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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 : $2 \times 5 = 10$

(i) Laminar air flow

(ii) Centrifuge

8. Discuss the following : $4 \times 5 = 20$

(a) Complement system

(b) Evasion of host defences by protozoan parasites

(c) Antimicrobial agents

(d) Mycoses

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