

(i) Printed Pages : 3

Roll No.

(ii) Questions : 9

Sub. Code :

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Exam. Code :

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B.A./B.Sc. (General) 1st Semester

1125

BIO-TECHNOLOGY

Paper : BIOT-Elect-Sem-I-T

Time Allowed : Three Hours]

[Maximum Marks : 67

Note :- Attempt **five** questions in all by selecting **two** questions each from Sections A and B. Section C is compulsory. All questions in Sections A and B carry equal marks.

SECTION-A

1. (a) Give the definition of Biotechnology as given by Department of Biotechnology, India and its origin in the field of Science. 6
- (b) Discuss the different biosafety levels and the protocols followed for biosafety in the various laboratories. 7

2. Write a detailed note about the various Biotechnology centers in India with their objectives and achievements. 13

3. (a) Explain with diagram the differences between Prokaryotic and Eukaryotic cells. 6
- (b) Why do you think *E. coli* and *Sacharomyces cerevisiae* are used as the model system in biotechnology? 7
4. (a) Write notes on :
- (i) Restriction enzymes 6
- (ii) Ligases. 6
- (b) Write with reasons the use of *Drosophila melanogaster* and *Arabidopsis thaliana* as model system in biotechnology studies. 7

SECTION-B

5. Describe the various sterilization techniques in Biotechnology. 13
6. (a) Describe the principle and working of Phase-Contrast Microscope. 6
- (b) Explain the difference between Agarose gel electrophoresis and PAGE with principle. 7
7. Give the principle, types and applications of various centrifuges in Biological Sciences. 13

8. (a) What are the input and output devices in computer ? 7
(b) Describe the various data types and their method of collection as applicable in biotechnology. 6

SECTION-C

9. Write short notes on the following :

- (a) Red Biotechnology
- (b) Use of Vectors in Biotechnology
- (c) Autoclave
- (d) Central tendencies
- (e) Sonication.

3×5=15