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BCH 551

IV Semester M.Sc. Degree Examination, September/October 2022
BIOCHEMISTRY
Genetic Engineering

Time : 3 Hours

Max. Marks : 70

Note : Answer **any ten** from Part – **A** and **five** from Part – **B**.

PART – A

1. Answer **any ten** of the following questions : **(10×2=20)**

- a) How is viability of cells measured ?
- b) Write the significance of alkaline phosphatase in gene cloning.
- c) What are competent cells ?
- d) Mention two example for prokaryotic promoters used in construction of expression vector ?
- e) What is protoplast fusion ?
- f) What are the advantages of artificial chromosome over plasmids ?
- g) What is a DNA foot print assay ?
- h) What are microcarriers ?
 - i) What is HUVEC ?
 - j) Mention two importance of adding serum in animal cell culture media.
- k) Define callus.
- l) Define Encapsulation.

PART – B

Answer **any five** questions. **(5×10=50)**

2. a) Explain the synthesis and construction of cDNA.
- b) Discuss the construction and application of these cloning vectors.
 - i) pBR 322 and
 - ii) λ EMBL.

(5+5=10)

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3. a) Write a note on cosmid based vectors.
b) What are the strategies for selecting recombinant phages ? **(5+5=10)**
 4. a) Explain dideoxy method of DNA sequencing.
b) Discuss the method of production of haploids and add a note on their application. **(5+5=10)**
 5. a) Write a brief note on different methods of DNA transfer.
b) Discuss on the construction of Ti based vectors to obtain recombinant plants. **(5+5=10)**
 6. a) Write a note on polymerase chain reaction. Add a note on its applications.
b) What are the key physico-chemical parameters controlled during animal cell culturing ? **(5+5=10)**
 7. a) What is blotting ? Explain Southern blotting with applications.
b) Comment on the design of bioreactor. Add a note on monitoring various parameters during the growth of cells. **(5+5=10)**
 8. a) Elaborate on applications of genetic engineering in agriculture and food.
b) What is RFLP ? Comment on its application. **(5+5=10)**
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