

Seat No. : \_\_\_\_\_

**FD-140**

**February-2025**

**M.Sc., Sem.-I**

**MIC-404 : Microbiology  
(Microbial Physiology and Immunology)**

**Time : 2:30 Hours]**

**[Max. Marks : 70**

1. Describe quorum sensing mechanism in Gram-negative and Gram-positive bacteria with suitable example and write its significance. **14**

**OR**

1. (A) Discuss the role of channel proteins and carrier proteins in nutrient transport. **7**  
1. (B) Explain the strategies used by microorganisms to develop resistance to drugs. **7**

2. Describe various methods used for measurement of microbial growth with their pros and cons. **14**

**OR**

2. (A) Discuss continuous culture and its kinetics. Give its significance. **7**  
2. (B) Narrate the effect of oxygen on microbial growth and give its importance. **7**

3. Describe the components of complements and explain pathways of its activation. **14**

**OR**

3. (A) Discuss the structure and function of MHC class I molecule. **7**  
3. (B) Write in details of groups of cytokines with their functions. **7**

4. Write an extensive note on types of hypersensitivity and their significance. **14**

**OR**

4. (A) Enlist types of grafts and explain immunology of graft rejection in detail. **7**  
4. (B) Describe cancer immunotherapy in detail. **7**

5. Write **1 – 2** line answers to **any seven** of the following :

**14**

- (1) What is active transport ?
  - (2) Write role of DPA in bacterial sporulation.
  - (3) Enlist key genes of lux operon responsible for the production of luciferase.
  - (4) Define – VBNC.
  - (5) What is diauxic growth ?
  - (6) Write mode of action of phenolic compound to control microbial growth.
  - (7) What are cytochines ?
  - (8) What is exogenous pathway of antigen presentation ?
  - (9) What is the role of TAP during antigen presentation ?
  - (10) How cancer weakens immune system ?
  - (11) Explain – horror autotoxicus.
  - (12) Explain the term ‘anaphylaxis’.
-