Roll No. .....

Total No. of Questions : 9] [Total No. of Printed Pages : 4

(2042)

UG (CBCS) IInd Year Annual Examination

2096

B.Sc. BOTANY

(Biofertilizers)

(SEC-I)

Paper : BOTA 203

Time : 3 Hours] **[Maximum Marks : 70**

Note :– Attempt *five* questions in all. Question No. **1** in Part-A is compulsory. Attempt *one* question each from Parts–B, C, D and E. Attempt all parts of a question together.

Part–A

(Compulsory Question)

1. (A) All parts are compulsory :

(i) Define Nitrification.

(ii) Biological nitrogen fixation is carried out by ..... enzyme.

(iii) Write name of any *two* phosphate mobilizing organisms.

(iv) Root nodule appears pink in colour due to ..... .

(v) Give an example of BGA symbiosis.

(vi) Write name of any *two* plants used as green manure.

(vii) What is Rhizosphere ?

(viii) What is VAM ?

(ix) How leghaemoglobin help in biological N_2 fixation ?

(x) What is Vermiculture ? 1×10=10

(B) Differentiate between the following :

(i) Sewage and Sludge

(ii) Ectomycorrhiza and Endomycorrhiza 2×2=4

Part–B

2. (a) Discuss the advantages and disadvantages of using biofertilizers over chemical fertilizers.

(b) Give an account of microbes used as biofertilizers. 7×2=14

Or

3. (a) What is *Frankia* ? Describe its host-micro symbiont relationship and write the method of isolation of *Frankia*.

(b) Write down the procedure for preparation of carrier based inoculants. 7×2=14

Part–C

4. (a) Write in detail about the isolation, mass multiplication and crop responses of *Azotobacter*.

(b) Write down the procedure for isolation and identification of phosphate solubilizing microorganisms. 7×2=14

Or

5. Write short notes on the following :

(a) **Biological nitrogen fixation**

(b) **Isolation of Rhizobium**

(c) **Symbiosis**

(d) **Nitrogenase** 3½×4=14

Part–D

6. (a) What is Endomycorrhiza ? Describe its isolation and methods of inoculum production.

   (b) What is *Azolla* ? Write about *Azolla* and *Anabaena azollae* association and its application in crop. 7×2=14

Or

7. (a) What is Green Manuring ? Write method and advantages of green manuring.

   (b) What are Cyanobacteria ? Discuss the role of blue green algae in agriculture. 7×2=14

Part–E

8. (a) Define Vermicompost. Describe the method of vermicomposting and also write the name the earthworm species used for vermicomposting.

   (b) Discuss recycling of biodegradable municipal wastes. 7×2=14

Or

9. Write short notes on the following :

   (a) **PGPR**

   (b) **Biocompost**

   (c) **Phosphate Solubilizing Organisms**

   (d) ***Azospirillum*** 3½×4=14