(7 pages) **Reg. No. :** .....

Code No. : 10395 E **Sub. Code : ESMI 31/ FSMI 31**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2025.

Third Semester

Microbiology

Skill Enhancement Course — ORGANIC FARMING AND BIOFERTILISER TECHNOLOGY

(For those who joined in July 2023 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. _____ is not a component of organic farming.
   (a) Non-chemical weed control measures
   (b) Biological pest management
   (c) Farmyard manure
   (d) Synthetic pesticides

2. Select the following is an example of organic manure?
   (a) Farm yard manure
   (b) Compost
   (c) Pesticide
   (d) All of the above

3. The compost is composed of _____.
   (a) decomposing plant and food waste
   (b) organic manure
   (c) pesticide
   (d) both (a) and (b)

4. Identify the following methods uses earthworms during composting.
   (a) Vermicomposting
   (b) Vertical composting
   (c) Windrow composting
   (d) Burning

5. Trace the following is a aerobic nitrogen fixing bacteria.
   (a) *Azotobacter* (b) *Clostridium*
   (c) *Rhodospirilium* (d) Both (a) and (b)

6. _____ is used as a biofertilizer for legume crops.

(a) *Nostoc* (b) *Azospirilium*

(c) *Rhizobium* (d) *Azatobacter*

7. Cyanobacteria are used in agricultural crop improvement because of their ability to

(a) fix atmospheric nitrogen

(b) solubilize the insoluble phosphate

(c) fix carbon compounds

(d) both (a) and (b)

8. The symbiotic association between fungi and roots of higher plants is called

(a) *Lichen* (b) Mycorrhiza

(c) Biofertilizer (d) *Rhizobium*

9. Presence of which of the following elements is required For nitrogen fixation?

(a) Phosphorus (b) Carbon

(c) Silver (d) Oxygen

10. Select the following media is used for mass production of *Azotobacter*?

(a) Asbhy's agar

(b) Potato dextrose agar

(c) Endo agar

(d) YEMA medium

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Identify the environmental benefits of organic farming.

Or

(b) Describe the process of nutrient cycling with reference to phosphorus cycle.

12. (a) Interpret the importance of sustainable organic gardening in small spaces.

Or

(b) Indicate the nutritional content of vermicompost.

13. (a) Write the characteristic features of *Azospirillum*.

Or

(b) Predict the characteristic features of *Frankia* and its advantages.

14. (a) Evaluate the *Nostoc* as biofertilizer.

Or

(b) Difference between endomycorrhizal and ectomycorrhizal fungi.

15. (a) Select the ideal carrier materials for *Rhizobium*, biofertilizers.

Or

(b) Appraise the best marketing strategies for biofertilizers.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe the principles of organic farming.

Or

(b) Examine the important factors of soil formation.

17. (a) Trace the concept and benefits of organic Farming in urban area.

Or

(b) Illustrate the methods of composting with large scale levels.

18. (a) Collect the structural characteristics of *Azotobacter* and *Pseudomonas* and its advantages.

Or

(b) Predict the structural characteristics of *Bacillus* and *Rhizobium* and its advantages.

19. (a) Select the characteristic features of cyanobacterial biofertilizers and its advantages.

Or

(b) Explain the characteristic features of mycorrhizal biofertilizers and its advantages.

20. (a) Assess the mass cultivation process of *Azotobacter* and its application.

Or

(b) Summarize the procedure for mass production of Anabena and its application.
