

U.G. 3rd Semester Examination - 2021
Molecular Biology & Biotechnology

[HONOURS]

Skill Enhancement Course (SEC)

Course Code : MBBT-H-SEC-1-101-T

(Biofertilizers)

[For Sripath Singh College Students]

Full Marks : 40

Time : 2 Hours

*The figures in the right-hand margin indicate marks.
Candidates are required to give their answers in their
own words as far as practicable.*

1. Answer any **five** of the following: $2 \times 5 = 10$
- a) What is the role of blue green algae as biofertilizer?
 - b) List the merits of biofertilizer over chemical fertilizer.
 - c) What is siderophore?
 - d) How will you produce green manure?
 - e) Can biofertilizers regulate the stress response in plants?
 - f) Explain the *Anabaena azollae* association.

- g) Name a few fungi, which can be used as biofertilizer.
 - h) What are the active components for plant growth, produced by PGPR?
2. Answer any **two** of the following: $5 \times 2 = 10$
- a) State the role of the bacteria as biofertilizer.
 - b) What are carrier-based inoculants? What is associative symbiotic biofertilizer? $2 \frac{1}{2} + 2 \frac{1}{2}$
 - c) How does VAM influence the phosphate nutrition of the soil? State the role of *Azospirillum* as biofertilizer. $2 \frac{1}{2} + 2 \frac{1}{2}$
 - d) Explain the process of production of vermicompost.
3. Answer any **two** of the following: $10 \times 2 = 20$
- a) Explain the method for isolation of nitrogen-fixing bacteria, phosphate- and potassium-solubilizing bacteria using commercially available media. Name the media used for the aforementioned purposes and throw some light upon the specific composition of these media. $6 + 4$
 - b) What are the processes involved in recycling of biodegradable municipal and agricultural wastes? Explain the methods for production of biocompost. $6 + 4$

[Turn over]

- c) Write down the steps involved in production of mass culture of *Rhizobium*? What are the probable crop responses to *Azotobacter* inoculum? What is Actinorrhizal symbiosis?

6+2+2

- d) Mention the steps involved in production of VAM inoculum by pot culture. What are the prospects and consequence of organic farming?

5+5
