

Sr. No. of Question Paper: 6960

Unique Paper Code: 217504

Name of the Paper : Biotechnology EL-310 (iii)

Name of the Course: B.Sc. (Prog.)/B.Sc. Mathematical Science

Semester : V

Duration: : 3 Hrs.

Max. Marks: 75

Attempt five questions in all including Question No. 1 which is compulsory.

1. (a) Differentiate between any ^{three}~~four~~ of the following:

$$3 \times 3 = 9$$

- (i) Type II and Type III restriction endonucleases
- (ii) Biofertilizers and biofuels
- (iii) Stirred tank and Air lift fermentors
- (iv) Plasmid and cosmid
- (v) Physical and Biological containment

(b) Expand the following terms:

$$\frac{1}{2} \times 4 = 2$$

- (i) SCP
- (ii) ddNTP
- (iii) DBT
- (iv) PCR

(c) Define any ^{four} of the following:

$$1 \times 4 = 4$$

- (i) lyophilization
- (ii) Centrifugation
- (iii) Chimeric DNA
- (iv) Expression vector

2. Write short notes on any 'five' of the followings:

$$5 \times 3 = 15$$

- (i) Bioremediation
- (ii) Protoplast fusion

- (iii) Edible vaccines
 - (iv) Somatic embryogenesis
 - (v) Gene Therapy
 - (vi) Biosafety
3. (a) What are vectors? Describe various types of cloning vectors. 7
 (b) What are transgenic plants? Describe the role of transgenic plants in agriculture and environment. 8
 4. (a) Explain the process of downstream processing. 7
 (b) Discuss the various types of fermenters used in the process of fermentation. 8
 5. (a) What are Monoclonal antibodies? Explain hybridoma technology along with its selection. 7
 (b) Describe southern hybridization technique with the help of suitable diagrams. 8
 6. (a) Discuss the applications of industrial microbiology. 7
 (b) Discuss various vaccines prepared using modern tools of biotechnology. 8