2019

MSc

4th Semester Examination

MICROBIOLOGY

PAPER – MCB-401

(Theory)

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.

Group – A

20 Marks

Answer any ***TWO*** questions from the following: 10 X 2

1) What is Shelford's law of tolerance? Differentiate between grazing and detritus food chain. Explain the survivorship curve of populations with diagram. State two salient features of universal model of energy flow. (2+2+4+2)

2) What do you mean by biodiversity and who coin this term? Differentiate between K-and r- selected populations. What is density dependent and density independent regulation of population density? Write the basic differences between parasitism and predation. (2+3+(2+2)+1)

3) Write short note on : (any ***FOUR***) 2.5 X 4

i) Migration and its importance

ii) Trophic structure of ecosystem

iii) Energy partioning in food chain

iv) Effect of temperature on biome

v) Habitat VS niche

vi) Principles of conservation

Group – B

20 Marks

Answer any ***TWO*** questions : 10 X 2

1. a) Define extremophile. 2 + 4 + 4

   b) Elucidate in brief the molecular mechanism of cold tolerance in bacteria.

   c) State the mechanisms of heavy metal tolerance in bacteria.

2. a) Write down the bio-degradation pathway of TNT 4 + 4 +2

   b) State the characteristic features for bioleaching by micro organisms.

   c) Name two marine bacteria that can cause disease in fish

3. Write short notes (any ***FOUR***) 2.5 X 4

   a) Control of bio aerosol

   b) Bio-terrorism

   c) MEOR

   d) Entrophication

   e) Sewage Treatment

   f) Bioleaching of copper