CODE NO: 07A52304 | R07 | SET - 1

III B.TECH - I SEMESTER EXAMINATIONS - MAY, 2011
GENETIC ENGINEERING
(BIOTECHNOLOGY)

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

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. Taking Lactose Operon as a model, explain Operon concept of gene regulation in prokaryotes. [16]

2.a) Discuss about Eukaryotic Promoters and enhancers.
b) Repetitive DNA and its importance. [8+8]

3. Citing suitable examples write about the transposable elements found in bacteria, and their mechanism of transposition. [16]

4. Explain the following
   a) Methods of gene transfer in bacteria.
   b) Plasmid based cloning vectors. [8+8]

5. Explain the following
   a) CDNA and genomic libraries.
   b) Types of blot analysis. [8+8]

6. What is the principle of PCR based gene amplification? What are the advantages and disadvantages of this technique? [16]

7. Briefly describe micro arrays and add a note on its applications. [16]

8. Discuss about gene therapy and its potential. [16]

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CODE NO: 07A52304 | R07 | SET - 2

III B.TECH - I SEMESTER EXAMINATIONS - MAY, 2011
GENETIC ENGINEERING
(BIOTECHNOLOGY)

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

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. Explain the following
   a) Tryptophan Operon
   b) Importance of sigma factor in *Bacillus subtilis.* [8+8]

2.a) Discuss about the different levels at which a gene can be regulated in eukaryotes. [16]

3. Explain the following
   a) Types of bacterial plasmids.
   b) Retrotransposons. [8+8]

4. Describe the construction of pBR 322 plasmid as a cloning vector. [16]

5. Explain the strategies used for cloned gene expression in *E. coli.* [16]

6. Explain the following
   a) Importance of primers in PCR.
   b) RT-PCR and multiplex PCR. [8+8]

7. Explain the following
   a) RAPD and RFLP as molecular markers.
   b) 16s-rRNA typing. [8+8]

8. Using any example discuss how gene cloning has been exploited in the field of medicine. [16]

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CODE NO: 07A52304 | R07 | SET - 3

III B.TECH - I SEMESTER EXAMINATIONS - MAY, 2011
GENETIC ENGINEERING
(BIOTECHNOLOGY)

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

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. What is "Operon model" of gene regulation in Prokaryotes? Explain citing suitable example. [16]

2.a) Write about gene amplification.
b) Types of repetitive DNA. [8+8]

3. Explain the following
a) Plasmid purification.
b) Transposition mechanism. [8+8]

4.a) What are "cosmids" as cloning vectors ?
b) Enzymes involved in Genetic engineering. [8+8]

5. What is the difference between a cDNA and a Genomic library? Explain how cDNA library is constructed? [16]

6. Discuss the steps involved in PCR based DNA amplification. [16]

7. Write about the following
a) Uses of 16s r RNA typing
b) Use of microarrays in disease profiling. [8+8]

8. Explain the following
a) Insects as expression systems
b) Transgenic animals. [8+8]

--ooOoo--

CODE NO: 07A52304 | R07 | SET - 4

III B.TECH - I SEMESTER EXAMINATIONS - MAY, 2011
GENETIC ENGINEERING
(BIOTECHNOLOGY)

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

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. Write about the following
   a) Arabinose Operon
   b) Tryptophan Operon. [8+8]

2.a) Difference between Promoters and Enhancers.
   b) Eukaryotic gene regulation at mRNA level. [8+8]

3. How are plasmids classified? Add a note on their purification. . [16]

4. Explain the following
   a) Importance of M13 phage as cloning vector
   b) Restriction mapping. [8+8]

5. Explain the difference between Southern, Northern and Western blots. [16]

6. What are the requirements for carrying out a PCR? Explain RT-PCR. [16]

7. Write about the types of Microarrays. How are they constructed? [16]

8. How is Insulin and Blood clotting factor VIII produced through recombinant DNA technology? [16]

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