PG Odd Semester (CBCS) Exam., December—2018

BIOTECHNOLOGY

(3rd Semester)

Course No. : BTYCC–302

(Fundamentals of Genetic Engineering)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. What are restriction endonucleases? Discuss the characteristics of type II restriction endonucleases. Write a note on the applications of restriction endonucleases in genetic engineering. 2+6+6=14

OR

2. What are DNA modifying enzymes? Describe different DNA modifying enzymes with examples. 2+12=14

3. Define plasmids. Discuss the features of pBR322 plasmid and its advantages. Describe how a gene of interest can be cloned in pBR322 plasmid with suitable diagram. 2+6+6=14

OR

4. What is a cosmid? Discuss the features of a cosmid. Describe the method of cloning a gene of interest in cosmid pJB8 with suitable diagram. 2+6+6=14

5. Define DNA sequencing. Write a note on different methods of DNA sequencing. 2+12=14

OR

6. Describe the method of Southern blotting. Highlight the utility of Southern blotting technique. What precautions are necessary for performing Southern blotting? 9+3+2=14

7. Define expression system. What are the properties of a good cloning vector? Differentiate the cloning vectors based on the length of DNA molecules. 2+6+6=14

OR

8. Define cloning. Explain the role of shuttle vector in gene cloning. Discuss the applications of molecular cloning. 2+6+6=14

9. *(a)* What is microarray? Write in detail about the principle of microarray. 2+6=8

(b) Write a note on different approaches in functional genomics. 6

OR

10. *(a)* Write a note on the applications of microarray. 7

(b) Discuss the functional genomics of yeast. 7

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