

2022

MICROBIOLOGY — HONOURS

Paper : CC-9

(Environmental Microbiology)

Full Marks : 50

The figures in the margin indicate full marks.

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

Answer **question no. 1** and **any three** questions from the rest.

1. Answer **any ten** questions : 2×10
- (a) What are symbiotic luminescent bacteria?
 - (b) Mention two advantages of membrane filter technique.
 - (c) What is mutualism? State its importance in agriculture.
 - (d) What is alternative nitrogenase? Where it is found?
 - (e) What is ammonification? Give example.
 - (f) What is false presumptive test?
 - (g) Write down the significance of completed test.
 - (h) Name two microbes involve in sulphur cycle.
 - (i) State the significance of C/N ratio in waste water management.
 - (j) Write down the field application of Ectomycorrhizae.
 - (k) What is hypertrophication?
 - (l) Why animals not able to digest cellulose in their body?
 - (m) Define 'Gaia hypothesis'.
 - (n) What do you understand by facultative parasite?
 - (o) What is bio-venting? Give a suitable example of bacteria use in this process.
2. What do you mean by solid waste management? Describe tertiary treatment process briefly. What is biomagnification and describe it with suitable diagram. Write the role of trickling filter in liquid waste management. 2+2+(1+2)+3
3. Differentiate mineralization and solubilization. Schematically describe cellulose degradation and name two cellulase producing microorganisms. Describe the role of microbes in biogeochemical cycle of nitrogen. 3+(2+1)+4

Please Turn Over

4. Define synergism and parasitism with suitable example. What is microbiomics? How microbes are distributed in human body? Briefly describe the dispersal of microbes in atmosphere. 2+2+3+3
5. Differentiate between : 2½×4
- (a) Symbiotic and non-symbiotic nitrogen fixation
 - (b) Adaptations of thermophiles and psychrophiles
 - (c) Fresh water and marine microflora
 - (d) Faecal and non-faecal coliform.
6. Write short notes on the following : 2½×4
- (a) Nematophagus fungi
 - (b) Microbial succession in fresh water sediment
 - (c) Microbes associated in degradation of oil spills
 - (d) Presumptive test.
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