

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

PAPER ID : 2787

Roll No.

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**B.Tech.**

(SEM. VII) ODD SEMESTER THEORY EXAMINATION 2012-13

**INTRODUCTION TO BIOTECHNOLOGY**

Time : 3 Hours

Total Marks : 100

Note : Attempt all questions.

1. Attempt any **FOUR** of the following :

- (i) What are the basic function of Endoplasmic reticulum ?  
Give a brief account of its type. **5**
- (ii) Describe the different models of cell membrane organization. Illustrate each model with the help of suitable diagram. **5**
- (iii) Discuss the method of Gram Staining. Difference between Gram +ve and Gram -ve bacteria. **5**
- (iv) Discuss about the structure and mode of reproduction of viruses. **5**
- (v) Distinguish between haploid and diploid states. What types of cells are haploid and diploid ? **5**
- (vi) How the nuclear genome differ from mitochondrial genomes ? **5**

2. Attempt any **FOUR** of the following :

- (i) Glycogen and Starch both are the storage compounds in animals and plants respectively. How both are different to each other ? **5**

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- (ii) Discuss some of the important functions of lipids. 5
- (iii) Describe the process of DNA replication. Illustrate the process with the help of suitable diagram. 5
- (iv) Explain with examples how Mendelian principles can be applied in human genetics. 5
- (v) Discuss the various function of Protein. 5
- (vi) Discuss the difference between DNA and RNA. 5
3. Attempt any **TWO** of the following :
- (i) What is Central dogma ? With the help of a diagram explain the process of translation with a eucaryotic cell. 10
- (ii) Write about (any **TWO**) cloning vectors : 10
- (a) pBR 322
- (b) BAC (Bacterial Artificial Chromosomes)
- (c) YAC (Yeast Artificial Chromosomes)
- (iii) What are genomic libraries ? How can genomic libraries constructed ? 10
4. Attempt any **TWO** of the following :
- (i) Explain the Monod's growth model of bacteria and significance of  $\mu_{\max}$  and  $K_s$ . State the assumption involved. 10
- (ii) Discuss the activated sludge process for the treatment of industrial waste. 10
- (iii) Discuss the industrial application of enzymes. 10

5. Attempt any **TWO** of the following :

- (i) Explain about the safety concern about food products derived from biotechnology. **10**
- (ii) Explain the bioethics involved with the stem cell research. **10**
- (iii) What are the regulation involved in cloning and which organization govern them. **10**

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