

Ref. No. : Ex/FTBE/BS/B/T/212/2024

**B.E. FOOD TECHNOLOGY AND BIO-CHEMICAL ENGINEERING SECOND YEAR
FIRST SEMESTER – 2024**

Subject : BASICS OF MICROBIOLOGY

Time: 3hr

Full Marks: 100

Part I (Total Marks 50)

Instructions : Use Separate Answer scripts for each part

Answer any **five** questions from the following: 5x10=50

1. Write a short note on types of bacterial shape, size and arrangement. 10

2. Draw and Write the basic structure and function of bacterial Flagella and Capsule. 5+5=10

3. Write the difference between following: 2.5x4=10

i. Protoplast and spheroplast

ii. Endospore and exospores

iii. Simple staining and differential staining

iv. Autotroph and heterotroph

4. How bacteria are classified on the basis of their oxygen requirement? What is the difference between selective medium and differential medium? 6+4=10

5. How pure culture has been isolated by physical methods? Write the economic importance of algae? 6+4=10

6. Write and explain the Lytic and Lysogenic cycle of virus. What are the long term methods for preservation of bacteria? 5+5=10

7. Write any two beneficial and two harmful effects of fungus. How fungus has been classified on the basis of nutrition? What are the different types of fungal mycelium explain with diagram.

4+3+3=10

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B.E (FTBE) 2ND YEAR-1ST SEMESTER 2024

Basics of Microbiology

Time: 3hours

Full Marks: 100

Part II (Marks 50)

Answer any five questions from the following: 5x10

1. Define dye with example.? Why picric acid is considered as a dye? What is differential staining? 2+5+3

2. What is D value? Define F value. Give one example each of symbiotic microorganism and Non Symbiotic microorganism. Explain intermittent sterilization. 1.5+ 1.5+2+ 5

3. What is sterilization? How does moist heat act on microorganisms? Mention the objective of using HEPA filters. Write the full form of SEM.. What is the working principal of Autoclave? 1.5+2+1.5+1+4

4. What is nitrogen fixation? What is Symbiotic nitrogen fixation? State the essential / reactants required for Nitrogen fixation. 2+5+3

5. What is compound microscope? Comment on the optical parts of Bright Field Microscope. Give one example of Electron Microscope. What is meant by contrast of a microscope? 2+5+1+2

6. Define disinfection, bacteriostasis and bactericide. Explain about evaluation of / antimicrobial chemical agent by Phenol coefficient method. 1.5x3+5.5

7. Write short notes on (any two) : 2x5
 - a. Gram staining
 - b. Efficiency of Symbiotic nitrogen fixation
 - c .Alcohols as disinfectant.
 - d. Pasteurization