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MBCE–014

M. SC. (BIOCHEMISTRY)

(MSCBCH)

Term-End Examination

December, 2025

MBCE–014 : MICROBIOLOGY

Time : 3 Hours *Maximum Marks : 100*

***Note** : (i) Attempt any **five** questions.*

(ii) All questions carry equal marks.

1. (a) Explain the following terms : 5×2=10

   (i) Fermentation

   (ii) Bioremediation

   (iii) Sterilization

   (iv) Taxonomy

   (v) Phylogenetic tree

(b) What is characterization of an organism ? How is chemical characterization done ? 10

2. (a) Discuss the different methods of reproduction in algae. 5

(b) Describe various categories of fungi. 5

(c) Explain various modes of nutrition in protozoans. 5

(d) Differentiate between lytic and lysogenic modes of viral replication. 5

3. (a) Describe the physical methods used for control of microbial growth. 10

(b) Explain different phases of bacterial cell growth in cell culture. 10

4. Write short notes on the following : 4×5=20

(i) Thioglycolate test

(ii) Lyophilization

(iii) Acid-fast staining

(iv) UV-Visible spectrophotometer

5. (a) Write about the general structure of a bacteria. Illustrate with the help of a suitable diagram. 5

   (b) Name *one* disease caused by the following modes of transmission. Write the symptoms of the disease : 5×3=15

   (i) Direct contact

   (ii) Air-borne

   (iii) Water-borne

   (iv) Zoonotic

   (v) Fungal

6. (a) Describe the essential features and applications of various types of optical and electron microscopes. 10

   (b) Discuss the different types of antagonistic interaction in microbial world. 10

7. (a) Describe structural staining with suitable examples. 10

(b) Write the principle and applications of the following instruments : 2×5=10

(i) Laminar air flow

(ii) Centrifuge

8. Discuss the following : 4×5=20

(a) Complement system

(b) Evasion of host defences by protozoan parasites

(c) Antimicrobial agents

(d) Mycoses

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