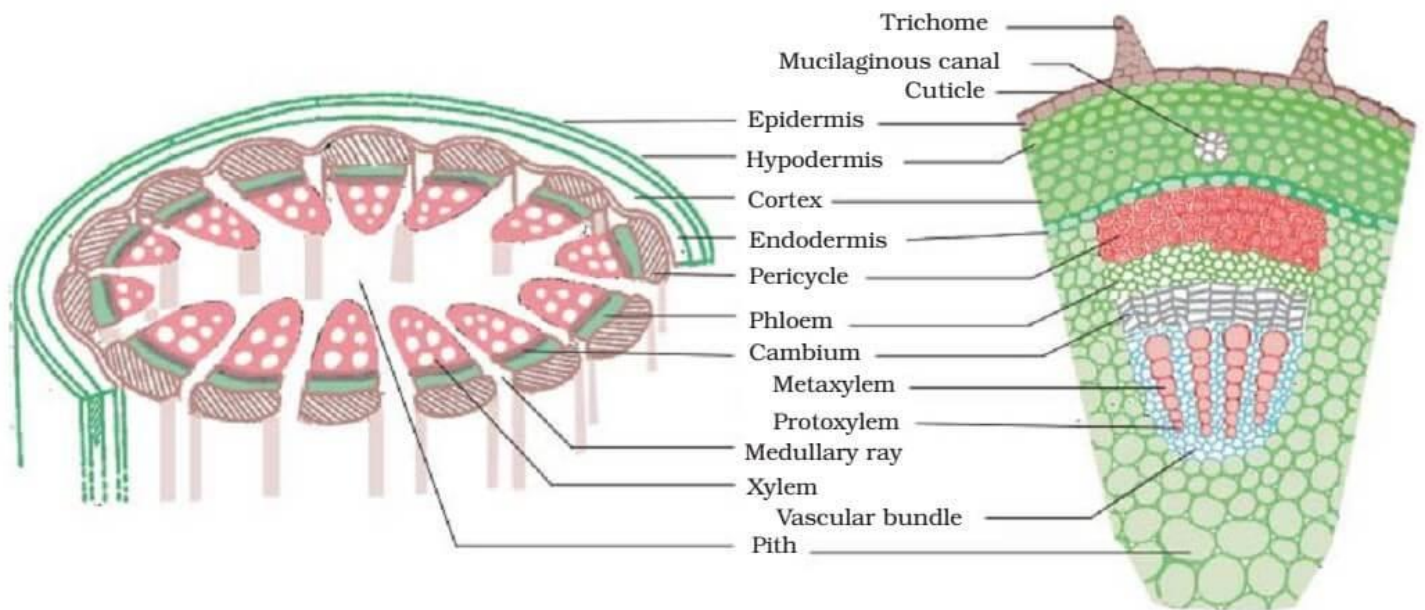
**Answer: a)**



**Q11. When the bark of a tree is removed in a circular fashion all around near its base, it generally dries up and dies because**

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- a) Water from soil cannot rise to aerial parts.
- b) Roots are starved of energy
- c) Tree is infected by soil microbes
- d) Roots do not receive oxygen for respiration



**Fig. 6.3:** Section of a stem

**Answer: b) roots are starved of energy as the phloem (food carrying tissue) is cut off.**

**Q12. Consider the following:**

---

- 1) Photosynthesis
- 2) Respiration
- 3) Decay of organic matter
- 4) Volcanic action

Which of the above add carbon dioxide to the carbon cycle on Earth?

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

**Answer: c) Photosynthesis takes out CO<sub>2</sub> from carbon cycle. Rest all ads CO<sub>2</sub>.**

**Q13. Consider the following statements: Chlorofluorocarbons, known as ozone-depleting substances, are used**

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- 1) in the production of plastic foams
- 2) in the production of tubeless tyres
- 3) in cleaning certain electronic components
- 4) as pressurizing agents in aerosol cans

Which of the statements given above is/are correct?

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

**Answer: b) CFCs are used as refrigerants and pressurizing agents**

**Q14. Consider the following:**

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- 1) Carbon dioxide
- 2) Oxides of Nitrogen
- 3) Oxides of Sulphur

Which of the above is/are the emission/emissions from coal combustion at thermal power plants ?

- a) 1 only
  - b) 2 and 3 only
  - c) 1 and 3 only
  - d) 1, 2 and 3
- Burning coal releases CO, CO<sub>2</sub>, sulphur dioxide and oxides of nitrogen – air pollutants.

**Answer: d) 1, 2 and 3**

**Q15. The increasing amount of carbon dioxide in the air is slowly raising the temperature of the atmosphere, because it absorbs**

---

- a) the water vapour of the air and retains its heat.
- b) the ultraviolet part of the solar radiation.



- c) all the solar radiations.
- d) the infrared part of the solar radiation
- Among GHGs, only water vapor has the ability to absorb both incoming (UV) and outgoing (infrared) radiation.

**Answer: d) the infrared part of the solar radiation (outgoing radiation)**

**Q16. The formation of ozone hole in the Antarctic region has been a cause of concern. What could be the reason for the formation of this hole?**

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- a) Presence of prominent tropospheric turbulence; and inflow of chlorofluorocarbons
- b) Presence of prominent polar front and stratospheric clouds; and inflow of chloro fluorocarbons
- c) Absence of polar front and stratospheric clouds; and inflow of methane and chloro fluorocarbons.
- d) Increased temperature at polar region due to global warming

**Answer: b) Presence of prominent polar front and stratospheric Clouds and inflow of chlorofluorocarbons. [Explained in the Post on Ozone Depletion]**

**Q17. The acidification of oceans is increasing. Why is this phenomenon a cause of concern?**

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- 1) The growth and survival of calcareous phytoplankton will be adversely affected.
- 2) The growth and survival of coral reefs will be adversely affected.
- 3) The survival of some animals that have phytoplanktonic larvae will be adversely affected.
- 4) The cloud seeding and formation of clouds will be adversely affected.

Which of statements given above is / are correct?

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

**Explanation:**

- Ocean acidification decreases the calcifying ability of corals, calcareous plankton, crustaceans etc. It also adversely affects cloud formation and cloud seeding. So Options 1, 2 and 4 are correct [Detailed explanation is given under "Ocean Acidification"].

**Answer: d) 1, 2, 3 and 4**

**Q18. Regarding "carbon credits", which one of the following statements is not correct?**

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- 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 emission quota
- d) Carbon credits are traded at a price fixed from time to time by the United Nations Environment Programme.

**Answer d) Carbon credit prices are traded on an exchange. So, their prices are never fixed.**

**Q19. With reference to India, consider the following Central Acts:**

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- 1) Import and Export (Control) Act, 1947.
- 2) Mining and Mineral Development (Regulation) Act, 1957
- 3) Customs Act, 1962
- 4) Indian Forest Act, 1927

Which of above Acts have relevance to/bearing on the biodiversity conservation in the country?

- a) 1 and 3 only
- b) 2,3 and 4 only
- c) 1,2,3 and 4
- d) None of the above Acts

**Answer: c) all**

Central Acts and Rules having Relevance to Biodiversity Conservation

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|--|--|
| • Fisheries Act, 1897                                    | • <b>Mining and Mineral Development (Regulation) Act, 1957</b> |
| • Destructive Insects and Pests Act, 1914                | • Prevention of Cruelty to Animals Act, 1960                   |
| • <b>The Indian Forest Act, 1927</b>                     | • <b>Customs Act, 1962</b>                                     |
| • Agricultural Produce (Grading and Marketing) Act, 1937 | • Cardamom Act, 1965   |
| • Indian Coffee Act, 1942                                | • Seeds Act, 1966  |
| • Import and Export (Control) Act, 1947                  | • The Patents Act, 1970  |
| • Rubber (Production and Marketing) Act, 1947            | • Wildlife (Protection) Act, 1972                              |
| • Tea Act, 1953  |  |

- Marine Products Export Development Authority Act, 1972
- Water (Prevention and Control of Pollution) Act, 1974
- Tobacco Board Act, 1975
- Territorial Water, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976
- Water (Prevention and Control of Pollution) Cess Act, 1977
- Maritime Zones of India (Regulation and Fishing by Foreign Vessels) Act, 1980
- Forest (Conservation) Act, 1980
- Air (Prevention and Control of Pollution) Act, 1981
- Agricultural and Processed Food Products Export Development Authority Act, 1985/1986
- Environment (Protection) Act, 1986
- Spices Board Act, 1986
- National Dairy Development Board, 1987
- Rules for the manufacture, use/import/export and storage of hazardous microorganisms/ genetically engineered organisms or cells, 1989
- **Foreign Trade (Development and Regulation) Act, 1992 [Imports and Exports (Control) Act, 1947 got repealed with the enactment of Foreign Trade (Development And Regulation) Act, 1992.]**
- Protection of Plant Varieties and Farmers' Rights (PPVFR) Act, 2001
- Biological Diversity Act, 2002
- Plant Quarantine (Regulation of Import into India) Order, 2003
- Biological Diversity Rules, 2004
- The Food Safety and Standards Act, 2006
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

**Q20. The National Green Tribunal Act, 2010 was enacted in consonance with which of the following provisions of the Constitution of India?**

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- 1) Right to healthy environment, construed as a part of part of Right to life under Article 21.
- 2) Provision of grants for raising the level of administration in the Scheduled Areas for the welfare of Scheduled Tribes under Article 275(1)

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

**Answer: a)**

### **Q21. How does National Biodiversity Authority (NBA) help in protecting the Indian agriculture?**

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- 1) NBA checks the biopiracy and protects the indigenous and traditional genetic resources.
- 2) NBA directly monitors and supervises the scientific research on genetic modification of crop plants.
- 3) Application for intellectual Property Rights related to genetic / biological resources cannot be made without the approval of NBA.

Which of the statements given above is/are correct?

- a) 1 only
  - b) 2 and 3 only
  - c) 1 and 3 only
  - d) 1, 2 and 3
- The top biotech regulator in India for Genetically Modified Organisms is **Genetic Engineering Appraisal Committee (GEAC)**.

**Answer: c) 1 and 3 only**

### **Q22. Recently, 'oilzapper' was in the news. What is it?**

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- a) It is an eco-friendly technology for the remediation of oil sludge and oil spills.
- b) It is the latest technology developed for under- sea oil exploration.
- c) It is a genetically engineered high biofuel yielding maize variety.
- d) It is the latest technology to control the accidentally caused flames from oil wells.

**Explanation:**

- Using bioremediation techniques, TERI has developed a mixture of bacteria called '**Oilzapper and Oilivorous-S**' which degrades the pollutants of oil-contaminated sites, leaving behind no harmful residues. This technique is not only environment friendly, but also highly cost-effective.

**Answer: a) remediation of oil sludge and oil spills**

### **Q23. Government of India encourages the cultivation of 'sea buckthorn'. What is the importance of this plant?**

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- a) It helps in controlling soil erosion and in preventing desertification.
- b) It is a rich source of biodiesel.
- c) It has nutritional value and is well-adapted to live in cold areas of high altitudes.

d) Its timber is of great commercial value.

Which of the statements given above is /are correct?

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

**Answer: b) 1 and 3 only**

**Q24. Two important rivers - one with its source in Jharkhand (and known by a different name in Odisha), and another, with its source in Odisha - merge at a place only a short distance from the coast of Bay of Bengal before flowing into the sea. This is an important site of wildlife and bio-diversity and a protected area. Which one of the following could be this?**

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- a) Bhitarkanika
  - b) Chandipur-on-sea
  - c) Gopalpur-on-sea
  - d) Simlipal
- Simlipal National Park is far away from coast.
  - Chandipur-on-sea and Gopalpur-on-sea are tourist destinations with resorts. There is no significant wildlife or bio-diversity.

**Answer: a) Bhitarkanika**

**Q25. A particular State in India has the following characteristics:**

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- 1) It is located on the same latitude which passes through northern Rajasthan.
- 2) It has over 80% of its area under forest cover.
- 3) Over 12% of forest cover constitutes **Protected Area Network** in this State.

Which one among the following States has all the above characteristics?

- a) **Arunachal Pradesh**
- b) Assam
- c) Himachal Pradesh
- d) Uttarakhand

## 1.2 2013

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### Q1. Consider the following pairs:

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1. Nokrek Bio-sphere Reserve: Garo Hills
2. Logtak (Loktak) Lake : Barail Range
3. Namdapha National Park : Dafla Hills

Which of the above pairs is/are correctly matched?

- a) **1 only**
- b) 2 and 3 only
- c) 1, 2 and 3
- d) None

### Q2. Consider the following pairs about parks and rivers passing through them:

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1. Corbett National Park: Ganga
2. Kaziranga National Park: Manas
3. Silent Valley National Park: Kaveri

Which of the above pairs is/are correctly matched?

- a) 1 and 2
- b) 3 only
- c) 1 and 3
- d) **None**

### Q3. In which of the following States is lion-tailed macaque found in its natural habitat?

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1. Tamil Nadu
2. Kerala
3. Karnataka
4. Andhra Pradesh

Select the correct answer using the codes given below.

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

c) 1, 3 and 4 only

d) 1, 2, 3 and 4

- Lion-tailed macaque is found in Western Ghats. So, AP is the odd option.

**Answer: a) 1, 2 and 3 only**

#### **Q4. Which of the following is/are unique characteristic/characteristics of equatorial forests?**

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1. Presence of tall, closely set trees with crowns forming a continuous canopy
2. Coexistence of a large number of species
3. Presence of numerous varieties of epiphytes

Select the correct answer using the code given below:

a) 1 only

b) 2 and 3 only

c) 1 and 3 only

d) 1, 2 and 3

#### **Equatorial Vegetation**

- High temperature and abundant rainfall support a luxuriant **tropical rain forest**.
- In the Amazon lowlands, the forest is so dense that it is called '**selvas**'. [selvas: A dense tropical rainforest usually having a cloud cover (**dense canopy**)]
- All plants struggle upwards (most **epiphytes**) for sunlight resulting in a peculiar layer arrangement [Canopy].



**Answer: Too easy. d) All**

#### **Q5. Consider the following fauna of India:**

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1. Gharial
2. Leatherback turtle
3. Swamp deer

Which of the above is/are endangered?

- a) 1 and 2 only
  - b) 3 only
  - c) 1, 2 and 3
  - d) None
- Outdated question

#### **Q6. Consider the following**

---

1. Star tortoise
2. Monitor lizard
3. Pygmy hog
4. Spider monkey

Which of the above found in India?

- a) 1, 2 and 3 only
  - b) 2 and 3 only
  - c) 1 and 4 only
  - d) 1, 2, 3 and 4
- Google results don't show Spider Monkey in India.
  - Spider monkeys are New World monkeys. Monkeys and apes of the Old World.
  - The New World monkeys are found in Mexico, Central America, and South America, and the Old World monkeys are located in Africa, central to southern Asia, Japan, and India.

Source: [http://www.newworldencyclopedia.org/entry/Spider\\_monkey](http://www.newworldencyclopedia.org/entry/Spider_monkey)

**Answer: a) 1, 2 and 3 only**

#### **Q7. Consider the following animals:**

---

1. Sea cow
2. Sea horse

### 3. Sea lion

Which of the above is/are mammal/mammals?

- a) 1 only
  - b) 1 and 3 only
  - c) 2 and 3 only
  - d) 1, 2 and 3
- Sea cow (Dugong) found in shallow Indian seas is an herbivorous mammal
  - Sea lion is also a mammal.
  - Sea horse is a Bony Fish.



Figure 4.20 Examples of Bony fishes :  
(a) *Hippocampus* (b) *Catla*



Answer: b) 1 and 3 only

**Q8. Mycorrhizal biotechnology has been used in rehabilitating degraded sites because mycorrhiza enables the plants to**

1. resist drought and increase absorptive area
2. tolerate extremes of pH
3. Resist disease infestation

Select the correct answer using the codes given below:

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

Answer: d) all (explained in the chapter on "Agriculture")

### Q9. Consider the following organisms

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1. Agaricus
2. Nostoc
3. Spirogyra

Which of the above is/are used as biofertilizer/biofertilizers

- a) 1 and 2
  - b) 2 only
  - c) 2 and 3
  - d) 3 only
- Nostoc is a nitrogen fixing cyanobacteria.

**Answer: b) 2 only**

### Q10. Which of the following adds/add nitrogen to the soil?

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1. Excretion of urea by animals
2. Burning of coal by man
3. Death of vegetation

Select the correct answer using the codes given below.

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

#### **Explanation:**

- All the above three adds to nitrogen cycle.
- Burning coal releases CO, CO<sub>2</sub>, sulphur dioxide and oxides of nitrogen – air pollutants.
- Oxides of nitrogen fall on earth as acid rain. Acidic rain is a complex mixture of nitrous, nitric, sulfurous and sulfuric acids which all combine to lower the pH.
- But, the question says, “Which of the following adds/add nitrogen to the soil?”
  1. Animal Waste like Urea, Uric acid and Death of vegetation add nitrogen in the form of nitrates directly into soil.

2. Coal combustion adds nitrogen to atmosphere and from there it falls back to earth in the form of acid rain and acid rain adds nitrogen to soil.

[http://www.ehow.com/how-does\\_5117705\\_burning-fuels-affect-nitrogen-cycle.html](http://www.ehow.com/how-does_5117705_burning-fuels-affect-nitrogen-cycle.html) says:

- "The release of nitric oxides into the air in large quantities causes **smog and acid rain** that pollutes the atmosphere, soil and water and affects plants and animals. The increase in nitrogen and nitrous oxide is caused by automobiles, power plants and a wide variety of industries.
- As nitrous oxides filter into soil, it loses nutrients like calcium and potassium, which are essential for maintaining a balance in plant ecosystems. With the loss of these compounds, soil fertility declines. Also, soils become significantly more acidic."

And also <http://chemistry.elmhurst.edu/vchembook/307nitrogen.html> says:

- "The main component of the nitrogen cycle starts with the element nitrogen in the air. Two nitrogen oxides are found in the air as a result of interactions with oxygen. Nitrogen will only react with oxygen in the presence of high temperatures and pressures found near **lightning bolts** and in combustion reactions in power plants or internal combustion engines. Nitric oxide, NO, and nitrogen dioxide, NO<sub>2</sub>, are formed under these conditions. Eventually nitrogen dioxide may react with water in rain to form **nitric acid**, HNO<sub>3</sub>. The nitrates thus formed may be utilized by plants as a nutrient (so, soil gets nitrogen from acid rain)."
- So, soil gets nitrogen from acid rain.
- From this, I feel Burning of coal by man adds nitrogen to soil but indirectly through acid rain.
- The answer depends on how you interpret the question.

**Answer: Official UPSC Key says answer is c) 1 and 3 only.**

#### **Q11. Contour bunding is a method of soil conservation used in**

- a) desert margins, liable to strong wind action
- b) low flat plains, close to stream courses, liable to flooding
- c) scrublands, liable to spread of weed growth
- d) None of the above
- Counter bunding is used along with terracing to protect sloped surfaces.

**Answer: d) None**

**Q12. With reference to the usefulness of the by-products of sugar industry, which of the following statements is/are correct?**

---

1. Bagasse can be used as biomass fuel for the generation of energy.
2. Molasses can be used as one of the feedstocks for the production of synthetic chemical fertilizers.
3. Molasses can be used for the production of ethanol.

Select the correct answer using the codes given below.

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

**Answer: c) 1 and 3 only**

**Q13. Due to improper/indiscriminate disposal of old and used computers or their parts, which of the following are released into the environment as e-waste?**

---

1. Beryllium
2. Cadmium
3. Chromium
4. Heptachlor
5. Mercury
6. Lead
7. Plutonium

Select the correct answer using the codes given below.

- a) 1, 3, 4, 6 and 7 only
- b) 1, 2, 3, 5 and 6 only
- c) 2, 4, 5 and 7 only
- d) 1, 2, 3, 4, 5, 6 and 7

**Explanation:**

- Heptachlor is a Chlorohydrocarbon (CHC) which is used as an insecticide.
- Plutonium is a radioactive metal and hence not used in computers.
- So, answer should not contain either 4) or 7).

**Answer: b) 1, 2, 3, 5 and 6 only**

**Q14. Which of the following can be found as pollutants in the drinking water in some parts of India?**

---

- 1) Arsenic
- 2) Sorbitol
- 3) Fluoride
- 4) Formaldehyde
- 5) Uranium

Select the correct answer using the codes given below.

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

**Explanation:**

- Easiest option is 3) Fluoride. So, (b) can be eliminated.
- Next easiest option is Arsenic (Heavy metal). Damn!
- Next easiest option is Uranium. Many columns are written on uranium mining and its ill-effects. So, (a) also can be eliminated. (a) and (b) eliminated. (c) and (d) remains.
- The knowledge of either "Sorbitol" or "Formaldehyde" will tell us the answer.
- Formaldehyde is more known than sorbitol. Googling didn't give me any authentic source that called formaldehyde a water pollutant. It is used as a preservative to preserve human organs. It finds some application in textile, resin and wood industry.

**Answer: c) 1, 3 and 5 only**

- Sorbitol (glucitol) is a sugar alcohol with a sweet taste which the human body metabolizes slowly.

**Q15. Which one among the following industries is the maximum consumer of water in India?**

---

- a) Engineering
- b) Paper and pulp
- c) Textiles
- d) Thermal power**

**Table 12.4**  
*Demand of Water in Industrial Areas in India*

<i>Sector</i>	<i>Average Water Consumption in Indian Industries</i>	<i>Globally Best</i>
Thermal Power Plants	Average 80 cubic metre per megawatt (mwh)	Less than 10 cubic metre ( $M^3$ ) per mwh
Textile Industry	200-250 $M^3$ /per tonne cotton cloth	Less than 100 $M^3$ /per tonne cotton cloth
Paper and Pulp	<ul style="list-style-type: none"> <li>Wood base mills: 150-200 <math>M^3</math> ton/per tonne</li> <li>Waste paper based mills: 10-80 <math>M^3</math>/per tonne</li> </ul>	<ul style="list-style-type: none"> <li>Wood base mills: 50-75 <math>M^3</math> ton/per tonne</li> <li>Waste paper based Mills: 10-25 <math>M^3</math>/per tonne</li> </ul>
Total Iron and Steel Plants	10-80 $M^3$ per tonne of finished product (Average around 25 $M^3$ )	5-10 $M^3$ per tonne of finished product. Best Practice less than 0.1 $M^3$ waste water per tonne finished products.
Distilleries	75-200 $M^3$ per tonne Alcohol Produced	Figures NA
Fertilizer Industry	<ul style="list-style-type: none"> <li>Nitrogenous Fertilizer Plant 5.0-20.0 <math>M^3</math> per tonne</li> <li>Straight Phosphatic Plant 1.4-2.0 <math>M^3</math>/per tonne</li> <li>Complex Fertilizer 0.2-5.4 <math>M^3</math>/per tonne</li> </ul>	An effluent discharge of less than 1.5 $M^3$ tonne as $P_2O_5$

#### **Q16. Acid rain is caused by the pollution of environment by**

- carbon dioxide and nitrogen
- carbon monoxide and carbon dioxide
- ozone and carbon dioxide
- nitrous oxide and sulphur dioxide

Explanation:

- CO and  $CO_2$  react with rainwater to form **weak carbonic acid**. Hence, rainwater is **naturally slightly acidic**. But this is not enough to call it acid rain (acid rain must have **pH of less than 5.6**).
- Even increased concentration of CO and  $CO_2$  is not enough to cause rainwater of pH less than 5.6.
- Only NIOS (10.3.2 Gaseous pollutants > Table 10.3 – Page 167) mentions  $N_2O$  (nitrous oxide).

More details:

- $N_2O$  and NO are neutral in nature.**
- [N<sub>2</sub>O<sub>3</sub>, NO<sub>2</sub> and N<sub>2</sub>O<sub>5</sub> are acidic in nature.](#)
- These **acidic oxides react with water** and produce acids like **HNO<sub>3</sub> (nitric acid)** and **HNO<sub>2</sub> (nitrous acid)** which causes acid rain.
- The neutral oxides are comparatively less, and they combine with oxygen and produce nitrogen dioxide.
- Thus,  **$N_2O$  and NO** are indirectly involved ( $2NO + O_2 \rightarrow 2NO_2$ ) in causing acid rain.

**Answer: d) nitrous oxide (laughing gas) and sulphur dioxide**



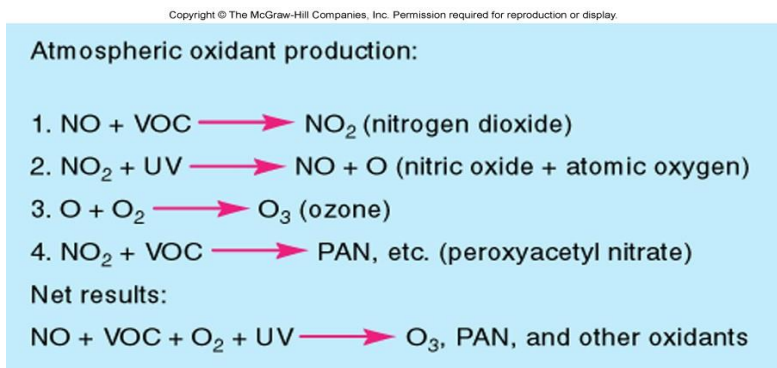
### Q17. Photochemical smog is a resultant of the reaction among

- a) NO<sub>2</sub>, O<sub>3</sub> and peroxyacetyl nitrate in the presence of sunlight
- b) CO, O<sub>2</sub> and peroxyacetyl nitrate in the presence of sunlight
- c) CO, CO<sub>2</sub> and NO<sub>2</sub> at low temperature
- d) High concentration of NO<sub>2</sub>, O<sub>3</sub> and CO in the evening

#### Explanation:

- When pollutants such as **nitrogen oxides** (primary pollutant) and **volatile organic compounds** (primary pollutant) react together in the presence of **SUNLIGHT, OZONE** (Secondary pollutant) and peroxyacetyl nitrate (PAN) (Secondary pollutant) are formed.

#### Reactions involved



- Photochemical (**summer smog**) is formed when the primary pollutant NO<sub>2</sub> reacts with secondary pollutants O<sub>3</sub> and peroxyacetyl nitrate in the presence of sunlight.

**Answer: a) NO<sub>2</sub>, O<sub>3</sub> and peroxyacetyl nitrate in the presence of sunlight**

### Q18. With reference to food chains in ecosystems, consider the following statements:

1. A food chain illustrates the order in which a chain of organisms feed upon each other.
2. Food chains are found within the populations of a species.
3. A food chain illustrates the numbers of each organism which are eaten by others.

Which of the statements given above is / are correct?

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

**Explanation:**

1. A food chain illustrates the order in which a chain of organisms feed upon each other. (True)
2. Food chains are found within the populations of a species. (Man won't eat man – so, false)
3. A food chain illustrates the numbers of each organism which are eaten by others (food web illustrates the number not the food chain).

**Answer: a)**

**Q19. 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

**Answer: b) Niche**

**Explanation:**

- Ecotone – zone of transition between two ecosystems. E.g. grasslands, mangroves etc.
- Habitat – surroundings in which an organism lives.
- Home Range - A home range is the area in which an animal lives and moves on a daily or periodic basis.

**Q20. With reference to the food chains in ecosystems, which of the following kinds of organism is / are known as decomposer organism/organisms?**

---

1. Virus
2. Fungi
3. Bacteria

Select the correct answer using the codes given below.

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

**Explanation:**

- Fungi and Bacteria are decomposers. They breakdown organic matter into simple inorganic substances.
- Virus represents dormant life. They are metabolically inactive as long as they are outside a host body. They are not decomposers. They invade host cells and use their nucleus (DNA machinery) to carry out their life processes.
- Protists are unicellular organisms, such as paramecium and euglena. They're not decomposers either.

**Answer: b)**

**Q21. 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

**Answer: c)**

**Explanation:**

- Grasses have this one good trick to monopolize a place. In dry season the grasses dry up and cause fires which destroy other plant species and their seeds.
- Also grasslands develop in regions with scanty rainfall where plant growth cannot be achieved.
- Though forests form the climax community in most of the ecosystems, but in grassland ecosystem [In the grasslands, trees do not replace the grasses as a part of an ecological succession] grasses form the climax community. Thanks to fire and lack of water.
- Grasslands are almost irreversible once deforestation in water scarce areas gives way to grasslands. [Ecological Damage]

**Q22. 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

**Explanation:**

- Productivity = production/unit area/unit time
- Production/unit area depends on number and diversity of producers.
- From the topics discussed in this post, we can say that transitional zones (Ecotones) have very high productivity compared to normal ecosystems. [Tropical Rainforests is an exception as it has productivity comparable to wetlands because of its rich diversity of primary producers]
- In the options, mangroves are transitional ecosystems while the rest are normal ecosystems.
- Remember: Grasslands are not transitional all the time. E.g. Steppe. Non transitional grasslands have very low productivity because of very limited diversity of primary producers. [Grasslands become transitional only when they are narrow]
- So the order of decreasing productivity will be like
- Mangroves ,..... , ..... , .....
- Oceans = very deep and hence productivity is limited to surface only (Below in the aphotic zone productivity is negligible. Aphotic zone in oceans is few kilometers).
- Also surface water in oceans are very poor in nutrients. Nutrient rich cold water flows as a sub-surface flow lying in the aphotic zone. Sunlight and nutrients are far apart and hence primary productivity is very low except in regions where there is upwelling of nutrient rich cold water [Cold and Warm current mixing zones].
- So open ocean ecosystem has the least productivity. [Desert ecosystem also has very low productivity, lesser than oceans].
- So, the answer will look like Mangroves, ....., ....., Oceans.
- The only such option is c)

**Answer: c)** Mangroves, grasslands, lakes, oceans.

- Lakes just like oceans have low productivity. But due to some plants in photic zone, lakes have productivity slightly greater than that of oceans.

## 1.3 2014

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### Q1. Which one of the following is the process involved in photosynthesis?

---

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

**Answer: b) Sunlight (free energy) is converted into carbohydrates (potential energy) using water and carbon dioxide. Oxygen is released in the process.**

**Q2. Which of the following adds/add carbon dioxide to the carbon cycle on the planet Earth?**

---

1. Volcanic action
2. Respiration
3. Photosynthesis
4. Decay of organic matter

Select the correct answer using the code given below.

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

**Q3. In India, the problem of soil erosion is associated with which of the following?**

---

1. Terrace cultivation
2. Deforestation
3. Tropical climate

Select the correct answer using the code given below.

- a) 1 and 2 only
  - b) 2 only
  - c) 1 and 3 only
  - d) 1, 2 and 3
- Terrace cultivation is a method to prevent soil erosion.
  - Soil erosion occurs in all climates.

**Answer: b) 2 only**

**Q4. Lichens, which are capable of initiating ecological succession even on a bare rock, are actually a symbiotic association of**

---

- a) algae and bacteria
- b) algae and fungi**

- c) bacteria and fungi
- d) fungi and mosses
- More of a biology question. Fungus provides shelter, water and minerals to the algae and, in return, the algae provides food (photosynthesis).

### **Q5. Conserving Biodiversity**

---

The most important strategy for the conservation of biodiversity together with traditional human life is the establishment of

- a) biosphere reserves
- b) botanical gardens
- c) national parks
- d) wildlife sanctuaries

**Answer: a) biosphere reserves [Explained under “Biodiversity Conservation”]**

### **Q6. With reference to ‘Eco-Sensitive Zones’, which of the following statements is/are correct?**

---

- 1) Eco-Sensitive Zones are the areas that are declared under the Wildlife (Protection) Act, 1972.
- 2) The purpose of the declaration of Eco-Sensitive Zones is to prohibit all kinds of human activities, in those zones except agriculture.

Select the correct answer using the code given below.

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2
- Eco-Sensitive Zones are declared under **Environmental (Protection) Act, 1986**.
- Eco-Sensitive Zones are transitional areas where human activity is regulated but not prohibited.

**Answer: d) Neither**

### **Q7. Consider the following pairs**

---

- 1) Dampa Tiger Reserve : Mizoram
- 2) Gumti Wildlife Sanctuary : Sikkim

3) Saramati Peak : Nagaland

Which of the above pairs is /are correctly matched?

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

**Answer: c) 1 and 3 only**

**Q8. Consider the following pairs**

---

**Wetlands**

**Confluence of rivers**

---

- |                                 |                                |
|---------------------------------|--------------------------------|
| 1. Harike Wetlands              | Beas and Satluj/Sutlej         |
| 2. Keoladeo Ghana National Park | Banas and Chambal              |
| 3. Kolleru Lake                 | Confluence of Musi and Krishna |

Which of the above pairs is/are correctly matched?

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

**Answer: a) 1 only**

**Q9. Which of the following have coral reefs?**

---

- 1) Andaman and Nicobar Islands
- 2) Gulf of Kutch
- 3) Gulf of Mannar
- 4) Sunderbans

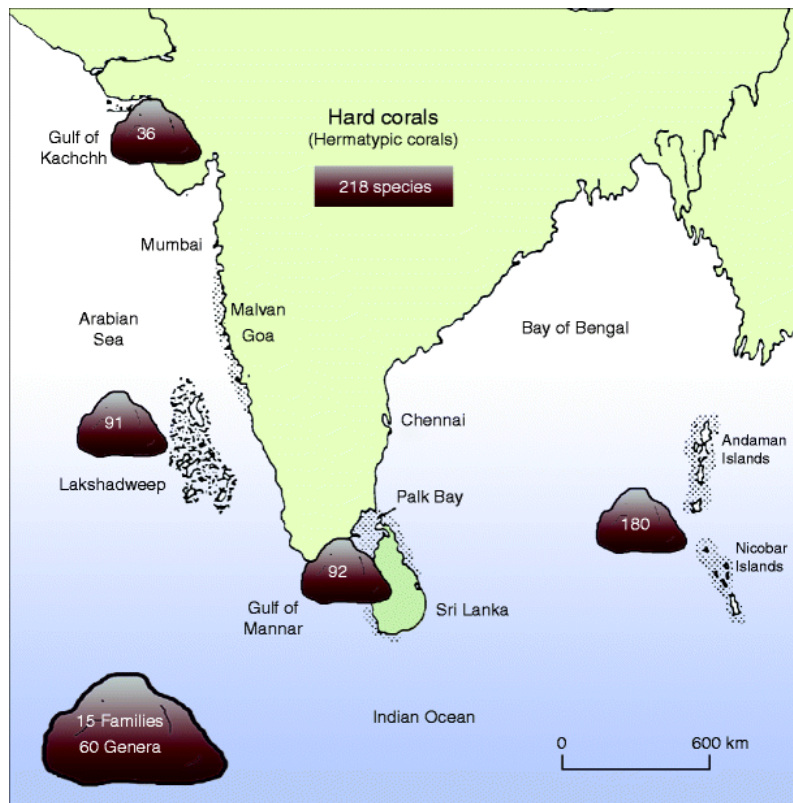
Select the correct answer using the code given below.

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



d) 1, 2, 3 and 4

**Explanation:**



- Coral reefs don't form in areas where there is significant intrusion of fresh water and cold water.
- Most of the mighty Indian Rivers flow into Bay of Bengal and hence coral reefs are absent on the east coast of India.
- Coral reefs are also absent on west coast of Africa (Benguela Current), South America (Peruvian or Humboldt Current), Europe (Canaries Current) and other continents due to cold currents.
- Andaman and Nicobar Islands, Gulf of Kutch and Gulf of Mannar are regions where there is not significant freshwater intrusion. But Sunderbans are the mouth of Ganga-Brahmaputra river system and hence there is no coral reef formation there.

**Answer: a) 1, 2 and 3 only**

**Q10. Consider the following:**

- 1) Bats
- 2) Bears
- 3) Rodents

The phenomenon of hibernation can be observed in which of the above kinds of animals?

- a) 1 and 2 only
- b) 2 only
- c) 1, 2 and 3
- d) Hibernation cannot be observed in any of the above

<http://www.pmfias.com/classification-vertebrata-phyllum-chordata/#warm-blooded-vs-cold-blooded-animals>

[Hibernation also explained]

Answer: c) All

### **Q11. Among the following organisms, which one does not belong to the class of other three?**

- a) Crab
  - b) Mite
  - c) Scorpion
  - d) Spider
- Insects, Arachnids and Crustaceans are subphylum of Arthropoda.
  - Mite, Scorpion and spider are Arachnids, while Crab is a Crustacean.
  - I missed this concept in biology. So, I am updating here.

### **Arachnids**

- Spiders, harvestmen, mites, ticks and other arachnids are members of the class Arachnida.



### **Crustaceans**

- Crustaceans make up a large group of arthropods that includes animals such as crabs, lobsters, crayfish and shrimp. They breathe with gills and have two pairs of antennae.



## Insects

- In general, insects have three-part bodies, six jointed legs, compound eyes and two antennae.
- Bees, wasps, beetles, mosquitoes, flies, grasshoppers, ants, butterflies and moths, and dragonflies and damselflies are common types of insects.



**Q12. Which one of the following is the correct sequence of a food chain?**

- Diatoms-Crustaceans-Herrings
- Crustaceans-Diatoms-Herrings

- c) Diatoms-Herrings-Crustaceans
- d) Crustaceans-Herrings-Diatoms

**Explanation:**

- Food chain starts with a producer and ends with a top consumer.
- **Phytoplankton** are the primary producers in the oceans. They include:
  1. **diatoms (unicellular algae),**
  2. **coccolithophores** (unicellular, eukaryotic protist),
  3. **cyanobacteria (Bluegreen algae)** – synechococcus, prochlorococcus, nostoc, spirogyra etc..
  4. **dinoflagellates (flagellated protists).**

So, answer is between (a) and (c)

- Crustaceans form a very large group of arthropods which includes crabs, lobsters, crayfish, shrimp, krill and barnacles.
- Herrings is a fish.
- <http://octopus.gma.org/herring/biology/ecology/default.asp> says Herrings eat crustaceans.

**Answer: (a). Tough question. There will be 3-5 questions like this one where you might have not even heard the name of the animal or plant. Don't worry. rest 95 will be easy!**

**Q13. If you travel through the Himalayas, you are Likely to see which of the following plants naturally growing there?**

---

1. Oak
2. Rhododendron
3. Sandalwood

Select the correct answer using the code given below

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

**Explanation:**

- Oaks occur in Sub-tropical Broad-leaved Hill Forests, Montane Wet Temperate Forests and Himalayan Dry Temperate Forests [All these forest types are found in Himalayan regions]
- **Rhododendron** occur in sub-alpine cold desert regions [Himalayan regions].
- Sandalwood (Red Sanders) occur in Dry Deciduous forests [Ganga plains, South and Central India. ].

**Answer: a) 1 and 2 only**

**Q14. If you walk through countryside, you are likely to see some birds stalking alongside the cattle to seize the insects, disturbed by their movement through grasses, Which of the following is/are such bird/birds?**

---

1. Painted Stork
2. Common Myna
3. Black-necked Crane

Select the correct answer using the code given below.

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



- Black-necked crane feeds on meadows in higher altitudes of Tibetan plateau.

**Q15. Other than poaching, what are the possible reasons for the decline in the population of Ganges River Dolphins?**

---

1. Construction of dams and barrages on rivers
2. Increase in the population of crocodiles in rivers
3. Getting trapped in fishing nets accidentally

4. Use of synthetic fertilizers and other agricultural chemicals in crop-fields in the vicinity of rivers

Select the correct answer using the code given below.

- a) 1 and 2 only
  - b) 2 and 3 only
  - c) 1, 3 and 4 only**
  - d) 1, 2, 3 and 4
- 'Susu' or Ganges River Dolphin shares its habitat with crocodiles, freshwater turtles and wetland birds, many of which are fish eaters and are potential competitors with dolphins.

[http://wwf.panda.org/what we do/endangered species/cetaceans/about/river dolphins/ganges river dolphin/](http://wwf.panda.org/what_we_do/endangered_species/cetaceans/about/river_dolphins/ganges_river_dolphin/)

**Q16. With reference to two non-conventional energy sources called 'coal bed methane' and 'shale gas', consider the following 'statements:**

---

1. Coal bed methane is the pure methane gas extracted from coal seams, while shale gas is a mixture of propane and butane only that can be extracted from fine-grained sedimentary rocks.
2. In India abundant coal bed methane sources exist, but so far no shale gas sources have been found.

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**
- CBM = Methane
  - Shale gas = Lot of **Methane** + Little **Ethane, Propane, & Butane** + very little **carbon dioxide, nitrogen, and hydrogen sulfide**.
  - Abundant shale reserves occur in India

[Explained in "Economic Geography Notes"]

**Q17. In India, cluster bean (Guar) is traditionally used as a vegetable or animal feed, but recently the cultivation of this has assumed significance. Which one of the following statements is correct in this context?**

---

- a) The oil extracted from seeds is used in the manufacture of biodegradable plastics
- b) The gum made from its seeds is used in the extraction of shale gas**

- c) The leaf extract of this plant has the properties of anti-histamines
- d) It is a source of high quality biodiesel
- Gaur is used to make water viscous before pumping into ground for hydraulic fracking used to extract shale gas.

[Explained in "Economic Geography Notes"]

**Q18. With reference to technologies for solar power production, consider the following statements:**

---

1. 'Photovoltaics' is a technology that generates electricity by direct conversion of light into electricity, while 'Solar Thermal' is a technology that utilizes the Sun's rays to generate heat which is further used in electricity generation process.
2. Photovoltaics generates Alternating Current (AC), while Solar Thermal generates Direct Current (DC).
3. India has manufacturing base for Solar Thermal technology, but not for Photovoltaics.

Which of the statements given above is / are correct?

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

**Explanation:**

- Photoelectric effect = When light strikes on a material, electrons are dislodged [photons dislodge electrons].
- Photovoltaic = The dislodged electrons if channeled through a conductor will create electric current (voltage Or potential difference) = **Solar Panels**. [Electric current is nothing but movement of electrons from high potential to low potential area (more electrons to less electrons region)]
- Solar thermal = converting light into heat = **solar cooker, solar water heater**.
- Photovoltaics generate direct current (DC). [Rotating = AC, Stationary = DC. Electric generator, wind turbine generate AC while solar panels generate DC]
- Solar thermal is mostly used for water heating purposes. Electricity can be generated by using hot water steam to rotate turbine = AC current.
- In India both solar panels and solar cookers are manufactured. [Remember India – USA WTO 'domestic content' dispute?]

**Answer: a) 1 only**

**Q19. There is some concern regarding the nanoparticles of some chemical elements that are used by the industry in the manufacture of various products. Why?**

---

- 1) They can accumulate in the environment and contaminate water and soil.
- 2) They can enter the food chains.
- 3) They can trigger the production of free radicals.

Select the correct answer using the code given below.

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

**Explained under “Air Pollution”**

**Q20. Which of the following are some important pollutants released by steel industry in India?**

---

- 1) Oxides of sulphur
- 2) Oxides of nitrogen
- 3) Carbon monoxide
- 4) Carbon dioxide

Select the correct answer using the code given below.

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

**Explanation:**

- Coke is used as fuel in blast furnace. Combustion of coke releases both CO and CO<sub>2</sub>.
- Oxides of sulphur and oxides of nitrogen are common pollutants released when any fossil fuel is burnt.  
(Coal and iron ore contain small amount of sulphur. Presence of sulphur makes iron weak)

**Answer: d) All**



**Q21. Brominated flame retardants are used in many household products like mattresses and upholstery. Why is there some concern about their use?**

---

1. They are highly resistant to degradation in the environment.
2. They are able to accumulate in humans and animals.

Select the correct answer using the code given below.

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

**Q22. Consider the following countries:**

---

1. Denmark
2. Japan
3. Russian Federation
4. United Kingdom
5. United States of America

Which of the above are the members of the 'Arctic Council'?

- a) 1, 2 and 3
  - b) 2, 3 and 4
  - c) 1, 4 and 5
  - d) 1, 3 and 5**
- The Arctic Council consists of the eight Arctic States: **Canada, the Kingdom of Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the United States.**

**Q23. With reference to 'Global Environment Facility', which of the following statements is/are correct?**

---

- a) It serves as financial mechanism for 'Convention on Biological Diversity' and 'United Nations Framework Convention on Climate Change'.
- b) It undertakes scientific research on environmental issues at global level
- c) It is an agency under OECD to facilitate the transfer of technology and funds to underdeveloped countries with specific aim to protect their environment.

d) Both (a) and (b)

**Explanation:**

- GEF is an independent financial organization.
- It may fund scientific research, but it is not directly involved in scientific research.
- IPCC takes care of most of the research work.

**Answer: a)**

**Q24. If a wetland of international importance is brought under the 'Montreux Record', what does it imply?**

---

- a) Changes in ecological character have occurred, are occurring or are likely to occur in the wetland as a result of human interference.
  - b) The country in which the wetland is located should enact a law to prohibit any human activity within five kilo meters from the edge of the wetland
  - c) The survival of the wetland depends on the cultural practices and traditions of certain communities living in its vicinity and therefore the cultural diversity therein should not be destroyed
  - d) It is given the status of 'World Heritage Site'
- The Montreux Record is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference. It is maintained as part of the Ramsar List.

**Answer: a)**

**Q25. With reference to a conservation organization called Wetlands International', which of the following statements is/are correct?**

---

- 1) It is an intergovernmental organization formed by the countries which are signatories to Ramsar Convention.
- 2) It works at the field level to develop and mobilize knowledge and use the practical experience to advocate for better policies.

Select the correct answer using the code given below.

- a) 1 only
- b) 2 only

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

**Answer: b) 2 only. Wetlands International is an NGO**

**Q26. Consider the following international agreements:**

---

- 1) The International Treaty on Plant Genetic Resources for Food and Agriculture
- 2) The United Nations Convention to Combat Desertification
- 3) The World Heritage Convention

Which of the above has/have a bearing on the biodiversity?

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

**d) 1, 2. and 3**

- World Heritage Convention explained in "Biodiversity", Rest two under "Fighting Climate Change-Biodiversity Protection"

**Q27. The scientific view is that the increase in global temperature should not exceed 2 °C above pre-industrial level. If the global temperature increases beyond 3°C above the pre-industrial level, what can be its possible impact/impacts on the world?**

---

- 1) Terrestrial biosphere tends toward a net carbon source
- 2) Widespread coral mortality will occur.
- 3) All the global wetlands will permanently disappear.
- 4) Cultivation of cereals will not be possible anywhere in the world.

Select the correct answer using the code given below.

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

**Explanation:**

- Taiga and temperate forests act as an important carbon sink. Global warming by 3°C will turn these forests into carbon source.
- Corals are very sensitive to temperature changes. 3°C rise in global temperature will lead to widespread coral mortality.
- 3°C rise in global temperature will lead to submergence of many low lying coastal wetlands (not all) due to rise in sea levels. Inland wetlands like Keoladeo Ghana National Park will not be effected (it is 100s of kilometers away from coast).
- Because of the slow inertia, long response time for parts of the climate system, it has been estimated that we are already committed to a sea-level rise of approximately 2.3 metres (7.5 ft) for each degree Celsius of temperature rise within the next 2,000 years.
- <http://www.pnas.org/content/110/34/13745.abstract?sid=26fd1d37-7276-46e2-9192-0931e6ebf6ab>
- Cultivation of cereals in tropics will take a hit. But in temperate regions their production increases in the short run.

**Answer: b) 1 and 2 only**

**Q28. Consider the following statements:**

---

- 1) Animal Welfare Board of India is established under the Environment (Protection) Act, 1986.
- 2) National Tiger Conservation Authority is a statutory body.
- 3) National Ganga River Basin Authority is chaired by the Prime Minister.

Which of the statements given above is/ are correct?

- a) 1 only
  - b) 2 and 3 only
  - c) 2 only
  - d) 1, 2 and 3
- Animal Welfare Board of India is established under Prevention of Cruelty to Animals Act.

**Answer: b) 2 and 3 only**

**Q29. With reference to Bombay Natural History Society (BNHS), consider the following statements :**

---

1. It is an autonomous organization under the Ministry of Environment and Forests.
2. It strives to conserve nature through action-based research, education and public awareness.

3. It organizes and conducts nature trails and camps for the general public.

Which of the statements given above is/are correct?

- a) 1 and 3 only
  - b) 2 only
  - c) 2 and 3 only
  - d) 1, 2 and 3
- The Bombay Natural History Society, founded in 1883, is one of the largest non-governmental organizations in India engaged in **conservation and biodiversity research**.
  - It supports many research efforts through grants and publishes the **Journal of the Bombay Natural History Society**.
  - It organizes and conducts nature trails and camps for the general public.
  - Many prominent naturalists, including the ornithologists Sálim Ali and S. Dillon Ripley, have been associated with it.

**Answer: c) 2 and 3 only**

### **Q30. Consider the following statements regarding 'Earth Hour'**

---

1. It is an initiative of UNEP and UNESCO.
2. It is a movement in which the participants switch off the lights for one hour on a certain day every year.
3. It is a movement to raise the awareness about the climate change and the need to save the planet.

Which of the statements given above is / are correct?

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

### **Earth Hour**

---

- Earth Hour is a worldwide movement for the planet organized by the **World Wide Fund for Nature (WWF)**.
- The event is held worldwide annually encouraging individuals, communities, households and businesses to turn off their non-essential lights for one hour, from 8:30 to 9:30 p.m. towards the end of March, as a symbol for their commitment to the planet.

- It was famously started as a lights-off event in Sydney, Australia in 2007.
- Earth Hour engages a massive mainstream community on a broad range of environmental issues.

**Answer: c) 2 and 3 only**

**Q31. Every year, a month long ecologically important campaign/festival is held during which certain communities/ tribes plant saplings of fruit-bearing trees. Which of the following are such communities/tribes?**

---

- a) Bhutia and Lepcha
- b) Gond and Korku**
- c) Irula and Toda
- d) Sahariya and Agariya

<http://www.thehindu.com/todays-paper/tp-miscellaneous/tp-others/their-own-green-revolution/article3823031.ece>

## 1.4 2015

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**Q1. Which of the following National Parks is unique in being a swamp with floating vegetation that supports a rich biodiversity?**

---

- a) Bhitarkanika National Park
- b) Keibul Lamjao National Park**
- c) Keoladeo Ghana National park
- d) Sultanpur National park

**Q2. What can be the impact of excessive/inappropriate use of nitrogenous fertilizers in agriculture?**

---

- 1) Proliferation of nitrogen-fixing microorganisms in soil can occur.
- 2) Increase in the acidity of soil can take place
- 3) Leaching of nitrate to the ground-water can occur.

Select the correct answer using the code given below.

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

**Explanation:**

- Nitrification is important in agricultural systems, where fertilizer is often applied as ammonia. Conversion of this ammonia to nitrate **increases nitrogen leaching** because nitrate is more water-soluble than ammonia.
- Agricultural fertilization and the use of nitrogen fixing plants also contribute to atmospheric NO<sub>x</sub>, by promoting nitrogen fixation by microorganisms. Excess NO<sub>x</sub> leads to acid rain. Acid rain lowers pH of soil (increase in acidity of soil)
- The legume–rhizobium symbiosis is a classic example of mutualism—rhizobia supply ammonia or amino acids to the plant and in return receive organic acids as a carbon and energy source.
- So, excessive/inappropriate use of nitrogenous fertilizers can make the plants independent of both symbiotic and free living nitrogen fixers. Fixers don't get the food from the plants due to broken relationship and other factors. So, their population decreases.

**Answer: c) 2 and 3 only**

**Q3. With reference to the International Union for Conservation of Nature and Natural Resources (IUCN) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which of the following statements is/are correct?**

---

- 1) IUCN is an organ of the United Nations and CITES is an international agreement between governments
- 2) IUCN runs thousands of field projects around the world to better manage natural environments.
- 3) CITES is legally binding on the States that have joined it, but this Convention does not take the place of national laws.

Select the correct using the code given below.

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

**Explanation:**

- IUCN is an NGO. CITES is an international agreement between governments (multilateral treaty).

**Answer: b) 2 and 3 only**

**Q4. With reference to 'fly ash' produced by the power plants using the coal as fuel, which of the following statements is/are correct?**

---

- 1) Fly ash can be used in the production of bricks for building construction
- 2) Fly ash can be used as a replacement for some of the Portland cement contents of concrete
- 3) Fly ash is made up of silicon dioxide and calcium oxide only, and does not contain any toxic elements.

Select the correct answer using the code given below

- a) 1 and 2
  - b) 2 only
  - c) 1 and 3
  - d) 3 only
- Fly ash does contain heavy toxic elements like arsenic, cobalt, lead etc.

**Answer: a) 1 and 2**

**Q5. With reference to 'dugong', a mammal found in India, which of the following statements is/are correct?**

---

- 1) It is a herbivorous marine animal.
- 2) It is found along the entire coast of India
- 3) It is given legal protection under Schedule 1 of the Wildlife (Protection) Act, 1972.

Select the correct answer using the code given below.

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

**Explanation:**

- Dugong (sea cow) is an herbivorous animal. It eats sea grass and aquatic plants found in shallow oceans (At depths sea grass and aquatic plants don't grow due to absence of sunlight).
- Dugong 'vulnerable' herbivorous marine mammal.

**Wildlife (Protection) Act, 1972**

- Harming **endangered** (vulnerable, endangered, critically endangered) species listed in **Schedule 1** of the Act is prohibited throughout India.



- Hunting species, like those requiring special protection (Schedule II), big game (Schedule III), and small game (Schedule IV), is regulated through licensing.
- A few species classified as **vermin (Schedule V)**, may be hunted without restrictions.

**Answer: c) 1 and 3**

**Q6. Which one of the following is the national aquatic animal of India?**

---

- a) Saltwater crocodile
- b) Olive ridley turtle
- c) Gangetic dolphin**
- d) Gharial

**Q7. Which one of the following regions of India has a combination of mangrove forest, ever-green forest and deciduous forest?**

---

- a) North Coastal Andhra Pradesh
- b) South-West Bengal
- c) Southern Saurashtra
- d) Andaman and Nicobar Islands

**Explanation:**

- North Coastal Andhra Pradesh has deciduous and mangrove forests.
- South West Bengal has mangrove, semi-evergreen and moist deciduous.
- Southern Saurashtra has dry deciduous and tropical thorn.

**Answer: d) Andaman and Nicobar Islands**

**Q8. Which one of the following is associated with the issue of control and phasing out of the use of ozone-depleting substances?**

---

- a) Bretton Woods Conference
- b) Montreal Protocol
- c) Kyoto Protocol
- d) Nagoya Protocol

**Explanation:**

- Bretton Woods Conference established the International Bank for Reconstruction and Development (IBRD) and the International Monetary Fund (IMF).
- Montreal Protocol is an international treaty to protect the ozone layer by phasing out the production of ozone depleting substances. It is legally binding.
- Kyoto Protocol implemented the objective of the UNFCCC to fight global warming by reducing greenhouse gas concentrations in the atmosphere to "a level that would prevent dangerous anthropogenic interference with the climate system". It is binding on the parties.
- Nagoya Protocol is a supplementary agreement to the 1992 Convention on Biological Diversity (CBD) on "Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization".

**Answer: b)**

### **Q9. What is Rio+20 Conference, often mentioned in the news?**

---

- a) It is the United nations Conference on Sustainable Development
- b) It is a Ministerial Meeting of the World Trade Organization
- c) It is a Conference of the Inter-governmental Panel on Climate Change
- d) It is a Conference of the Member Countries of the Convention on Biological Diversity

**Explanation:**

- Earth Summit 1992 is also known as The **United Nations Conference on Environment and Development (UNCED)**.
- As a follow-up, the **World Summit on Sustainable Development (Rio+10)** was held in 2002 in Johannesburg, South Africa.
- In 2012, the **United Nations Conference on Sustainable Development** was also held in Rio, and is also commonly called **Rio+20** or Rio Earth Summit 2012.

**Answer: a) United nations Conference on Sustainable Development**

### **Q10. Which of the following statements regarding 'Green Climate Fund' is/are correct?**

---

- 1) It is intended to assist the developing countries in adaptation and mitigation practices to counter climate change.
- 2) It is founded under the aegis of UNEP, OECD, Asian Development Bank and World Bank

Select the correct answer using the code given below.

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

### **Green Climate Fund**

- The Green Climate Fund (GCF) is a fund within the framework of the UNFCCC.
- It is a mechanism to redistribute money from the developed to the developing world.
- GCF will help developing countries financially in adapting mitigation practices to counter climate change.

**Answer: a) 1 only**

### **Q11. Which one of the following National Parks has a climate that varies from tropical to sub-tropical, temperate and arctic?**

---

- a) Khangchendzonga National park
- b) Nandadevi National Park
- c) Neora Valley National Park
- d) Namdapha National park

### **Explanation:**

- Khangchendzonga National park and Nandadevi National Park lies in Greater Himalayas (Conifer to Alpine climate)
- Neora Valley National Park lies near Darjeeling (Shiwaliks) [Sub-tropical broad leaved hill and Sub-tropical moist hill (pine) forests].
- Namdapha National park lies in Purvanchal hills in Arunachal Pradesh.
- In the Namdapha National Park, located in Arunachal Pradesh, the climate varies from tropical to subtropical, temperate and arctic. It is tropical and subtropical in the southern region while it is of arctic type in the northern part of the park.

**Answer: d) Namdapha National park**

### **Q12. 'BioCarbon Fund Initiative for Sustain-able Forest Landscapes' is managed by the**

---

- a) Asian Development Bank
- b) International Monetary Fund

- c) United Nations Environment Programme
- d) World Bank

**Explanation:**

- The BioCarbon Fund Initiative for **Sustainable Forest Landscapes (ISFL)** is a multilateral fund, supported by donor governments and managed by the **World Bank**.

Answer: d) World Bank

---

**Q13. The Genetic Engineering Appraisal Committee is constituted under the**

- a) Food Safety and Standards Act, 2006
- b) Geographical Indications of Goods (Registration and Protection) Act, 1999
- c) Environment (Protection) Act, 1986
- d) Wildlife (Protection) Act, 1972

**Explanation:**

- The Genetic Engineering Appraisal Committee (GEAC) is the apex body constituted in the Ministry of Environment and Forests under 'Rules for Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically Engineered Organisms or Cells 1989', under the Environment Protection Act, 1986.

Answer: c)

---

**Q14. 'Basel III Accord' or simply 'Basel III', often seen in the news, seeks to**

- a) develop national strategies for the conservation and sustainable use of biological diversity
- b) improve banking sector's ability to deal with financial and economic stress and improve risk management
- c) reduce the greenhouse gas emissions but places a heavier burden on developed countries
- d) transfer technology from developed Countries to poor countries to enable them to replace the use of chlorofluorocarbons in refrigeration with harmless chemicals
- Basel III accord is about improving banking by dealing with financial and economic stress.

Answer: b) improve banking sector's ability

---

**Q15. In a particular region in India, the local people train the roots of living tree into robust bridges across the streams. As the time passes these bridges become stronger. These unique 'Living Root Bridges' are found in**

---

- a) Meghalaya
- b) Himachal Pradesh
- c) Jharkhand
- d) Tamil Nadu

**Q16. Consider the following States:**

---

- 1) Arunachal Pradesh
- 2) Himachal Pradesh
- 3) Mizoram

In which of the following states do "Tropical Wet Evergreen Forests" occur?

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

**Explanation:**

- Himachal Pradesh has many varieties of forests but not wet evergreen.
- Purvanchal hills start at the syntaxial bend (Namcha Barwa) which is in Arunachal Pradesh. Wet Evergreen forests are scattered all along the Purvanchal hills.

**Answer: c) 1 and 3 only**

**Q17. With reference to 'Forest Carbon Partnership Facility', which of the following statements is/are correct?**

---

- 1) it is global partnership of governments, businesses, civil society and indigenous peoples
- 2) it provides financial aid to universities, individual scientists and institutions involved in scientific forestry research to develop eco-friendly and climate adaptation technologies for sustainable forest management
- 3) It assists the countries in their 'REDD+ (Reducing Emission from Deforestation and Forest Degradation+)' efforts by providing them with financial and technical assistance.

Select the correct answer using the code given below

- a) 1 only

- b) 2 and 3 only
  - c) 1 and 3 only
  - d) 1, 2 and 3
- It provides financial incentives to countries (only) in their REDD+ efforts.

**Answer: c) 1 and 3 only**

**Q18. With reference to an organization known as 'Birdlife International' which of the following statements is/are correct?**

---

- 1) It is a Global Partnership of Conservation Organizations.
- 2) The concept of 'biodiversity hotspots' originated from this organization.
- 3) It identifies the sites known/referred to as 'Important Bird and Biodiversity Areas'.

Select the correct answer using the code given below.

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

**Answer: c) 1 and 3 only**

**Q19. In India, in which one of the following types of forests is teak a dominant tree species?**

---

- a) Tropical moist deciduous forest
- b) Tropical rain forest
- c) Tropical thorn scrub forest
- d) Temperate forest with grasslands

**Answer: a)**

**Q20. Which one of the following is the best description of the term "ecosystem"?**

---

- a) A community of organisms interacting with one another
- b) That part of the Earth which is inhabited by living organisms
- c) A community of organisms together with the environment in which they live.
- d) The flora and fauna of a geographical area.

**Answer: c)**

**Explanation**

- a) A community of organisms interacting with one another – no specific term.
- b) That part of the Earth which is inhabited by living organisms – biosphere.
- c) A community of organisms together with the environment in which they live – ecosystem.
- d) The flora and fauna of a geographical area – biodiversity.

**Q21. With reference to bio-toilets used by the Indian Railways, consider the following statements:**

---

- 1. The decomposition of human waste in the bio-toilets is initiated by a fungal inoculum.
- 2. Ammonia and water vapour are the only end products in this decomposition which are released into 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
- Decomposition of human waste in bio-toilets is carried out by anaerobic bacteria.
  - The final waste is CO<sub>2</sub> and CH<sub>4</sub>. [Explained in detail under "Water Pollution"]

**Answer: d) Neither 1 nor 2**

**Q22. With reference to the Indian Renewable Energy Development Agency Limited (IREDA), which of the following statements is/are correct?**

---

- 1) It is a Public Limited Government Company.
- 2) It is a Non – Banking Financial Company.

Select the correct answer using the code given below.

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

- IREDA is Public Limited Government Company established as a **Non-Banking Financial Institution** in 1987 engaged in promoting, developing and extending financial assistance for setting up projects relating to new and renewable sources of energy and energy efficiency/conservation with the motto: "**Energy For Ever**".

Answer: c) Both

## 1.5 2016

### Q1. Consider the following pairs (2016):

Terms sometimes seen in the news	Their origin
1) Annex-I Countries	Cartagena Protocol
2) Certified Emissions Reductions	Nagoya Protocol
3) Clean Development Mechanism	Kyoto Protocol

Which of the pairs given above is/are correctly matched?

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

Explanation:

- Annex-I Countries, Clean Development Mechanism, Certified Emission Reductions (CERs) or carbon credits  
→ Kyoto Protocol.

**Answer: c) 3 only**

### Q2. With reference to an initiative called 'The Economics of Ecosystems and Biodiversity (TEEB)', which of the following statements is/are correct?

- 1) It is an initiative hosted by UNEP, IMF and World Economic Forum.
- 2) It is a global initiative that focuses on drawing attention to the economic benefits of biodiversity.
- 3) It presents an approach that can help decision-makers recognize, demonstrate and capture the value of eco-systems and biodiversity.

Select the correct answer using the code given below.



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

### **Q3. Which of the following statements is/are correct?**

---

Proper design and effective implementation of UN-REDD+ Programme can significantly contribute to

- 1) protection of biodiversity
- 2) resilience of forest ecosystems
- 3) poverty reduction

Select the correct answer using the code given below.

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

Explanation:

- Poverty reduction is nowhere mentioned in the REDD+. But the question is not asking for specific details "UN-REDD+ Programme **can significantly contribute to?**"
- Conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries will certainly contribute to employment opportunities and help in poverty reduction.
- <http://www.fao.org/redd/en/> also says the same "REDD+ can also contribute to achieving other SDGs – including those which address poverty reduction, health and well-being, hunger alleviation, and improving institutions"

**Answer: a) 1, 2 and 3 (UPSC Official Key)**

### **Q4. What is '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

Answer: a)

**Q5. With reference to 'Agenda 21', sometimes seen in the news, consider the following statements:**

---

- 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
- Agenda 21 was an outcome of the **Earth Summit 1992**

**Answer: a)**

**Q6. Consider the following statements:**

---

- 1) The International Solar Alliance was launched at the United Nations Climate Change Conference in 2015.
- 2) The Alliance includes all the member countries of the United Nations.

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
- The **International Solar Alliance (ISA)** is an alliance was initiated by **India**.
  - The framework agreement opened for signatures in Marrakech in 2016, and 122 countries have joined.

**Answer: a) 1 only**

**Q7. With reference to the Agreement at the UNFCCC Meeting in Paris in 2015, which of the following statements is/are correct?**

---

- 1) The Agreement was signed by all the member countries of the UN and it will go into effect in 2017.
- 2) The Agreement aims to limit the greenhouse gas emissions so that the rise in average global temperature by the end of this century does not exceed 2 °C or even 1.5 °C above pre-industrial levels.
- 3) Developed countries acknowledged their historical responsibility in global warming and committed to donate \$ 1000 billion a year from 2020 to help developing countries to cope with climate change.

Select the correct answer using the code given below.

- a) 1 and 3 only
  - b) 2 only
  - c) 2 and 3 only
  - d) 1, 2 and 3
- It entered into force in November **2016**.
  - It is not \$1000 billion a year, it is \$100 billion a year.

**Answer: b) 2 only**

**Q8. Consider the following statements:**

---

- 1) The Sustainable Development Goals were first proposed in 1972 by a global think tank called the 'Club of Rome'.
- 2) The Sustainable Development Goals have to be achieved by 2030.

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
- The Sustainable Development Goals (SDGs) replaced the MDGs in 2016.
  - The Sustainable Development Goals (SDGs) are a collection of 17 global goals, and their 169 targets, set by the United Nations General Assembly in **2015** for the year **2030** (UNGA resolution "2030 Agenda").

**Answer: b) 2 only**

**Q9. The term 'Intended Nationally Determined Contributions' is sometimes seen in the news in the context of**

---

- a) pledges made by the European countries to rehabilitate refugees from the war-affected Middle East
  - b) plan of action outlined by the countries of the world to combat climate change
  - c) capital contributed by the member countries in the establishment of Asian Infrastructure Investment Bank
  - d) plan of action outlined by the countries of the world regarding Sustainable Development Goals
- During **Warsaw Summit 2013 (COP 19)**, countries agreed to publicly outline **what actions they intend to take under a global agreement well before the Paris Summit 2015**.
  - These country commitments are known as Intended Nationally Determined Contributions (INDCs).

**Answer: b)**

**Q10. What is/are the importance/importance of the 'United Nations Convention to Combat Desertification'?**

---

- 1) It aims to promote effective action through innovative national programs and supportive inter-national partnerships.
- 2) It has a special/particular focus on South Asia and North Africa regions, and its Secretariat facilitates the allocation of major portion of financial resources to these regions.
- 3) It is committed to bottom-up approach, encouraging the participation of local people in combating the desertification.

Select the correct answer using the code given below.

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

**Answer: c) 1 and 3 only**

**Q11. Which of the following best describes/describe the aim of 'Green India Mission' of the Government of India?**

- a) Incorporating environmental benefits and costs into the Union and State Budgets thereby implementing the 'green accounting'

- b) Launching the second green revolution to enhance agricultural output so as to ensure food security to one and all in the future
- c) Restoring and enhancing forest cover and responding to climate change by a combination of adaptation and mitigation measures

Select the correct answer using the code given below.

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

Answer: c) 3 only

#### **Q12. 'Net metering' is sometimes seen in the news in the context of promoting the**

---

- a) production and use of solar energy by the households/consumers
- b) use of piped natural gas in the kitchens of households
- c) installation of CNG kits in motor-cars
- d) installation of water meters in urban households
- Net Metering is billing mechanism for grid connected Home Rooftop Solar Installation where
  - ✓ The electricity generated by the solar panels is fed into the utility grid
  - ✓ Household draws electricity from the utility grid
- The household pays only for the difference between the energy units it consumes from the grid and the energy units fed into the grid. This is measured by a bi-directional meter called Net Meter.

**Answer: a)**

#### **Q13. On which of the following can you find the Bureau of Energy Efficiency Star Label?**

---

- a) Ceiling fans
- b) Electric geysers
- c) Tubular fluorescent lamps

Select the correct answer using the code given below.

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

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

Answer: d) all

**Q14. 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) Sulphur dioxide
- 5) Methane

Select the correct answer using the code given below.

- a) 1, 2 and 3 only
  - b) 2, 3 and 4 only
  - c) 1, 4 and 5 only
  - d) 1, 2, 3, 4 and 5
- The AQI will consider eight pollutants (**PM10, PM2.5, NO<sub>2</sub>, SO<sub>2</sub>, CO, O<sub>3</sub>, NH<sub>3</sub>, and Pb**).

**Answer: b) 2, 3 and 4 only**

**Q15. Which of the following are the key features of 'National Ganga River Basin Authority (NGRBA)'?**

---

- 1) River basin is the unit of planning and management.
- 2) It spearheads the river conservation efforts at the national level.
- 3) One of the Chief Ministers of the States through which the Ganga flows becomes the Chairman of NGRBA on rotation basis.

Select the correct answer using the code given Below.

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

**Answer: a) 1 and 2 only**

**Q16. 'Gadgil Committee Report' and 'Kasturirangan Committee Report', sometimes seen in the news, are related to**

---

- 1) constitutional reforms
- 2) Ganga Action Plan
- 3) linking of rivers
- 4) protection of Western Ghats**

**Q17. What is/are unique about 'Kharai camel', a breed found in India?**

---

- 1) It is capable of swimming up to three kilometres in seawater.
- 2) It survives by grazing on mangroves.
- 3) It lives in the wild and cannot be domesticated.

Select the correct answer using the code given below.

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

**Answer: a) 1 and 2 only**

**Q18. Recently, our scientists have discovered a new and distinct species of banana plant which attains a height of about 11 metres and has orange-coloured fruit pulp. In which part of India has it been discovered?**

---

- a) Andaman Islands**
- b) Anaimalai Forests
- c) Maikala Hills
- d) Tropical rain forests of northeast

**Not relevant for future**

**Q19. With reference to 'Red Sanders', sometimes seen in the news, consider the following statements:**

---

- 1) It is a tree species found in a part of South India.

- 2) It is one of the most important trees in the tropical rain forest areas of South India.

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

In Geography > Indian Geography > Natural vegetation of India > Dry Deciduous Forests

**Q20. Recently, for the first time in our country, which of the following States has declared a particular butterfly as 'State Butterfly'?**

---

- a) Arunachal Pradesh
- b) Himachal Pradesh
- c) Karnataka
- d) **Maharashtra**

Not relevant for future

**Q21. In which of the following regions of India are you most likely to come across the 'Great Indian Hornbill' in its natural habitat?**

---

- a) Sand deserts of northwest India
- b) Higher Himalayas of Jammu and Kashmir
- c) Salt marshes of western Gujarat
- d) **Western Ghats**

## **1.6 2017**

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**Q1. The term M-STRIPES' is sometimes seen in the news in the context of**

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- a) Captive breeding of Wild Fauna
- b) **Maintenance of Tiger Reserves**
- c) Indigenous Satellite Navigation System
- d) Security of National Highways

**Q2. Recently there was a proposal to translocate some of the lions from their natural habitat in Gujarat to which one of the following sites?**

---



- a) Corbett National Park
- b) Kuno Palpur Wildlife Sanctuary**
- c) Mudumalai Wildlife Sanctuary
- d) Sariska National Park

**Q3. In India, if a species of tortoise is declared protected under Schedule I of the Wildlife (Protection) Act, 1972, what does it imply?**

---

- a) It enjoys the same level of protection as the tiger.**
- b) It no longer exists in the wild, a few individuals are under captive protection; and now it is impossible to prevent its extinction.
- c) It is endemic to a particular region of India.
- d) Both (b) and (c) stated above are correct in this context.

**Q4. According to the Wildlife (Protection) Act, 1972, which of the following animals cannot be hunted by any person except under some provisions provided by law?**

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- 1) Gharial
- 2) Indian wild ass
- 3) Wild buffalo

Select the correct answer using the code given below:

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

**Q5. If you want to see gharials in their natural habitat, which one of the following is the best place to visit?**

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- a) Bhitarkanika Mangroves
- b) Chambal River**
- c) Pulicat Lake
- d) Deepor Beel

**Q6. From the ecological point of view, which one of the following assumes importance in being a good link between the Eastern Ghats and the Western Ghats?**

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- a) **Sathyamangalam Tiger Reserve**
- b) Nallamala Forest
- c) Nagarhole National Park
- d) Seshachalam Biosphere Reserve

**Q7. Consider the following statements in respect of Trade Related Analysis of Fauna and Flora in Commerce (TRAFFIC):**

---

- 1) TRAFFIC is a bureau under United Nations Environment Programme (UNEP).
- 2) The mission of TRAFFIC is to ensure that trade in wild plants and animals is not a threat to the conservation of nature.

Which of the above statements is/are correct?

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

**Q8. Due to some reasons, if there is a huge fall in the population of species of butterflies, what could be its likely consequence/consequences?**

---

- 1) Pollination of some plants could be adversely affected.
- 2) There could be a drastic increase in the fungal infections of some cultivated plants.
- 3) It could lead to a fall in the population of some species of wasps, spiders and birds.

Select the correct answer using the code given below:

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

**Q9. Biological Oxygen Demand (BOD) is a standard criterion for**

---

- a) Measuring oxygen levels in blood
- b) Computing oxygen levels in forest ecosystems
- c) Pollution assay in aquatic ecosystems**
- d) Assessing oxygen levels in high altitude regions

**Q10. In the context of solving pollution problems, what is/are the advantage/advantages of bioremediation technique?**

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- 1) It is a technique for cleaning up pollution by enhancing the same biodegradation process that occurs in nature.
- 2) Any contaminant with heavy metals such as cadmium and lead can be readily and completely treated by bioremediation using microorganisms.
- 3) Genetic engineering can be used to create microorganisms specifically designed for bioremediation.

Select the correct answer using the code given below:

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

**Q11. In the context of mitigating the impending global warming due to anthropogenic emissions of carbon dioxide, which of the following can be the potential sites for carbon sequestration?**

---

- 1) Abandoned and uneconomic coal seams
- 2) Depleted oil and gas reservoirs
- 3) Subterranean deep saline formations

Select the correct answer using the code given below:

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

**Q12. It is possible to produce algae based biofuels, but what is/are the likely limitation(s) of developing countries in promoting this industry?**

---

- 1) Production of algae based biofuels is possible in seas only and not on continents.
- 2) Setting up and engineering the algae based biofuel production requires high level of expertise/technology until the construction is completed.
- 3) Economically viable production necessitates the setting up of large scale facilities which may raise ecological and social concerns.

Select the correct answer using the code given below:

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

**Q13. With reference to 'Global Climate Change Alliance', which of the following statements is/are correct?**

---

- 1) It is an initiative of the European Union.
- 2) It provides technical and financial support to targeted developing countries to integrate climate change into their development policies and budgets.
- 3) It is coordinated by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

Select the correct answer using the code given below:

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

**Q14. Consider the following statements:**

---

- 1) Climate and Clean Air Coalition (CCAC) to reduce Short Lived Climate Pollutants is a unique initiative of G20 group of countries.
- 2) The CCAC focuses on methane, black carbon and hydrofluorocarbons.

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

## **1.7 2018**

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**Q1. Why is a plant called Prosopis juliflora often mentioned in news?**

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- a) Its extract is widely used in cosmetics.
- b) It tends to reduce the biodiversity in the area in which it grows.**
- c) Its extract is used in the synthesis of pesticides.
- d) None of the above

**Q2. Consider the following statements:**

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- 1) Most of the world's coral reefs are in tropical waters.
- 2) More than one-third of the world's coral reefs are located in the territories of Australia, Indonesia and Philippines.
- 3) Coral reefs host far more number of animal phyla than those hosted by tropical rainforests.

Which of the statements given above is/are correct?

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

**Q3. With reference to solar power production in India, consider the following statements:**

---

- 1) India is the third largest in the world in the manufacture of silicon wafers used in photovoltaic units.
- 2) The solar power tariffs are determined by the Solar Energy Corporation of India.

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**

**Q4. Which of the following statements best describes "carbon fertilization"?**

---

- a) Increased plant growth due to increased concentration of carbon dioxide in the atmosphere
- b) Increased temperature of Earth due to increased concentration of carbon dioxide in the atmosphere
- c) Increased acidity of oceans as a result of increased concentration of carbon dioxide in the atmosphere
- d) Adaptation of all living beings on Earth to the climate change brought about by the increased concentration of carbon dioxide in the atmosphere

**Answer: a)**

**Q5. The term “sixth mass extinction/sixth extinction” is often mentioned in the news in the context of the discussion of**

---

- a) Widespread monoculture practices in agriculture and large-scale commercial farming with indiscriminate use of chemicals in many parts of the world that may result in the loss of good native ecosystems.
- b) Fears of a possible collision of a meteorite with the Earth in the near future in the manner it happened 65 million years ago that caused the mass extinction of many species including those of dinosaurs. .
- c) Large scale cultivation of genetically modified crops in many parts of the world and promoting their cultivation in other parts of the world which may cause the disappearance of good native crop plants and the loss of food biodiversity.
- d) Mankind’s over-exploitation/misuse of natural resources, fragmentation/loss of natural habitats, destruction of ecosystems, pollution and global climate change.

**Answer: d)**

**Q6. Which of the following is/are the possible consequence/s of heavy sand mining in riverbeds? (2018)**

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- 1) Decreased salinity in the river
- 2) Pollution of groundwater
- 3) Lowering of the water-table

Select the correct answer using the code given below:

- a) 1 only
  - b) 2 and 3 only
  - c) 1 and 3 only
  - d) 1, 2 and 3
- Water accumulates in the (pores) space between soil particles and can stay in these spaces’ due to capillary action (capillary action explained in Indian Geography > Soils > Saline – Alkaline Soils).
  - Capillary action occurs because water is sticky and helps the water in pores overcome gravity.
  - It is because of the capillary action that water (water table) is available just a few feet below the top soil.
  - When the soil is removed the capillary action is lost and the water table falls.
  - In places of high water table (near marshlands, wetlands, river beds) when the top soil is removed the water table is exposed to sunlight and evaporation increases salinity.

- Also, soil acts as a filter and when it is removed the pollutants manage to reach the ground water more easily.

**Answer: b) 2 and 3 only**

**Q7. Which of the following has/have shrunk immensely/dried up in the recent past due to human activities?**

---

- 1) Aral Sea
- 2) Black Sea
- 3) Lake Baikal

Select the correct answer using the code given below:

- a) 1 only
  - b) 2 and 3
  - c) 2 only
  - d) 1 and 3
- Lake Baikal is the deepest lake and it is a large rift lake.
  - The major environment issue in Black Sea is eutrophication. (Geography > Oceanography > Marginal Seas).
  - The waters of rivers that fed Aral Sea are diverted for irrigational purposes. (Geography > Geomorphology > Important Lakes on earth)

Answer: a) 1 only

**Q8. How is the National Green Tribunal (NGT) different from the Central Pollution Control Board (CPCB)**

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- 1) The NGT has been established by an Act whereas the CPCB has been created by an executive order of the Government.
- 2) The NGT provides environmental justice and helps reduce the burden of litigation in the higher courts whereas the CPCB promotes cleanliness of streams and wells and aims to improve the quality of air in the country.

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

- CPCB is a statutory organisation under the MoEF.
- It was established under the Water (Prevention and Control of Pollution) Act, 1974.

Answer: b) 2 only

#### Q9. Consider the following statements:

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- 1) The definition of "Critical Wildlife Habitat" is incorporated in the Forest Rights Act, 2006.
- 2) For the first time in India, Baigas have been given Habitat Rights.
- 3) Union Ministry of Environment, Forest and Climate Change officially decides and declares Habitat Rights for Primitive and Vulnerable Tribal Groups in any part of India.

Which of the statements given above is/are correct?

- a) 1 and 2 only
  - b) 2 and 3 only
  - c) 3 only
  - d) 1, 2 and 3
- 2016: **Baiga tribe** (living sal forests of Maikal Hills) in Madhya Pradesh is the [first to get habitat rights in India](#).
  - This is for the first time habitat rights have been given under the Forest Rights Act of 2006.
  - Baiga community is one of the **75 particularly vulnerable tribal groups**, or PVTGs, who are eligible to get habitat rights under FRA.
  - The definition of the **habitat rights** was incorporated through an amendment in the FRA in 2012.
  - As per the amendment, the district level committee shall ensure that all PVTGs receive habitat rights, in consultation with these groups, after filing claims before the gram sabha.
  - It is MoTA that decides habitat rights.

Answer: 1 and 2 only.

#### Q10. In which one of the following States is Pakhui Wildlife Sanctuary located?

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- a) Arunachal Pradesh
- b) Manipur
- c) Meghalaya
- d) Nagaland



**Q11. The Partnership for Action on Green Economy (PAGE), a UN mechanism to assist countries transition towards greener and more inclusive economies, emerged at**

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- a) The Earth Summit on Sustainable Development 2002, Johannesburg
- b) The United Nations Conference on Sustainable Development 2012, Rio de Janeiro
- c) The United Nations Framework Convention on Climate Change 2015, Paris
- d) The World Sustainable Development Summit 2016, New Delhi

Answer: b) Rio+20

**Q12. Momentum for Change: Climate Neutral Now” is an initiative launched by**

---

- a) The Intergovernmental Panel on Climate Change
- b) The UNEP Secretariat
- c) The UNFCCC Secretariat
- d) The World Meteorological Organisation

Answer: c) UNFCCC

**Q13. With reference to the ‘Global Alliance for Climate Smart Agriculture (GACSA)’, which of the following statements is/are correct?**

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- 1) GACSA is an outcome of the Climate Summit held in Paris in 2015.
- 2) Membership of GACSA does not create any binding obligations.
- 3) India was instrumental in the creation of GACSA.

Select the correct answer using the code given

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

Answer: 2) only

**Q14. With reference to the circumstances in Indian agriculture, the concept of “Conservation Agriculture” assumes significance. Which of the following fall under the Conservation Agriculture?**

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- 1) Avoiding the monoculture practices

- 2) Adopting minimum tillage
- 3) Avoiding the cultivation of plantation crops
- 4) Using crop residues to cover soil surface
- 5) Adopting spatial and temporal crop sequencing/crop rotations

Select the correct answer using the code given below:

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

**Answer: c) 2, 4 and 5**

**Q15. With reference to organic farming in India, consider the following statements:**

---

- 1) The National Programme for Organic Production' (NPOP) is operated under the guidelines and directions of the Union Ministry of Rural Development.
- 2) The Agricultural and Processed Food Products Export Development Authority' (APEDA) functions as the Secretariat for the implementation of NPOP.
- 3) Sikkim has become India's first fully organic State.

Which of the statements given above is/are correct?

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

**Answer: b) 2 and 3 only**

**Q.16 With reference to agricultural soils, consider the following statements:**

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- 1) A high content of organic matter in soil drastically reduces its water holding capacity.
- 2) Soil does not play any role in the Sulphur cycle.
- 3) Irrigation over a period of time can contribute to the salinization of some agricultural lands.

Which of the statements given above is/are correct?

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

Answer: b) 3 only