

2019

B.Sc.

3rd Semester Examination

MICROBIOLOGY (Honours)

Paper - SEC 1-T

(BIOFERTILIZERS AND BIOPESTICIDES)

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

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

1. Answer any five questions : 2×5=10
- (a) Differ between symbiotic and free living nitrogen fixation with example. 2
- (b) How Cyanobacteria fix the nitrogen ? 2
- (c) Write the stoichiometric equation of nitrogen fixation. 2
- (d) Write two importance of phosphate solubilizing bacteria ? 2

[Turn Over]

- (e) Write the special features of diazotroph. 2
- (f) Write the name of one fungal and one viral biocontrol agent. 2
- (g) Differ between different types of Mycorrhizae. 2
- (h) Write four advantages of biofertilizer. 2
2. Answer any *four* questions : 5×4=20
- (a) Write in brief about the uses of *Bacillus thuringiensis* as biocontrol agent. 5
- (b) How VAM and 'Azolla-Anabaena' can be applied in field ? 2½+2½
- (c) Write the process of isolation of phosphate solubilizing microorganisms. 5
- (d) In which respects *Azospirillum* considered as biofertilizer ? 5
- (e) Write about the association specificity of *Rhizobium* sp. 5
- (f) Write the disadvantages of using biofertilizer. 5

3. Answer any *one* question :

10×1=10

(a) Write short note on :

(i) Isolation of *Rhizobium*.

(ii) Inoculum preparation of PSM

(iii) Mode of action of Bt-toxin

(iv) Advantages of biopesticides. $2\frac{1}{2} \times 4$

(b) What is crop response against *Anabaena azollae* application ? State the symbiotic association of plant and VAM. What will be the ideal carrier for mass production of *Rhizobium* biofertilizer ?

3+6+1