

II B.Tech. I Semester Regular Examinations, November -2005

MICROBIOLOGY

(Bio-Technology)

Time: 3 hours

Max Marks: 80

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

1. Discuss about Koch's postulates and their importance in medical microbiology. [8+8]
2. Define a "Bacterial species". Explain the difficulties encountered in classification of bacteria. [16]
3. Give an account of cyanobacteria and their importance. [16]
4. How is energy supplied to drive a conc. gradient across the membrane of the cell? [16]
5. Write notes on the following
 - (a) Complex medium
 - (b) Differential medium
 - (c) Enrichment culturing
 - (d) Flask culture [4×4]
6. Define water activity. Explain how water activity influences the growth of different microorganisms? [16]
7. Comment on the following antimicrobial agents
 - (a) Phenolics
 - (b) Halogens
 - (c) Soap
 - (d) Copper. [4×4]
8. What is a Standard operating procedure? Develop an SOP for autoclaving. [16]

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1. Describe the contributions of the following people to the development of microbiology:
 - (a) John Tyndall
 - (b) Von Behring
 - (c) Selman Waksman
 - (d) Alexander Fleming [4×4]
2. What are “Signature sequences” and Polymerase chain reaction? How are they useful in classification of bacteria? [16]
3. Describe the methods of Asexual and sexual reproduction in fungi. [16]
4. How is energy supplied to drive a conc. gradient across the membrane of the cell? [16]
5. Describe the methodology for the enrichment of the following bacteria:
 - (a) Thiobacillus thiooxidans
 - (b) Rhizobium
 - (c) Halobacterium
 - (d) Clostridium [4×4]
6. Define water activity. Explain how water activity influences the growth of different microorganisms? [16]
7. Distinguish among germicides, antiseptics and antibiotics with suitable examples. [16]
8. (a) What are irradiated foods?
(b) Explain the advantages and fears of general public on such foods. [8+8]

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1. Give an account of different areas of microbiology. [16]
2. Why would you consider ribosomal RNA better molecules for phylogenetic studies than proteins like cytochromes ? [16]
3. Write short notes on the following.
 - (a) Dimorphism in Mucor.
 - (b) Asexual reproduction of Schizo saccharomyces.
 - (c) Budding in saecharomyces.
 - (d) Yeast hybridization. [4×4]
4. How is energy supplied to drive a conc. gradient across the membrane of the cell? [16]
5. Describe the methodology for the enrichment of the following bacteria:
 - (a) Thiobacillus thiooxidans
 - (b) Rhizobium
 - (c) Halobacterium
 - (d) Clostridium [4×4]
6. Define water activity. Explain how water activity influences the growth of different microorganisms? [16]
7. (a) Name the method of sterilization, which does not need any physical energy or chemical agents?
(b) Describe the principle involve in the above method and the apparatus used? [8+8]
8. What is a Standard operating procedure? Develop an SOP for autoclaving. [16]

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1. Justify the statement. "Microorganisms are more than just agents of disease".
[16]
2. Describe Five-kingdom system of Whittaker's classification of bacteria. [16]
3. Describe the general characteristics of Chlamydia. [16]
4. How is energy supplied to drive a conc. gradient across the membrane of the cell?
[16]
5. Differentiate between Pour plate method and Streak plate method for the isolation of bacteria. [16]
6. Define water activity. Explain how water activity influences the growth of different microorganisms? [16]
7. Enumerate the various classes of disinfectants and their use as anti-microbial agents with suitable examples. [16]
8. What is a Standard operating procedure? Develop an SOP for autoclaving. [16]
