Code No: RR222305 **Set No.1**

II B.Tech. II Semester Regular Examinations, April/May -2005
MOLECULAR BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Write the detail components of DNA molecule that are organized inside cell.
2. compare conservative, semiconservative and dispersive modes of DNA replication.
3. How does the structure of a eukaryotic CoreRNAPol compare with the E. coli CoreRNApol?
4. Discuss the roles of the following in protein expression: rRNA, tRNA, mRNA.
5. Write an essay that describes mutations.
6. A point mutation occurs in a particular gene. Describe the types of mutational events that can restore a functional protein, including intergenic events. Consider missense, nonsense, and frameshift mutation.
7. Distinguish among the three modes of recombination in bacteria.
8. Describe what are the three different physical forms of phage λ chromosome?

⋆ ⋆ ⋆ ⋆ ⋆

Code No: RR222305 **Set No.2**

II B.Tech. II Semester Regular Examinations, April/May -2005
MOLECULAR BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. In what component parts do DNA and RNA differs?
2. Describe Meselson-Stahl experiment.
3. Write the following
   (a) RNA Pol "basal" factors
   (b) .RNA Pol "Transcription factors"?
4. Why would isoleucine be less likely to occur in a beta turn than in a beta strand?
5. Write an essay that describes mutations.
6. Write a note on molecular structure of eukaryotic gene.
7. Why are the recombinants produced from an $HfrXF^-$ cross never F^+?
8. Describe the methods of transduction.

⋆ ⋆ ⋆ ⋆ ⋆

Code No: RR222305 **Set No.3**

II B.Tech. II Semester Regular Examinations, April/May -2005
MOLECULAR BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. If the tetranucleotide hypothesis were correct regarding the simplicity of DNA structure, under what circumstances could DNA be the genetic material.
2. What are two differences between DNA and RNA? What bases pair with each other?
3. Where are each of the RNA polymerase types found in the eukaryotic cell?
4. Name and describe the 4 levels of protein structure?
5. Most mutations are thought to be deleterious. Why then, is it reasonable to state that mutations are essential for evolutionary process?
6. A point mutation occurs in a particular gene. Describe the types of mutational events that can restore a functional protein, including intergenic events. Consider missense, nonsense, and frameshift mutation.
7. What do you mean by plasmid? Describe their role in recombination.
8. Why are IS elements sometimes referred to as selfish DNA?

⋆ ⋆ ⋆ ⋆ ⋆

Code No: RR222305 **Set No.4**

II B.Tech. II Semester Regular Examinations, April/May -2005
MOLECULAR BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. What are the roles of RNA primers and Okazaki fragments during DNA replication?
2. DNA replication is bi-directional. What would the replication bubble look like (using the same labeling regimen as discussed in class) if replication was unidirectional?
3. Write short notes on
   (a) Rho dependent termination.
   (b) Rho independent termination.
4. What will determine whether regions of alpha-helical structure lie at the surface or in the interior of a water-soluble globular protein?
5. Describe different types of mutations; and explain the importance of mutations for genetic research.
6. Which are the functional portions of a functional gene?
7. Describe the mechanism of transformation process.
8. What are Retroposons?

⋆ ⋆ ⋆ ⋆ ⋆