

This question paper contains 4 printed pages]

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S. No. of Question Paper : 1002

Unique Paper Code : 223603

E

Name of the Paper : Biotechnology (ZOHT 611)

Name of the Course : B.Sc. (Hons.) Zoology

Semester : VI

Duration : 3 Hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt Five questions in all. Question No. 1 is compulsory.

1. (A) Distinguish between :

2×4=8

- (i) *Ex-vivo* Gene therapy and *In-vivo* Gene therapy
- (ii) YAC and M13
- (iii) Lytic and Lysogenic Phase
- (iv) Isoschizomers and Isocaudomers.

(B) Define :

4

- (i) Primer
- (ii) Klenow Fragment
- (iii) Insertional Mutagenesis
- (iv) Episome.

P.T.O.

- (C) Expand the following : 4
- (i) VNTR
 - (ii) ddNTP
 - (iii) PFGE
 - (iv) IPTG.
- (D) Write the importance of : 4
- (i) Bt cotton
 - (ii) Bam HI
 - (iii) Real Time PCR
 - (iv) Transformation Frequency.
- (E) Explain the following : 4
- (i) Gene Gun
 - (ii) GMOs
 - (iii) cDNA Library
 - (iv) Dolly.
- (F) Name the scientists who have contributed to the following : 3
- (i) Taq polymerase
 - (ii) DNA fingerprinting
 - (iii) pBR322.

2. (a) Explain the role of effective gene cloning in : 8
- (i) Terminal deoxy-nucleotidyl transferase
 - (ii) Polynucleotide phosphorylase
 - (iii) Colony hybridization
 - (iv) lac Z alpha complementation.
- (b) Diagrammatically represent the Ti-plasmid and give its applications. 4
3. (a) Discuss the various approaches of obtaining the desired DNA for cloning. 4
- (b) What is somatic cell hybridization ? Briefly mention the steps involved. 4
- (c) Write an account on Northern Hybridization. 4
4. (a) Enumerate the procedure for molecular diagnosis of Huntington's disease OR Cystic Fibrosis. 4
- (b) Describe the various methods used in gene therapy. 8
5. (a) The use of rDNA technology has made an impact on modern medicine. Discuss. 8
- (b) Explain DNA microarray and its applications. 4

6. (a) Describe host restriction enzymes. Differentiate among various types. 8
- (b) Define Humulin and give a detailed account of its production. 4
7. Write short notes on any *three* of the following : 3×4=12
- (a) DNA Fingerprinting
- (b) PCR
- (c) Colony Hybridization
- (d) Herbicide Resistant Plants.