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10BT55

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Genetic Engineering and Applications

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

PART – A

1 a. Explain the different steps involved in creating the recombinant DNA molecule. **(10 Marks)**

b. What are YAC vectors? Explain the construction, screening and applications of YAC vectors. **(10 Marks)**

2 a. What are restriction endonucleases? Explain in detail the various types of RENs with emphasis on the type II RENs in genetic engineering. **(10 Marks)**

b. Enumerate the mechanism of action and applications of Ligases and Alkaline phosphates. **(10 Marks)**

3 a. Discuss any two variants of PCR with their applications. **(10 Marks)**

b. What is southern blotting? Explain in detail the technique of DNA detection and hybridization by southern blot. **(10 Marks)**

4 a. Explain the different methods of isolation and purification of total RNA. **(10 Marks)**

b. What are Genomic and CDNA libraries? Explain in detail eh method of construction and screening of genomic DNA libraries. **(10 Marks)**

PART – B

5 a. Elucidate the salient features of T_i plasmid and add a note on the mechanism of T – DNA transfer. **(08 Marks)**

b. What are Liposome's? Explain how Liposome's are exploited to deliver genes into cells. **(06 Marks)**

c. Describe the gene gun mediated gene transfer. **(06 Marks)**

6 a. Explain the transgenic science involved in the production of Bt cotton and herbicide resistant plants. **(10 Marks)**

b. What are transgenic animals? Explain the various approaches of creating transgenic animals. **(10 Marks)**

7 a. Write an account on production of monoclonal antibodies. Add a note on their applications. **(10 Marks)**

b. Describe the production of human growth hormones by recombinant DNA technology. **(10 Marks)**

8 a. Define exvivo and inxvivo gene therapy. Discuss the role of gene therapy in the treatment of SCID and cystic fibrosis. **(10 Marks)**

b. Write short notes on :
i) Gene targeting
ii) Challenges in gene therapy. **(10 Marks)**

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