

M.Sc.

2017

4th Semester Examination

MICROBIOLOGY

PAPER—MCB-401

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 all questions of the following.

(Group-A)

(Marks : 20)

Answer any two questions

1. (a) The operation of an ecosystem is consistent with the laws of thermodynamics.—Explain.
(b) What is an ecotone? Explain with an example.

(Turn Over)

(c) Describe universal energy flow model with suitable diagram.

(d) What is inverted pyramid?

3+2+4+1

2. (a) "A hill top can not give shelter to two tigers"—explain the ecological relevance of the statement.

(b) Briefly describe several characteristics of a population.

(c) What do you mean by resistance and resilience?

(d) Distinguish between habitat and niche with appropriate explanation.

3+3+2+2

3. (a) Differ between parasitism and predation.

(b) Define biodiversity. Write a note on its environmental significance.

(c) Define extinct species and endangered species.

(d) What is mean by ex-situ and in-situ conservation?

(e) Write the name of the factors based on which the Biogeographic classification of India was made.

2+3+2+2+1

(Group-B)**(Marks : 20)**Answer any *two* questions

1. (a) Define extremophile.
(b) How the bacteria can adapt in polar region ? —Explain with molecular mechanism of adaptation.
(c) Give a brief idea on the bioremediation of metal pollutants by bacteria with suitable examples.
1+(2+3)+4

 2. Write brief notes on :
(a) Microbial treatment of sewage.
(b) Bioleaching of copper.
(c) Bioterrorism. 3+3+4

 3. (a) Role of xenobiotics in environmental pollution.
(b) Explain the degradation of TNT by micro-organisms under aerobic and anaerobic conditions.
(c) Write two microbial disease of fish with causitive agent.
(d) State the application of marine microbes. 2+4+2+2
-