

2021

MICROBIOLOGY — GENERAL

Paper : DSE-A-2

(Microbes in Environment)

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 four** questions from the rest.

1. Answer **any five** questions : 2×5
- (a) Write the name of an autotroph which oxidizes sulphur to sulphates, also write the equation which they perform.
 - (b) Write down two important functions of Humus.
 - (c) What are Xenobiotic compounds? Give an example.
 - (d) What are benthic microorganisms? Give an example.
 - (e) Define synergism. Give an example.
 - (f) What is microbial niche and microbial habitat?
 - (g) Why is soil considered as a microenvironment?
 - (h) What is composting?
 - (i) What are halophiles? Give an example.
 - (j) Mention any two criterias of potable water?
2. Write short notes on : 2½×4
- (a) Vermicomposting
 - (b) Psychrophiles
 - (c) Mycorrhizae
 - (d) Manganese cycle.
3. (a) What is coliliter or coli-index?
- (b) What are the advantages and disadvantages of Membrane Filter Technique for water potability determination?
- (c) How alkanes and aromatic hydrocarbons generally degrade?
- (d) Write down the names of two bacterium isolated from rumen. 2+(2+2)+3+1

Please Turn Over

4. (a) Write the names of two bacteria of intestinal origin used as indicator organisms other than coliforms.
(b) What are nuisance organisms? Give an example.
(c) Write down the names of the series of treatment processes carried out in Municipal waste water treatment.
(d) Draw a schematic diagram showing Nitrogen cycle.
(e) What is Iron bacteria? 2+2+2½+2+1½
5. (a) Give a schematic profile of soil.
(b) What type of microflora are present in marine habitats?
(c) What is the eutrophication of lake?
(d) What are extremophiles?
(e) What is rhizosphere? 3+2+2+2+1
6. (a) Briefly describe the Phosphorous cycle.
(b) What is nitrogenase? Describe the role of nitrogenase in nitrogen fixation.
(c) What is leg haemoglobin? 3+(2+3)+2
7. (a) Describe briefly the microbial degradation of cellulose, hemicellulose and lignin in the carbon cycle.
(b) What do you mean by bioremediation?
(c) Give two examples of pesticide degrading bacteria. (2+2+2)+2+2
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