DDE/II/BOT/X/13

M.Sc. Part-II Examination, 2012

BOTANY

PAPER – X

Full Marks : 100

Time : 4 hours

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

Write the answers to questions of each Group in separate books

Special Paper : (*Environmental Botany*)

GROUP – A

[*Marks* : 20]

Answer **all** questions

1. Answer any *five* of the following : 2 × 5

   (*a*) Mention two important chemical properties of soil.

(*b*) What are day neutral plants in respect of flowering ?

(*c*) How does seed viability differ from seed vigour ?

(*d*) Mention two major biochemical changes in plants which experience water deficit stress.

(*e*) What are stress tolerance and stress avoidance ?

(*f*) What is meant by lateritic soil ?

(*g*) Mention two potent internal factors which cause seed dormancy.

(*h*) What are stress inducible proteins ?

2. Give an outline classification of environmental stresses. Briefly write the effect of water deficit stress on metabolism of plants. Add a note on the mechanism for overcoming stress. 4 + 3 + 3

Or

Describe and diagrammatically represent different soil horizons with proper labelling. Why is the top soil agriculturally important ? 7 + 3

GROUP – B

[*Marks* : 20]

Answer any **two** questions of the following

3. (*a*) Mention the name of two microorganisms which are used in the preparation of biopesticide. State the mechanism of action of biopesticide that is used to kill Larvae of Lepidoptera.

(*b*) Write down the process of nitrogen fixation that takes place in cyanobacteria.

(*c*) What is Carrier ? State the significance of carrier in biofertilizer. (1 + 3) + 3 + (1 + 2)

4. (*a*) Define aerosol. Why humid atmosphere contain few microorganisms ?

(*b*) Write down in details on the municipal waste water treatment system.

(*c*) Why gram positive bacteria are more important than gram negative bacteria in the recovery of metals from ores ? 1 + 2 + 5 + 2

5. Write short notes on any *four* of the following : $2\frac{1}{2} \times 4$

(*i*) Environmental disease

(*ii*) Leg haemoglobin

(*iii*) Microbes in waste management

(*iv*) 'Bt' toxin

(*v*) Microbial clean up of oil spill

(*vi*) Air borne toxins.

GROUP – C

[*Marks* : 20]

Answer any **two** of the following

6. Why wildlife conservation is important ? Discuss man and animal conflicts in course of wildlife management. 4 + 6

7. What are the reasons of the loss of biodiversity ? Briefly explain the measures taken to conserve the biodiversity. 4 + 6

8. Write short notes on any *two* of the following : 5 × 2

(*i*) Desertification

(*ii*) Significance of Buffer and Core zone in National Park

(*iii*) Reclaimation of wasteland.

GROUP – D

[*Marks* : 40]

Answer **Q. No. 9** and any **three** from the rest

9. Write short notes on any *five* of the following : 2 × 5

(*i*) Food chain

(*ii*) Alpha and Beta diversity

(*iii*) Smog

(*iv*) Chapman cycle

(*v*) Sacred grove

(*vi*) IUCN

(*vii*) Deforestation

(*viii*) Earth summit.

10. Define Greenhouse effect. Name three green house gases. Discuss the impact of greenhouse effect on coastal environments. 2 + 3 + 5

11. Define Biomonitoring. Write the names of three plants used in biomonitoring. Discuss the advantages and disadvantages of bio-monitoring. 2 + 3 + 5

12. Differentiate primary and secondary pollutants. Name two major urban air pollutants. Discuss the effects of any of them on plants and human health. $2+1+3\frac{1}{2}+3\frac{1}{2}$

13. Define biodiversity. Write the threats to Indian biodiversity. Comment on economic utility of biodiversity. 2 + 4 + 4

14. Write short notes on any *two* of the following : 5 × 2

(*i*) CFCs

(*ii*) Grassland

(*iii*) Exotic species

(*iv*) Environmental hazards.
