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10NT55

Fifth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Genetic Engineering and Applications

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Write a note on different types of vectors and their role in recombinant DNA technology. **(10 Marks)**

b. What is genetic code? **(05 Marks)**

c. Write a short note on safety guidelines of recombinant DNA research. **(05 Marks)**

2 a. What are Restriction endonucleases? Write a note on classification and mode action of exo and endonucleases. **(10 Marks)**

b. Write a detailed note on enzymes in gene modification and their mechanism of action. **(10 Marks)**

3 a. Explain polymerase chain reaction and its applications. **(05 Marks)**

b. Write a note on nucleicacid mutagenesis. **(05 Marks)**

c. Explain Southern and Northern hybridization techniques with diagrammatic representation. **(10 Marks)**

4 a. Write note on the isolation of plasmids. **(05 Marks)**

b. Explain briefly about purification and storage methods of nucleicacid. **(05 Marks)**

c. Explain the process of constructing genomic and CDNA libraries. **(10 Marks)**

PART – B

5 a. Explain Agrobacterium medicated gene transfer in plants. **(05 Marks)**

b. Write a note on transformation and electroporation gene transfer techniques. **(05 Marks)**

c. Define Ti plasmid with example. Explain in detail its structure, functions and advantages of its use in genetic engineering. **(10 Marks)**

6 a. Write a note on RFLP technique. **(05 Marks)**

b. Define transgenic crops with suitable examples and their advantages. **(05 Marks)**

c. Write a note on Biopharming. **(05 Marks)**

d. Explain the role transgenic science in animal improvement. **(05 Marks)**

7 a. Explain in detail the role of engineered microbes in the production of monoclonal antibodies and in the clearing of oil spills. **(10 Marks)**

b. Explain in detail the genetic manipulation involved in microbial biotechnology. **(10 Marks)**

8 a. What are the methods involved in gene therapy and explain its role in the treatment of cancer and SCID. **(10 Marks)**

b. Explain the terms gene targeting and gene silencing. What are possible challenges in gene therapy? Write a short note on the role of gene therapy in the treatment of muscular dystrophy. **(10 Marks)**

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