PG Odd Semester (CBCS) Exam., December—2016

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 enzymes? Discuss different types of restriction enzymes with examples. Write a note on the applications of restriction enzymes in genetic engineering. 2+8+4=14

OR

2. What is gene cloning? Discuss various steps in gene cloning. Write a note on how gene cloning can be used for genetic improvement of a species. 2+8+4=14

3. Define plasmids. Discuss various types of plasmids found in prokaryotes. Mention the characteristics of plasmids required in gene cloning experiments. 2+6+6=14

OR

4. Write a note on the structure and origin of pBR322 plasmid. Discuss the procedure of cloning a gene using pBR322 as a vector with the help of diagram. 6+8=14

5. What do you mean by colony hybridization? Write in details the Western blotting technique and its applications. 2+12=14

OR

6. Write the method of DNA sequencing with special reference to Sanger's method. Discuss the advantages of Sanger's method. 10+4=14

7. Define expression system. Write a short note on any eukaryotic expression system with suitable example. 4+10=14

OR

8. Write short notes on the following : 7×2=14

(a) Importance of chimeric constructs in recombinant protein production

(b) Expression vectors in bacteria and their limitations

9. Define microarray. Discuss different types of microarrays. Write a note on different approaches followed in the study of functional genomics. 3+3+8=14

OR

10. Write short notes on the following : 3½×4=14

(a) SAGE

(b) DNA chip

(c) ENCODE

(d) Cy3 and Cy5

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