

No. of Printed Pages : 4

**MBCE-014**

**M. SC. (BIOCHEMISTRY) (MSCBCH)**

**Term-End Examination**

**December, 2024**

**MBCE-014 : MICROBIOLOGY**

*Time : 3 Hours*

*Maximum Marks : 100*

---

**Note :** Attempt any *five* questions. All questions carries equal marks.

---

---

1. (a) Write the contributions of the following scientists : 5×2=10

(i) Antonie van Leeuwenhoek

(ii) Louis Pasteur

(iii) Robert Koch

(iv) Joseph Lister

(v) Sir Alexander Fleming

(b) State differences between bacteria and eucarya. 5

**C-2726/MBCE-014**

**P. T. O.**

- (c) Discuss different hierarchical levels of microbial taxonomy. Illustrate with an example. 5
2. Write *five* characteristic features of each of the following : 4×5=20
- (i) Algae
  - (ii) Bacteria
  - (iii) Fungi
  - (iv) Viruses
3. (a) What are antimicrobial agents ? How do they exert antimicrobial action ? 10
- (b) Write notes on the following : 2×5=10
- (i) Phylogenetic tree
  - (ii) Phenotypic characterization of microorganisms
4. (a) Write characteristics and example of the following cell culture media :  $4 \times 2\frac{1}{2} = 10$
- (i) Solid medium
  - (ii) Enriched medium
  - (iii) Differential medium
  - (iv) Simple medium

- (b) (i) Differentiate between positive and negative staining. 5
- (ii) What is a laminar air flow ? Describe its basic components. 5
5. (a) Write notes on the following diseases :  
2×5=10
- (i) Gastroenteritis
- (ii) Rabies
- (b) Describe the mechanisms of host resistance. 10
6. (a) (i) Discuss about antigenic variation in bacteria and its significance. 5
- (ii) How do microbes circumvent phagocytosis ? 5
- (b) Explain the mechanism of action and application of the following drugs : 2×5=10
- (i) Sulfonamides
- (ii) Acyclovir
7. Write short notes on the following : 4×5=20
- (a) Phenol coefficient test
- (b) Lichen ecosystem

- (c) Pour plate method of microbial isolation
  - (d) Bacteriophage typing
8. (a) (i) Describe the applications of microorganisms in fermentation. 5
- (ii) Justify this statement 'Survival and healthy life of human is intimately linked to their microbial partners.' 5
- (b) Explain Romanowsky effect. Write the applications of Romanowsky stains. 10

x x x x x x x