

MSc Sem.-1 Examination

404

Bio-Technology

February-2025

Time : 2-30 Hours]

[Max. Marks : 70

Q.1. Discuss various active transport mechanisms. Explain the role of structure of cytoplasmic membrane and ATPases in the process. 14

OR

Q.1. (A) Describe quorum sensing in *Aliivibrio fischeri*. How it is important in the bioluminescence process? 07

(B) Explain bacterial differentiation with reference to bacterial sporulation cycle. 07

Q.2. Discuss batch culture and its kinetics in detail. Give its significance. 14

OR

Q.2. (A) Describe effect of pH and water activity on microbial growth. 07

(B) Enlist various methods for measurement of microbial growth and discuss indirect methods with their advantages. 07

Q.3. Discuss the different types of MHC molecules with their structure and function. 14

OR

Q.3. (A) Give detailed account on groups of cytokines with their functions. 07

(B) Compare exogenous and endogenous pathways of antigen presentation. 07

Q.4. Explain types of hypersensitivity in detail and write its importance. 14

OR

Q.4. (A) Explain 'pneumocystosis' and 'B-lymphocytic tumors of the brain' as opportunistic infections of AIDS. 07

(B) Write a detailed note on cancer immunotherapy with its benefits. 07

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

a. What is MRSA?

b. Define – signal transduction.

c. Give the name of three strategies to inhibit quorum sensing.

d. What is VBNC?

e. Define - diauxic growth

f. What are cardinal temperatures?

g. What are cytokines?

h. What is endogenous pathway of antigen presentation?

i. What is the role of TAP during antigen presentation?

j. How cancer weakens immune system?

k. What is horror autotoxicus?

l. Explain the term 'anaphylaxis'.