

Code No. : 6513

Sub. Code : ZMBM 33

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Third Semester

Microbiology — Core

ENVIRONMENTAL AND AGRICULTURAL
MICROBIOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following organisms are known to grow on the surfaces of freshly exposed rocks?
 - (a) Green algae
 - (b) Diatoms
 - (c) Cyanobacteria
 - (d) Yeast
2. In carbon cycle flow of energy is _____
 - (a) Bidirectional
 - (b) Cyclic
 - (c) Linear
 - (d) Irreversible
8. Which of the following statements is not related to mycorrhiza?
 - (a) Many members of genus Glomus forms mycorrhiza
 - (b) Fungal symbiont absorbs nitrogen
 - (c) Plants show resistance to root-borne pathogens
 - (d) There is an over all increase in plant growth and development
9. Late blight of potato caused by _____
 - (a) *Ustilago zeae*
 - (b) *Pseudomonas syringae*
 - (c) *Phytophthora infestans*
 - (d) *Monilinia fructicola*
10. *Bacillus thuringiensis* is used for the production of toxins which can be used as _____
 - (a) Pesticides
 - (b) Germicides
 - (c) Insecticides
 - (d) Fungicides

3. Which fungal diseases is not spreaded through air?
 - (a) Blastomycosis
 - (b) Cryptococcosis
 - (c) Aspergillosis
 - (d) Candidiasis
4. Droplet nuclei size is _____
 - (a) 0.01 – 0.1 μm
 - (b) 1-4 μm
 - (c) 5-7 μm
 - (d) 0.1-1 μm
5. Which of the following genus of bacteria is not found in fresh water?
 - (a) *Pseudomonas*
 - (b) *Vibrio*
 - (c) *Aeromonas*
 - (d) *Flavobacterium*
6. Eutrophication leads to death of fish due to _____
 - (a) Increased O_2 content
 - (b) Increased algae content
 - (c) Decreased O_2 content
 - (d) Decreased algae content
7. Which one among the following is a free living aerobic nitrogen-fixing bacteria?
 - (a) *Azotobacter*
 - (b) *Rhizobium*
 - (c) *Cyanobacter*
 - (d) *B.Circulans*

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) List out the different regions of soil.
Or
(b) What are the factors affecting microbial community in soil?
12. (a) Discuss about Nasocomial infection.
Or
(b) Give a detailed account on air quality assessment method.
13. (a) What is Eutrophication and redraft the cause of eutrophication?
Or
(b) Categorize the different types of freshwater ecosystem.
14. (a) What is biofertilizers? Sequence its role in agriculture.
Or
(b) What is VAM and write down its uses.

15. (a) Explain the sign and symptoms of plant diseases given below :
- (i) Blight of paddy
 - (ii) Stem rust of wheat.

Or

- (b) What is biocontrol agent and explain the mode of action of biocontrol agents.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Portray the different types of soil in India.
- Or
- (b) What is biogeochemical cycle and explicate the steps involved in nitrogen cycle with neat diagram?
17. (a) Differentiate the droplet nuclei and aerosols.
- Or
- (b) Write some bacterial air borne diseases and how to diagnosis, control and prevent it.
18. (a) Explain the hydrothermal vents in detail.
- Or
- (b) Write an essay water borne diseases and its controlling measures.

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19. (a) What is rhizosphere? and Elucidate the role of microbes in rhizosphere soil?

Or

- (b) Comment on :
- (i) Rhizobium
 - (ii) Azotobacter
 - (iii) Azospirillum.

20. (a) Criticize the role of transgenesis in crop improvement.

Or

- (b) Describe the characteristic features of diseases given below :
- (i) Late blight of potato
 - (ii) Apple scab.

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