

**II B.Tech. I Semester Supplementary Examinations, May -2005**

**MICROBIOLOGY**

**(Bio-Technology)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. Describe the early discoveries that led to the development of Immunology.
2. Explain the use of different Morphological and cultural characteristics in identification of bacteria.
3. Describe the general characteristics of Mycoplasma.
4. How is energy supplied to drive a conc. gradient across the membrane of the cell?
5. Describe the methodology for the enrichment of the following bacteria:
  - (a) Thiobacillus thiooxidans
  - (b) Rhizobium
  - (c) Halobacterium
  - (d) Clostridium
6. Define water activity. Explain how water activity influences the growth of different microorganisms?
7. How is irradiation used for controlling microbial growth?
8. What are general cleaning and sanitization methods followed in an Industry?

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1. Describe the History and Development of virology.
2. Define a “Bacterial species”. Explain the difficulties encountered in classification of bacteria.
3. Give an account of Gram positive filamentous bacteria with reference to Streptomyces and related genera.
4. How is energy supplied to drive a conc. gradient across the membrane of the cell?
5. What is generation time of a given microbial culture ? Derive an equation for calculating the generation time when a bacterial organism divides by binary fission in exponential growth.
6. Explain different structural stainings used in identification of bacterial cultures.
7. Write short notes on
  - (a) Bacteriostatic and bactericidal agents
  - (b) Surfactants .
8. Explain about microbiological verification of Water system.

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1. Describe the early discoveries that led to the development of Immunology.
2. Give a general account of biodiversity in microorganisms.
3. (a) Explain the major classification of bacteria.  
(b) Briefly describe Eubacteria with special reference to E.col.
4. (a) Explain the transport of nutrients through cytoplasmic membrane.  
(b) Briefly describe active transport.
5. Explain the following
  - (a) Pure culture
  - (b) Continuous culturing
  - (c) Balanced growth
  - (d) Exponential growth
6. Define water activity. Explain how water activity influences the growth of different microorganisms?
7. Write short notes on
  - (a) Bacteriostatic and bactericidal agents
  - (b) Surfactants .
8. Explain the methods for evaluation of microbial load in food products?

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1. What is fermentation? How was the role of microorganisms in fermentation established?
2. What are “Signature sequences” and Polymerase chain reaction? How are they useful in classification of bacteria?
3. Describe the general characteristics of Algae with suitable examples.
4. (a) Explain primary and secondary transports in detail.  
(b) Describe simple diffusion with suitable example.
5. What is microbiological medium? How is it useful for reproduction and growth of microorganisms?
6. Define water activity. Explain how water activity influences the growth of different microorganisms?
7. (a) Describe the different methods of sterilization?  
(b) What is the principle involved in an autoclave?
8. What is a Standard operating procedure? Develop an SOP for autoclaving.

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