Reg. No. | | | | | | | | | |

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)**

P.T.O.

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)**
