

2012**M.Sc.****4th Semester Examination****MICROBIOLOGY****PAPER—MCB-401 (XIX)***Full Marks : 40**Time : 2 Hours*

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer any two questions from each group.

Group — A*[Marks : 20]*

Answer any two questions 10×2

1. Differentiate between (any five) : 2×5
- (a) Managed an unmanaged ecosystem. Give one example of each.
 - (b) Direct and indirect interaction.
 - (c) Commensalisms and mutualism.
 - (d) Grazing and detritus pathways of ecosystem.
 - (e) Biophage and saprophage.

(Turn Over)

- (f) Density dependant and density independant population regulation.
- (g) Exponential and logistic growth curves.
- (h) Source and sink population.

2. Define biodiversity. State the three hierarchic levels of biodiversity. What do you understand by biodiversity 'hot spot'? Name four biodiversity hot spots of India. How many megadiversity countries are there in the world?

$$2+2+2\frac{1}{2}+2\frac{1}{2}+1=10$$

3. Answer the following in brief (any five) : 2×5

- (a) What are heliophytes and sciophytes?
- (b) What is edge effect?
- (c) What happens to the quantity and quality of energy during its transfer in the food chain?
- (d) What is genetic drift?
- (e) What is agro ecosystem? Mention some of the typical features of agro ecosystem.
- (f) Distinguish between gross and net primary productivity.

Group — B

[Marks : 20]

Answer any *two* questions

10×2

4. (a) Briefly describe the Anderson six stage impaction sampler.
- (b) Mention the devices that are used to control bioaerosol.
- (c) Write a note on microorganism associated with outdoor environment.

4+3+3

5. (a) How toxic substances are magnified in the environment?
- (b) Briefly mention how bioaugmentation of microbes are done to removal of oil spill.
- (c) State the advantages of sewage fed fish culture.
- (d) What is extremophile?

3+3+3+1

6. Write notes on any *two* :

5+5

- (a) Secondary treatment of waste water ;
- (b) Removal of mercury from aquatic environment ;
- (c) Xenobiotic substance.