

**M.Sc., (Final) Biotechnology Degree Examination**  
**August / September 2009**  
**Directorate of Correspondence Course**  
**(Freshers)**

**Paper - V : Cell and Tissue Culture Technology**

Time : 3 Hours

Max. Marks : 85

**Note : 1) Answer all questions**

**2) Illustrate wherever necessary**

- 1. Define / Explain.** **5x3=15**
- a. *In vitro* fertilization in plants.
  - b. HEPA filter
  - c. Rhizogenesis
  - d. Cell cloning
  - e. Primary cell culture
- 2. Write short notes on any FOUR of the following** **4x5=20**
- a. White's medium
  - b. *In vitro* animal cell differentiation
  - c. Organogenesis in plants
  - d. Whole embryo culture in animals
  - e. Maintenance of animal cell lines
- 3. Write a detailed note on any TWO of the following** **2x10=20**
- a. Direct gene transfer in plants
  - b. Cell synchronization techniques
  - c. Natural animals cell culture medium
- 4. Describe the suspension culture technique for animals. Add a note on its applications. 15**
- OR**
- Describe the characteristics and phenotypic alterations of transformed cells.
- 5. Give an account of plant cell and tissue culture technology. 15**
- OR**
- Describe different steps in the production of somatic embryos

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**Paper - VI : Industrial and Environmental Biotechnology**

Time : 3 Hours

Max. Marks : 85

**Note : 1) Answer all questions**

**2) Illustrate wherever necessary**

1. **Define / Explain briefly the following.** **5x3=15**
- a. Foam
  - b. Aerosol
  - c. Sparger
  - d. Rotary vacuum dryer
  - e. Biomineralization
2. **Write short notes on any FOUR of the following** **4x5=20**
- a. Environmental legislation
  - b. Fed batch fermentor
  - c. Crystallization
  - d. Recalcitrancy
  - e. Trickling filter
3. **Answer any TWO questions from the following** **2x10=20**
- a. Preservation of industrially important microorganisms.
  - b. Biodegradation of phenols.
  - c. Biofuels from solid wastes
4. **Discuss the maintenance of aseptic conditions in a fermentor.** **15**

**OR**

Write an account on the sources of single cell proteins and their importance in industry.

5. **Discuss the role of biotechnology in controlling air pollution and add a note on biosensor.** **15**

**OR**

Give an account of the advantages and disadvantages of biopesticides.

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**Paper - VII : Computer Application and Bioinformatics**

Time : 3 Hours

Max. Marks : 85

- Note :** 1) Answer all questions  
 2) Illustrate wherever necessary

1. Explain briefly the following. 5x3=15
  - a. Central processing unit
  - b. Local area network
  - c. Classification of computer systems
  - d. http
  - e. Global alignment
  
2. Write short notes on any FOUR of the following 4x5=20
  - a. Phylogenetic assay
  - b. WAN and MAN
  - c. Managing files in explorer
  - d. Operating system
  - e. Overview of GUI
  
3. Answer any TWO questions from the following 2x10=20
  - a. Explain the pair-wise sequence alignment and consensus expression.
  - b. Write an account of Drug designing
  - c. Give an account of the softwares used in genomics.
  
4.
  - a. Write a detailed protocol of FASTA analysis.
  - b. Comment on multiple sequence alignment. 5+10=15

**OR**

  - a. Give an account of basic commands of windows
  - b. Write an account on protein structure visualization.
  
5. Write an account on Database submission and information retrieval. 15

**OR**

What is WWW? What are the functions of web browser and a search engine? Name some of the popular web browsers and their salient features.

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**Paper - VIII : Recombinant DNA Technology**

Time : 3 Hours

Max. Marks : 85

**Note : 1) Answer all questions****2) Illustrate wherever necessary**

- 1. Write briefly the following.** **5x3=15**
- pBR 322
  - Alkaline phosphatase
  - Interleukins
  - Retroviruses
  - Melting temperature
- 2. Write short notes on any FOUR of the following** **4x5=20**
- Micro injection
  - Bacteriophage
  - Scope of rDNA technology
  - Genetically modified organisms
  - Neem controversy
- 3. Answer any TWO questions from the following** **2x10=20**
- FISH
  - Chemical method of DNA sequencing
  - cDNA synthesis
- 4. Describe the principle and application of RFLP and RAPD markers** **15**  
**OR**  
 Write an account on the screening techniques used in rDNA technology
- 5. Explain the properties, types and applications of restriction enzymes.** **15**  
**OR**  
 What is hybridoma technology ? Explain its importance and applications.

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