

**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  $5 \times 10^6$  and mean efficiency of PCR is 80%? 4