

Total number of printed pages – 4 **B. Tech**
PEBT 8408

Eighth Semester Examination – 2008

HUMAN GENOMICS

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory
and any **five** from the rest.*

*The figures in the right-hand margin
indicate marks.*



1. Answer the following questions : 2 × 10
- (a) Define CATH ? What is its role in proteome analysis ?
 - (b) What is the function of 'TrEMBL' ?
 - (c) What strategies used for disease gene identification and gene cataloguing ?

- (d) What do you mean by Serial analysis of gene expression ? What is its significance ?
 - (e) Name databases and web address of restriction endonuclease enzymes.
 - (f) Define "c-value paradox". Is it play any role in genome complexity and their dynamics ?
 - (g) What is the CpG island ? Mention its significance.
 - (h) Differentiate between VNTR and SSR.
 - (i) What is contig library ? How it plays crucial role in map based cloning of genes ?
 - (j) What is nested PCR ? How it play crucial role in human genome project ?
2. (a) Define genome complexity. Narrate the genome composition of human with note on repetitive DNA. 5

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Contd.

- (b) Briefly explain the Sanger's method of DNA sequencing. How this method was automated for the sequencing of sub-genomic YAC clones? 5
3. (a) What is gene patenting? Explain the possible impact of gene patenting in human health care and diagnostic services. 5
- (b) Briefly explain the strategies used for high throughput structural genomics. 5
4. What do you mean by functional genomics? Briefly explain the various gene knockout approaches utilized for gene to function assignments both in vivo and in vitro. 2+4+4
5. Write short notes on: 5+5
- (a) Assessment of Protein-protein interaction using two hybrid screening.
- (b) Role of molecular medicine in gene therapy.
6. (a) Define GenBank. Briefly explain the GenBank key words and the file format with reference to NCBI. 4
- (b) What is electroporation? Explain basic methodology of electroporation to transfer genes to human genome. 6
7. What is genome? Briefly explain the various physical and genetic mapping strategies used for mapping and positional cloning of human genes. 2+8
8. (a) Define e-PCR. Briefly explain the role of e-PCR in draft sequence curation. 2+4
- (b) How many number of targeted DNA fragment will be generated by using PCR amplification of 45 cycles, where the initial copy number of template DNA is 5×10^6 and mean efficiency of PCR is 80%? 4