

(6 pages)

Reg. No. : .....

Code No.: 5549

Sub. Code: ZMBM 33

M.Sc (CBCS) DEGREE EXAMINATION, APRIL 2023.

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 one of the following is sedimentary cycle \_\_\_\_\_?  
(a) Nitrogen cycle      (b) Oxygen cycle  
(c) Hydrogen cycle      (d) Phosphorous cycle
2. The physical structure of soil is improved by accumulation of  
(a) Mineral      (b) Water  
(c) Mold mycelium      (d) All of these

3. \_\_\_\_\_ media can be used for the isolation of mycobacterium tuberculosis  
(a) XLD medium  
(b) TCBS  
(c) Lowenstein jensen medium  
(d) ss media
4. The floating and drifting microbes are called  
(a) Zooplankton      (b) planktons  
(c) Benthos      (d) None of these
5. The rhizobium nodules are sterilized with 0.1% \_\_\_\_\_ for 5 minutes.  
(a) Magnesium chloride (b) Sodium chloride  
(c) Potassium chloride (d) Mercuric chloride
6. Treatment of municipal water supply is based upon  
(a) Coagulation, filtration, Chlorination.  
(b) Chlorination, filtration, Coagulation  
(c) filtration, Coagulation, chlorination  
(d) Coagulation, Chlorination, filtration

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7. The diagnostic enzyme for denitrification is  
(a) nitrate reductase  
(b) nitrate oxidase  
(c) nitrate oxidoreductase  
(d) none of these
8. In the following, which one is waterborne virus disease?  
(a) Adenovirus  
(b) Poliovirus  
(c) Hepatitis A and E  
(d) All of the above
9. Transgenic plants \_\_\_\_\_  
(a) contain foreign genes in their cells  
(b) are used to produce human antibodies  
(c) both (a) and (b)  
(d) are plants that differ in geographical location.
10. Apple scab is caused by  
(a) Aspergillus niger  
(b) Mucor  
(c) Venturia inaequalis  
(d) Cladosporium

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PART B — (5 × 5 = 25 marks)

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

11. (a) Give a short notes on the functions of soil microbes.  

Or

(b) What are the classification of soil?
12. (a) Explain aeromicrobiology and summarize the droplet nuclei.  

Or

(b) Add a brief account on aerosol.
13. (a) Explain about Eutrophication.  

Or

(b) List out water treatment methods.
14. (a) Describe and delineate the Vam Fungi.  

Or

(b) Explain briefly on Rhizoplane and Rhizosphere

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15. (a) Elaborate the Hyperthermalvent.

Or

(b) Discuss about insecticides and compile some of their characteristic.

PART C — (5 × 8 = 40 marks)

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

16. (a) What are the factors affecting microbial community in soil?

Or

(b) Explain the carbon cycle in the environment.

17. (a) Write an essay on air quality testing methods.

Or

(b) Write about airborne diseases.

18. (a) Explicate the three stage test to procedure for detection of faecal contamination.

Or

(b) Write down the causes, factors and preventive measure of water pollution.

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19. (a) Evaluate the blue green alge fertilizer.

Or

(b) Write in detail about root nodule formation by Rhizobium in plants.

20. (a) Document the need of bio control agents in detail.

Or

(b) Discuss about the stem rust of wheat, its symptoms, etiology, life cycle and disease arrangement.

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