

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1236

Roll No.

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**B.Tech.**

**(SEM. III) ODD SEMESTER THEORY**

**EXAMINATION 2013-14**

**MICROBIOLOGY AND CELL BIOLOGY**

*Time : 3 Hours*

*Total Marks : 100*

**Note :—Attempt all Sections.**

**SECTION—A**

1. Attempt all parts : (2×10=20)

- (a) Define Pasteurization.
- (b) What are Thermophiles ? Give two examples.
- (c) Name the causal organisms of Tuberculosis.
- (d) Define Disinfection. How is it different from sterilization ?
- (e) What are Biofertilizers ? Give two examples of biofertilizer used in agriculture.
- (f) What are Microsomes ?
- (g) Name the two free living nitrogen fixing bacteria.
- (h) Give two examples of yeasts.
- (i) What is Lyophilization ?
- (j) Differentiate Virioids and Prions.

**SECTION—B**

2. Attempt any three parts : (3×10=30)

- (a) Define sterilization and what method of sterilization would be suitable for each of the following :
  - (i) Petriplates for Laboratory use

- (ii) Laboratory Media e.g Nutrient agar medium
  - (iii) Contaminated hospital nurseries
  - (iv) Heat Labile Medical Devices.
- (b) Describe the structure of cell wall of gram positive and gram negative bacteria. How they are differentiated from microbial population ?
- (c) What are Viruses ? Describe, the general features of viruses. Discuss about the DNA viruses and RNA viruses.
- (d) Explain Biological nitrogen fixation. Name the Microbes involved in Nitrogen fixation.
- (e) Describe the Structure and Functions of endoplasmic reticulum.

### SECTION-C

**Note : Attempt all questions. (5×10=50)**

3. Attempt any one part : (1×10=10)
- (a) What is Strain Improvement ? Discuss the various methods of strain improvement.
  - (b) Define Bioremediation. List the various groups of microbes involved in bioremediation. What are the strategies of bioremediation for environmental cleanup ?
4. Attempt any one part : (1×10=10)
- (a) What is Protein Targeting ? Give an account on signal hypothesis and ER resident proteins of cell.

- (b) Discuss about Benign and Malignant Cancer. What is the role of tumor suppressor genes ?

5. Attempt any one part : (1×10=10)
- (a) Show with the help of Labelled diagrams of various stages of mitosis during cell division. How it differs from meiosis ?
  - (b) Describe the Industrial Application of Microorganisms.
6. Attempt any two parts : (2×5=10)
- (a) Write short notes on :
    - (i) Antibiotics
    - (ii) Phenol and Halogen compounds for control of microbes.
  - (b) Discuss the Activated sludge process of Waste Water Treatment.
  - (c) Give an account on various Cell Cultivation Systems.
7. Attempt any two parts : (2×5=10)
- (a) Define Media. Discuss about the Enriched and Selective Medium.
  - (b) Discuss the various Isolation methods of Pure Cultures.
  - (c) Write short notes on the following :
    - (i) Golgi Bodies
    - (ii) Exponential Phase of Microbial Growth.