

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5300

J

Unique Paper Code : 2164001002

Name of the Paper : Biofertilizers

Name of the Course : Botany-GE

Semester : II / IV

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **four** questions in all.
3. Question no. 1 is compulsory.
4. Attempt all parts of a question together.
5. Illustrate your answers with suitable diagrams wherever necessary.

1. (a) Define the following : (5×1=5)

- (i) Biological control
- (ii) Arbuscules
- (iii) Vermicomposting
- (iv) Nitrification
- (v) YEMA

- (b) Fill in the blanks : (5×1=15)

- (i) The digested waste excreted from earthworm is called _____ .
- (ii) AM fungus have been assigned to a new Phylum named _____ .
- (iii) Actinorrhizal symbiosis is a mutualistic relationship between certain non-leguminous plants and _____ .
- (iv) _____ is a waste treatment process that involves combustion of substances contained in waste materials.

P.T.O.

- (v) _____, a nitrogen fixing bacteria is closely associated with cereals and grasses.
- (c) True and False : (5×1=5)
- (i) Azotobacter is a non-symbiotic biofertilizer.
 - (ii) The bacteria responsible for biological nitrogen fixation are called diazotrophs
 - (iii) Vesicles act as a storage site for nutrients formed inside the root cortex.
 - (iv) Azolla is an aquatic fern.
 - (v) Dairy products, bones and fishes can be added for biocomposting.
2. Write short notes on the following (**any three**) : (3×5=15)
- (a) Phosphate solubilizing bacteria
 - (b) Organic farming
 - (c) Azolla in rice cultivation
 - (d) Stock culture
3. Attempt any **two** : (7.5×2=15)
- (i) Explain agricultural and industrial waste management emphasizing on various composting methods.
 - (ii) Give a detailed account of Nitrogen-fixing biofertilizers.
 - (iii) What are the advantages and disadvantages of using chemical fertilizers?
4. Attempt any **two** : (7.5×2=15)
- (i) What are carrier-based inoculants? Briefly discuss the properties of an ideal carrier material.
 - (ii) What is Green manuring? Write down the benefits of Green manuring.
 - (iii) With the help of a diagram describe the formation of a root nodule.
5. Briefly describe the different types of mycorrhizal association. Write down the role of mycorrhizae in growth and yield of crop plants. (15)