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

Third Semester

Microbiology

Skill Enhancement Course – ORGANIC FARMING  
AND BIOFERTILIZER TECHNOLOGY

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the purpose of using biofertilizers in organic farming?
  - (a) To provide nutrients to plants
  - (b) To control pests and diseases
  - (c) To improve soil structure
  - (d) To reduce soil erosion

2. Which of the following is a type of biocontrol agent?
  - (a) Lady beetles
  - (b) Lacewings
  - (c) Parasitic wasps
  - (d) All of the above
3. Disadvantage of organic farming \_\_\_\_\_
  - (a) Higher production costs
  - (b) Lower crop yields
  - (c) Increased environmental pollution
  - (d) Reduced soil health
4. The RKVY (Rashtriya Krishi Vikas Yojana) scheme is designed to
  - (a) Reduce agricultural development.
  - (b) Achieve agricultural development through state-level planning.
  - (c) Promote deforestation for farming.
  - (d) Increase the use of harmful pesticides.

5. NPOP Full form
- (a) National Project on Organic Products
  - (b) National Programme for Organic Production
  - (c) Promote deforestation for farming.
  - (d) Natural Promotion of Organic Practices
6. Which soil amendment is used to reduce soil acidity \_\_\_\_\_
- (a) Gypsum
  - (b) Lime
  - (c) Urea
  - (d) Rock phosphate
7. What is the primary advantage of using Rhizobium as a biofertilizer?
- (a) Improved soil fertility
  - (b) Increased crop yields
  - (c) Reduced soil pollution
  - (d) Enhanced nitrogen fixation
8. \_\_\_\_\_ microorganism is commonly used in combination with Azotobacter for improved plant growth?
- (a) Bacillus
  - (b) Mycorrhiza
  - (c) Frankia
  - (d) Nostoc

9. Free living Nitrogen fixing \_\_\_\_\_ bacteria
- (a) Rhizobium
  - (b) Frankia
  - (c) Azotobacter
  - (d) all of the above
10. Ectomycorrhizae are most commonly associated with
- (a) Legumes
  - (b) Rice
  - (c) Trees
  - (d) Grasses
11. Which cyanobacterium is capable of fixing nitrogen in rice fields?
- (a) Rhizobium
  - (b) Anabaena
  - (c) Bacillus
  - (d) Aspergillus
12. Which enzyme helps in organic phosphate solubilization?
- (a) Amylase
  - (b) Phytase
  - (c) Nitrogenase
  - (d) Urease

13. The FCO (Fertilizer Control Order) primarily sets standards for:

- (a) Seed germination.
- (b) Biofertilizer quality
- (c) Pesticide efficacy
- (d) Irrigation practices.

14. The commonly used for seed treatment with biofertilizers \_\_\_\_\_

- (a) Soil application
- (b) Foliar spray
- (c) Slurry method
- (d) Direct injection into plants

15. Which challenge is commonly faced in marketing biofertilizers?

- (a) High microbial contamination
- (b) Poor awareness among farmers
- (c) High chemical composition
- (d) Instant effect on crops

PART B — (5 × 4 = 20 marks)

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

Each answer should not exceed 250 words.

16. (a) What are the applications of organic manures.

Or

(b) Add notes on vermicompost.

17. (a) What are the factors affecting ecological balances.

Or

(b) List out schemes are available for organic forming.

18. (a) Explain advantages of biofertilizers.

Or

(b) Write comments about Frankia.

19. (a) Give a brief account of ectomycorrhiza.

Or

(b) Briefly describe role of nostoc in biofertilizer.

20. (a) Write about marketing of biofertilizers

Or

(b) How many types, sterilization techniques used in biofertilizers Units.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

21. (a) Differentiate between organic and chemical farming.

Or

(b) Make a detailed notes on use of biocontrol agents.

22. (a) Write an essay on soil health management.

Or

(b) Explain in detail uses of NPOF and NHM.

23. (a) Describe in detail role of Bacillus as biofertilizers.

Or

(b) Write an account on functions and features of Azotobacter.

24. (a) summarize the mechanisms of phosphate mobilization.

Or

(b) Give the general characteristics of symbiotic nitrogen fixation.

25. (a) List out and explain factors influencing the efficacy of biofertilizers.

Or

(b) Write an essay on storage and shelf life quality of biofertilizers.