

**M.Sc. ZOOLOGY**  
**Second Semester**  
**ECOLOGY & ENVIRONMENTAL SCIENCE**  
**(MSZ – 203)**

**Duration: 3Hrs.**

**Full Marks: 70**

Part-A (Objective) =20  
Part-B (Descriptive) =50

**(PART-B: Descriptive)**

**Duration: 2 hrs. 40 mins.**

**Marks: 50**

**Answer any four from Question no. 2 to 8**  
**Question no. 1 is compulsory.**

1. Write short notes on: (2½×4=10)
  - a) Endangered Species
  - b) Environmental Impact Assessment
  - c) Eutrophication
  - d) Phytoremediation
2. How does the community function? Mention about the importance of primary producers, herbivores, predators and decomposers in an ecosystem and how the community maintains the energy flow and nutrient cycle. (2+4+2+2=10)
3. What is an ecosystem? Discuss the salient features of various terrestrial ecosystems. (2+8=10)
4. Define “Biomedical Waste” with example? Classify biomedical waste in terms of their Risk and Sources. (4+3+3=10)
5. Explain Forest & Wildlife Conservation? Mention its importance with reference to Northeast India. (4+6=10)
6. What is acid rain? How acid rain occurs? Discuss the effects of acid rain on biota. (2+3+5=10)

7. What is character displacement? Discuss different types of character displacement with examples. (4+6=10)

8. Define Ecotone. State its importance. What are the controlling factors of Ecotone? (3+3+4=10)

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**Duration: 20 minutes**

**Marks – 20**

**(PART A - Objective Type)**

**I. Choose the correct answer:**

**1×20=20**

- Which of the following microbe is widely used for the purification of industrial wastes?  
a) *Trichoderma* species                      b) *Aspergillus niger*  
c) *Pseudomonas putida*                      d) All of these
- Mycorrhizal bioremediation means association of:  
a) bacteria and root                      b) Algae and bacteria  
c) fungus and root                      d) None of the above
- Which material accounts for the greatest percentage of the weight of solid waste?  
a) Metallic Waste                      b) Plastic Waste  
c) Paper Waste                      d) None of the above
- Mycoremediation is type of:  
a) Plant bioremediation                      b) Soil bioremediation  
c) Fungal bioremediation                      d) None of these
- Which is not true about incineration of solid waste?  
a) There are drastic reductions in the volume and weight of wastes.  
b) The ash can contain heavy metals and other toxic substances.  
c) The incinerators are relatively cheap to build.  
d) The incinerators can be built to generate electricity.
- Name the process in which a harmful chemical enters the food chain and gets concentrated at each level in the food chain.  
a) Concentration                      b) Bioaccumulation  
c) Biomagnification                      d) None of the above
- Exposure to toxins for a longer period:  
a) is always fatal                      b) is sometime fatal  
c) is never fatal                      d) All of these
- Toxins can mimic \_\_\_\_\_ in the body system and alters its function.  
a) Enzymes and substrates                      b) Mitochondrial activity  
c) Hormones and receptors                      d) None of the above
- Arctic haze was first observed in the year 1950 over the Arctic atmosphere and it is composed of:  
a) Sulphur and Nitrous oxide gas                      b) Solid - liquid compound Sulphates Soot  
c) Hexachlorobenzene (HCB)                      d) None of the Above
- Bioremediation technology using microorganisms was reportedly invented by:  
a) Aruna Muthukumar & Soha Farag                      b) J.M. Vargas  
c) George M. Robinson                      d) None of these
- Foul smelling compounds of eutrophication includes:  
a) Hydrogen sulphide, Thioalcohols and Ammonia  
b) Ammonium nitrate, Nitrous oxide and Magnesium sulphate  
c) Microcystin, anatoxin-*a* and geosmin                      c) Methylisoborneal, Sulphuric acid and Nitrogen oxide  
d) All of these
- Primary cause of eutrophication is excess loading of:  
a) Nitrogen & phosphorus                      b) Sulphur & calcium  
c) Silica & magnesium                      d) Manganese & boron
- One of the primary pollutants of acid rain is oxide of:  
a) Carbon                      b) Aluminum  
c) Sulphur                      d) Manganese
- Which one of the following is a microbial bioindicator?  
a) *Mortierella*                      b) *Anthoxanthum*  
c) *Festuca*                      d) *Daphni*
- Pyrite comprises the original pool of which of the following elements on earth?  
a) Nitrogen                      b) Phosphorus  
c) Sulphur                      d) Calcium
- Which of the following is not an ecological equivalence?  
a) Indian Rhino & African Rhino  
b) Australian Kangaroo & North American Bison  
c) Adjutant stork and great pied hornbill  
d) European toad & Indian Toad
- Name a toxicogenic cyanobacterium.
- In an Eutrophic system diatoms and chrysophytes are replaced by which two groups?

