

2024

BOTANY — HONOURS

Paper : SEC-2

(Biofertilizer and Biopesticides)

Full Marks : 75

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 six** questions in brief : 2×6
- (a) What is green manuring? Give one example.
 - (b) Name two phosphate solubilizing bacteria.
 - (c) Name two viruses used as insecticides.
 - (d) What is vermicomposting? Mention one species of earthworm used in vermicomposting.
 - (e) What is bio-gas slurry?
 - (f) Define starter culture.
 - (g) What is PGPR?
 - (h) Name two important properties of an ideal carrier material of *Rhizobium* sp.
 - (i) Write down two differences between ecto and endomycorrhiza.
2. Write short notes on (**any three**) :
- (a) Application of *Azolla* in rice cultivation. 5
 - (b) Distinguish between solid waste and agricultural waste. Mention suitable crops for green manuring. 3+2
 - (c) Mention two characteristic features of *Frankia*. Describe the isolation of *Frankia*. 2+3
 - (d) Field application of *Bacillus thuringiensis*. 5
 - (e) Role of mycorrhiza on plant growth and yield. 5
3. Answer **any four** questions :
- (a) Mention the systematic position of the genus *Azotobacter*. Write down the characteristic features of the genus. Describe the process of mass multiplication and maintenance of *Azotobacter*. 2+2+6+2
 - (b) Write a note on mass production of cyanobacterial biofertilizers. How can cyanobacteria increase soil fertility? Name two cyanobacteria used as biofertilizers. 6+4+2

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- (c) Give an account of different types of mycorrhizal association that you have studied mentioning the significance of each type of association. 12
 - (d) State the importance of *Bacillus thuringiensis* as biopesticide. Write a brief note on *Trichoderma* as biocontrol agent. 8+4
 - (e) Describe the mass multiplication of *Azospirillum* sp. Comment on the associative effects of it with different microorganisms, with reference to two carrier based inoculants. 5+5+2
 - (f) Classify nematophagous fungi on the basis of their mode of action. State the limitations of biopesticides. 8+4
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