

QB365

Important Questions - Biodiversity and Conservation

12th Standard CBSE

Biology

Reg.No. :

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Time : 01:00:00 Hrs

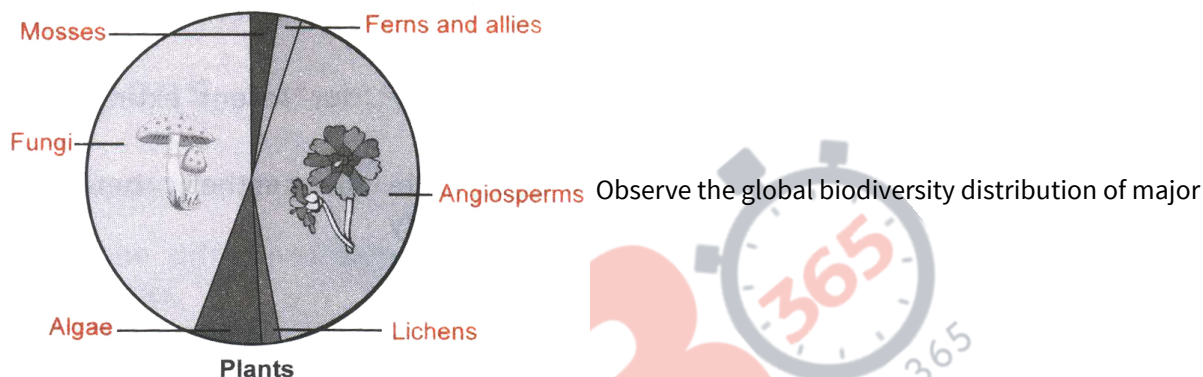
Total Marks : 50

**Section - A**

- 1) In 1984, the Bhopal gas tragedy took place because methyl isocyanate 1  
(a) Reacted with ammonia (b) Reacted with CO<sub>2</sub> (c) Reacted with water (d) Reacted with DDT
- 2) A lake with an inflow of domestic sewage rich in organic waste may result in 1  
(a) Drying of the lake very soon due to algal bloom  
(b) An increased production of fish due to lot of nutrients (c) Death of fish due to lack of oxygen  
(d) Increased population of aquatic food web organisms.
- 3) Bhopal gas tragedy 1984 was caused by the leakage of gas\_\_\_ 1  
(a) Hydrogen cyanide (b) Ammonia (c) 2, 4-Dichlorophenoxy acetic acid (d) Methyl isocyanate
- 4) The term 'Bio-magnification' refers to the 1  
(a) Growth of organisms due to food consumption (b) Increase in population size  
(c) Blowing up of environmental issues by man  
(d) Increase in conc. of non-degradable pollutants as they pass through food chain.
- 5) Identify the correct matched pair 1  
(a) Basal convention : Biodiversity conservation (b) Kyoto protocol : Climatic change  
(c) Montreal protocol : Global warming (d) Ramsar convention : Ground water pollution
- 6) Which one of the following statements pertaining to pollutants is correct? 1  
(a) DDT is a non-biodegradable pollutant (b) excess fluoride in drinking water causes osteoporosis.  
(c) excess cadmium in drinking water causes black foot disease.  
(d) methyl mercury in water may cause 'Itai Itai' disease.
- 7) Which of the following is secondary pollutant? 1  
(a) NO (b) NO<sub>2</sub> (c) SO<sub>2</sub> (d) PAN
- 8) Which is always present in photochemical smog? 1  
(a) ozone (b) CO<sub>2</sub> (c) SO<sub>2</sub> (d) CH<sub>4</sub>
- 9) The Montreal protocol refers to 1  
(a) persistent organic pollutants (b) global warming and climatic change  
(c) substances that deplete the ozone layer (d) biosafety of genetically modified organisms
- 10) In a coal fired power plant electrostatic precipitators are installed to control emission of 1  
(a) NO<sub>x</sub> (b) SPM (c) CO (d) SO<sub>2</sub>

### Section - B

- 11) Alien species are a threat to native species. Justify taking examples of an animal and a plant alien species. 2
- 12) Justify with the help of an example where a deliberate attempt by humans has led to the extinction of a particular species. 2
- 13) In the biosphere, immense biological diversity exist at all levels of biological organisation. Explain any two levels of biodiversity. 2
- 14) Can you think of a situation where we deliberately want to make a species extinct? How would you justify it? 2
- 15) What is Ramsar convention? How was it called previously? 2
- 16) .15 2



plant taxa in the above diagram and answer the questions that follow. (a) Which group of plants are the most endangered? (b) Why are mosses/ferns so few? Give reason. (c) How do fungi that are heterotrophs sustain themselves as a large population? (d) Which group of plants is most advanced and which one is most primitive?

- 17) Why are the conventional methods not suitable for the assessment of biodiversity of bacteria? 2
- 18) Depict with the help of sample sketches the representation of global biodiversity of major taxa of plants, invertebrates and vertebrates. 2
- 19) Name a few pollutants added to air by nature. 2
- 20) Match the items given in column I with items (one or more) given in column II. 2

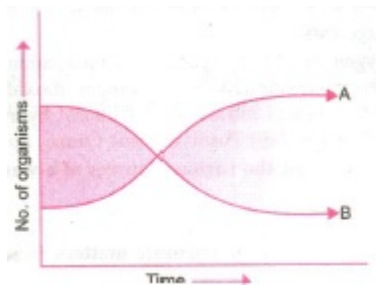
Column I	Column II
(i) Biodegradable pollutants	(a) D,D.T.
(ii) Non-biodegradable pollutants	(b) PAN
(iii) Secondary pollutants	(c) Low temperature
(iv) Photochemical smog	(d) Organic wastes (Sewage)
(v) Classical smog	(e) High temperature
	(f) Ozon
	(g) Cadmium

### Section - C

- 21) What is meant by environmental pollution? 5

22) (a) The graph below represents the growth patterns of types of aquatic organisms over a brief period of time in a water body surrounded by an agricultural land extensively supplied with fertilizers. Identify what would represent (i) A and (ii) B.

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23) Explain briefly the 'rivet popper hypothesis' of Paul Ehrlich.

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24) Explain effects of habitat fragmentation on biodiversity.

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**Section - A**

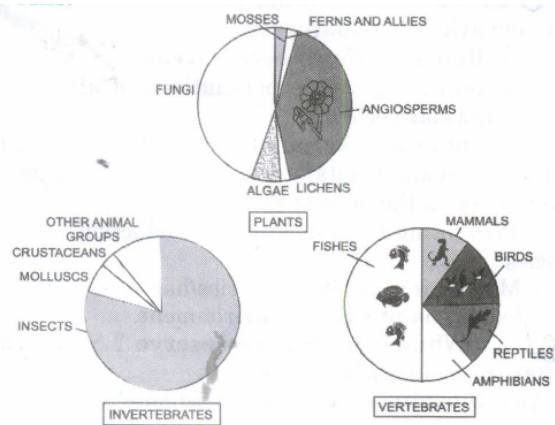
- 1) (c) Reacted with water 1
- 2) (c) Death of fish due to lack of oxygen 1
- 3) (d) Methyl isocyanate 1
- 4) (d) Increase in conc. of non-degradable pollutants as they pass through food chain. 1
- 5) (b) Kyoto protocol : Climatic change 1
- 6) (a) DDT is a non-biodegradable pollutant 1
- 7) (d) PAN 1
- 8) (c) SO<sub>2</sub> 1
- 9) (c) substances that deplete the ozone layer 1
- 10) (b) SPM 1

**Section - B**

- 11) 2
  - The introduction of Nile perch into Lake Victoria led to the extinction of more than 200 species of cichlid fish in that lake.
  - Introduction of African catfish *Clarias qariepinus* for aquaculture poses a threat to the indigenous catfishes in Indian rivers.
  - Carrot grass (*Parthenium*) and Lantana introduced into our country have become invasive and caused environmental damage; they pose a threat to the native species of plants in our forests.

- 12) 2
- Over-exploitation of natural resources or overhunting of animals has led to extinction of Steller's sea cow and passenger pigeon.
  - Introduction of the Nile perch into Lake Victoria (East Africa) led to the extinction of more than 200 species of cichlid fish from the lake.
  - Illegal introduction of the African catfish *Clarias variegatus* for aquaculture purposes is posing a threat to indigenous catfishes.
- 13) 2
- (i) Genetic diversity refers to the diversity, of genes within a species, e.g. there are more than 50,000 genetically different strains of rice in India.
  - (ii) Species diversity refers to the number of different species within a given region, e.g. Western Ghats have a greater amphibian species diversity than Eastern Ghats.
  - (iii) Ecological diversity refers to variation of habitats, community types and abiotic environments present in a given area.
    - India has a greater ecosystem or ecological diversity than Scandinavia.
- 14) 2
- A harmful organism, that is harmful for one/more populations/species, can be made extinct; the food chain should not be affected. For example, the virus causing small pox has been controlled world over.
- 15) 2
- Ramsar Convention is a global environmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It was called convention on wetlands of international importance.
- 16) 2
- (a) Ferns and their allies.
  - (b) Mosses and ferns grow in shady and humid places or wet places and need water for fertilisation; with high temperature and dry conditions, only a few of them survive.
  - (c) Fungi can live as saprotrophs or parasites; as saprotrophs, they depend on only organic matter and hence survive in any environment.
    - They produce a number of thick walled spores, which can withstand the unfavourable conditions and germinate when conditions become favourable.
  - (d) Angiosperms are the most advanced; algae are the most primitive.
- 17) 2
- Many bacteria cannot be cultured under normal conditions in vitro, which creates a problem in studying their morphological and biochemical characteristics. Morphology and biochemistry along with some other characteristics are used for the assessment of biodiversity of bacteria. Thus, conventional methods are not suitable for the assessment of biodiversity of bacteria.

18)



2

19)

Gases and ashes from volcanic eruptions; gases from forest fires and decomposition; dust from storms; pollen, spores, cysts, bacteria from living organisms

2

20) (i) d (ii) a, g (iii) b, f (iv) e (v) c

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### Section - C

21)

Environmental pollution may be defined as an undesirable change in the physical, chemical or biological aspects of environment which makes it harmful for humans, for other living organisms, and for cultural assets.

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22) (a) (i) A = Dissolved Oxygen (ii) B=Biochemical oxygen demand(BOD)

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23)

Ecologist **Paul Ehrlich** gave '**rivet popper hypothesis**' to understand the contribution of the species richness. He compared each species with rivet in the body of an airplane. (i) This hypothesis explain that ecosystem to be an airplane and the species to be the rivets joining all parts together. (ii) If every passenger traveling in the airplane start taking rivets home(causing a species to become extinct), initially it may not affect flight safety (proper functioning of ecosystem), but over a period of time the plane become weak and dangerous (Species become endangered and then extinct).

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24)

**Effects of habitat fragmentation on Biodiversity.** 1.Fragmentation creates barriers that limit the potential of species to disperse and colonise new areas. 2. Species get divided into smaller populations which are unable to sustain. 3.Migratory birds lose their seasonal habitats. 4.It Increases edge areas thus making the species more vulnerable to predators as well as wind and fire. Thus there is loss of biodiversity because a large number of animals, e.g. elephant, lions, bears, and large cats require big territories to move around and live in. Likewise some birds reproduce successfully only in deep forests.

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