

**CARMEL COLLEGE OF ARTS, SCIENCE & COMMERCE FOR WOMEN,  
NUVEM – GOA.  
SEMESTER END EXAMINATION, JUNE 2022**

Semester: **VI of B.Sc.**

Subject: **BOTANY**

Course Title: **Biofertilizers**

Course Code: **BOD 104**

Total Marks: **60**

Date: **/06/2022**

Duration: **2 Hours**

Total No. of Pages: **01**

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**Instructions:** 1) *All questions are compulsory; however, internal choice is available.*  
2) *Figures to the right indicate maximum marks assigned to the question.*  
3) *Draw appropriate labelled diagrams wherever necessary.*

**Q. I.** Answer **any three** of the following: **(3 x 4 = 12)**

1. Elaborate on PGPR as biofertilizers and their mode of action.
2. Describe any two methods for identification of *Rhizobium*.
3. What is algalization technology?
4. Elaborate on phosphate solubilizing microbes and their mode of action.
5. List the functions of mycorrhizae helper bacteria.

**Q. II.** Answer **any three** of the following: **(3 x 4 = 12)**

- a. Describe the culture characteristics of *Frankia*.
- b. Elaborate on the diversity of cyanobacteria.
- c. Describe the method of isolating phosphate solubilizing microbes from field rhizosphere soil sample.
- d. Elaborate on ectomycorrhizae as biofertilizers.
- e. Define crop rotation and enlist its advantages.

**Q. III.** A. Explain the method of isolating *Rhizobium* from root nodules. **(6)**

**OR**

A. Describe the method of isolation of *Frankia* from root nodules. **(6)**

B. Discuss the benefits and limitations of biofertilizer usage. **(6)**

**Q. IV.** A. Explain the method of isolating BGA. Add a note on preparation of BGA starter culture. **(6)**

**OR**

A. List the steps in isolation of *Azospirillum* from roots. Add a note on its identification. **(6)**

B. Explain the role of mycorrhizae in forestry and agriculture. **(6)**

**Q. V.** A. Describe the method of mass cultivation of *Azolla*. **(6)**

**OR**

A. Discuss the field use of *Azotobacter* inoculants and its effect on crops. **(6)**

B. Explain the different types of manure. **(6)**

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