

Time : 2-30 Hours]

[Max. Marks : 70

- Q.1.** Describe various nutrient transport mechanisms with suitable examples. **14**
Discuss the role of the cytoplasmic membrane in those mechanisms,

OR

- Q.1. (A)** Explain the significance of the luciferase enzyme and the biochemistry **07**
involved in the bioluminescence process.

- (B)** Explain the mechanism of the bacterial signal transduction and the types of **07**
histidine kinases present with any one example.

- Q.2.** Discuss the major factors affecting microbial growth in detail. **14**

OR

- Q.2. (A)** Describe the mode of action of various chemical agents that controls the **07**
microbial growth. Explain with examples.

- (B)** Enlist various methods of microbial growth measurement and discuss direct **07**
methods with their advantages.

- Q.3.** Discuss the components of complements and explain pathways of its **14**
activation.

OR

- Q.3. (A)** Differentiate between MHC – I and MHC – II. **07**

- (B)** Write comparison between exogenous and endogenous pathways of antigen **07**
presentation.

- Q.4.** Write an extensive note on autoimmunity and autoimmune diseases. **14**

OR

- Q.4. (A)** Enlist types of hypersensitivity and describe type-II hypersensitivity in detail. **07**

- (B)** Discuss cancer immunotherapy in detail with suitable examples. **07**

- Q.5.** Write 1-2 line answers to any seven of the following **14**

- a. Write the full form of MDRO and MRSA.
- b. Name two bacteria that can produce exospores.
- c. What is autocrine signalling?
- d. What is VBNC?
- e. What is diauxic growth?
- f. Explain cardinal temperatures..
- g. Define - cytochines.
- h. Draw a labelled figure of human chromosome - 6 containing genes for MHCs.
- i. Which health problem develops due to TAP deficiency?
- j. Give two examples of allograft transplant.
- k. What is horror autotoxicus?
- l. What does the term 'anaphylaxis' mean?

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