

III B.Tech I Semester Regular Examinations, November 2006
GENETIC ENGINEERING
(Bio-Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write how attenuation controls expression of 'Trp' operon. [4+12]
2. What is signal transduction? How does it help in regulating gene expression? [4+12]
3. Write notes on any two:
 - (a) Relaxed plasmid
 - (b) PUC8
 - (c) α - Complementation. [8+8]
4. Write C-DNA method of gene cloning [6+10]
5. Write short notes on any two:
 - (a) Restriction enzymes.
 - (b) Gel electrophoresis.
 - (c) Immunofluorescence [8+8]
6. Comment, "RT PCR is an extension of basic PCR". [8+8]
7. Write short notes on any two :
 - (a) Microarray
 - (b) Gene chips
 - (c) Monoclonal antibodies. [8+8]
8. Discuss about the viral methods used in doing In vivo gene therapy. [4+12]

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1. Explain the role of DNA binding proteins in Gene regulation. [8+8]
2. What is signal transduction? How does it help in regulating gene expression?[4+12]
3. Write notes on any two:
 - (a) Relaxed plasmid
 - (b) PUC8
 - (c) α - Complementation. [8+8]
4. Write notes on any two:
 - (a) SV40 virus
 - (b) Genomic library
 - (c) C-DNA [8+8]
5. Write about the vectors used in a gene library construction. [4+12]
6. What is meant by PCR? Describe its methodology. [8+8]
7. Discuss the application of gene chips in various fields of Biotechnology. [4+12]
8. Give detailed information about any two protein products, which are produced through rDNA technology. [8+8]

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1. Write notes on any two.
 - (a) Terminator loops
 - (b) Leader peptide
 - (c) Trp. Repressor [8+8]
2. Explain the role of peptide hormones in eukaryotic gene regulation. [4+12]
3. What are the characters of ideal plasmid? Explain with suitable example. [8+8]
4. Write detailed account on restriction mapping and its importance. [4+12]
5. Explain the expression of cloned genes in Yeast using suitable examples. [4+12]
6. How is PCR different from the traditional cloning? [8+8]
7. What is Repetitive DNA? Discuss its significance in a genome. [6+10]
8. Differentiate between In vivo and Ex vivo gene therapy. [8+8]

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1. Explain the role of DNA binding proteins in Gene regulation. [8+8]
2. Write notes on any two:
 - (a) Tissue specific enhancers
 - (b) Phosphorylated proteins
 - (c) TATA box [8+8]
3. Write notes on any two:
 - (a) Relaxed plasmid
 - (b) PUC8
 - (c) α - Complementation. [8+8]
4. Write notes on any two:
 - (a) Restriction digestion
 - (b) Homopolymer tailing
 - (c) Ligases [8+8]
5. Write about the vectors used in a gene library construction. [4+12]
6. Compare and contrast between PCR and RT PCR. [8+8]
7. What is RFLP? Citing suitable examples highlight its use in gene mapping. [4+12]
8. Write in details about Agrobacterium based plant vectors. [4+12]
