2022

M.Sc.

4th Semester Examination

MICROBIOLOGY

PAPER—401

Full Marks : 50

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.

UNIT-401.1 ECOLOGY

Group - A

Answer any *two* questions. 2×2

1. How niche is differed from habitat?

2. 'Pyramid of energy is always upright' - why?

3. What is IUCN red list?

4. Define agroecosystem.

Group – B

Answer any *two* questions. 2×4

5. 'Most of the food chain is commonly limited to 3-5 trophic level' – why? Define food web. 3+1

6. Explain biosphere reserve with its zonation and example.

7. A population has individuals in different stages of life in the following pattern. Comment on the nature and stability of the population.

   Number of individuals in pre-reproductive stage = number of individuals in reproductive stage > number of individuals in post-reproductive stage

8. Differentiate between r- and k- selection.

Group – C

Answer any *one* question. 1×8

9. Explain the logistic growth pattern of a population with special emphasis on carrying capacity.

Differentiate between density dependent and density independent control of population regulation. 5+3

10. The blending zone of two different ecosystem have higher biodiversity than the two flanking ecosystem' – why? How species richness and species evenness is related to biodiversity? Define flagship species. 3+3+2

UNIT–401.2 ENVIRONMENTAL MICROBIOLOGY

Group – A

Answer any *two* questions. 2×2

1. What is MPN-index?

2. What do you understand by xenobiotic compounds?

3. What do you mean by Bioventing?

4. Define phytoremediation with proper examples.

Group – B

Answer any *two* questions. 2×4

5. Describe the bioleaching of Copper.

6. Write note on: biomagnification and its consequences.

7. Define Biofilters. What are the different types of biofilters. 2+2

8. Discuss the importance of Biosiurries in TNT degradation.

Group – C

Answer any *one* question. 1×8

9. Write a note on the marine microbial diversity with emphasis on its applications in environmental biotechnology. 8

10. What do you understand by MOER. Mention in details the complete procedure of MOER along with its advantages over the traditional methods. 2+6

[Internal Assessment – 10 Marks]

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