2021

MICROBIOLOGY — GENERAL

Paper: SEC-A-1

(Biofertilizers and Biopesticides)

Full Marks: 80

The figures in the margin indicate full marks.

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

Question nos. 1 and 2 are compulsory and answer any four questions from the rest.

1. Answer any ten questions:

 2×10

- (a) Name two non-symbiotic nitrogen fixing bacteria.
- (b) Justify leghaemoglobin as oxygen scavenger.
- (c) What is endomycorrhizae?
- (d) Give two examples of phosphate solubilising microbes.
- (e) What are lichens?
- (f) Soil acts as good medium for microbial growth– Justify.
- (g) What is humus?
- (h) What is bioremediation?
- (i) What is PSM?
- (j) What is Biological control agent?
- (k) What is chemical insecticide?
- (l) What is the role of Azolla in rice cultivation?
- (m) What is antagonism?

2. Write short notes on (any four):

5×4

- (a) Siderophore
- (b) Mycorrhizae
- (c) Field application of Bt-toxin
- (d) Nitrogen fixation in cyanobacteria
- (e) Field application of VAM
- (f) Free living Azospirillum sp.
- (g) Nitrogenase enzyme.

Please Turn Over

| V(5th Sm.)-Microbiology-G/SEC-A-1/CBCS (2) | | | |
|---|-----|---|-------|
| 3. | (a) | Differentiate between chemical pesticide and biopesticide. | |
| | (b) | Write down the disadvantages of bioinsecticide. | |
| | (c) | Write down the application of virus as bioinsecticide. | 3+3+4 |
| 4. | (a) | What are the different types of mycorrhizae? | |
| | (b) | Write down the field application of ectomycorrhizae. | |
| | (c) | What do you mean by non-symbiotic nitrogen fixing bacteria? Give example. | 3+5+2 |
| 5. | (a) | What is Bt-cotton? | |
| | (b) | Write down the mode of action of Bt-toxin. | |
| | (c) | What is nif gene? | 3+5+2 |
| 6. | (a) | Write about symbiotic nitrogen fixation by Rhizobium sp. | |
| | (b) | Why biofertilizers are preferred over chemical fertilizers? | |
| | (c) | Discuss the field application of Azotobacter sp. | 4+3+3 |
| 7. | (a) | Discuss the isolation and characteristics of Frankia sp. | |
| | (b) | Write about the field application of PSM. | |
| | (c) | Give two examples of phosphate solubilizers. | 4+4+2 |
| 8. | (a) | What are the factors affecting nodulation in leguminous plant? | |
| | (b) | Discuss about Azolla-Anabaena association. | |
| | (c) | Name three microbial products influencing plant growth. | 4+3+3 |
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