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

BSCBTV 281

Choice Based Credit System IV Semester B.Sc. Degree Examination, September 2022
(2020-2021 Batch Onwards)
BIOTECHNOLOGY
Molecular Biology and Recombinant DNA Technology

Time : 3 Hours Max. Marks : 80

Instructions *: 1) Answer* ***all*** *questions.*

2) Draw diagrams ***wherever*** *necessary.*

PART – A

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

a) What is ori C ? Mention its significance.

b) What is an A form of DNA ?

c) What is attenuation ? Give an example for an operon where this is a method of its regulation.

d) What is an operon ? Mention genes of lac operon.

e) What are introns and exons ?

f) What are transposons ? Give any two examples.

g) Expand CTAB. Mention one application of it.

h) Name any two plant viruses as vectors.

i) What is a molecular probe ? Mention any two applications.

j) What is biosafety ? Mention its significance in r DNA technology.

k) What are transcription factors ?

l) What is Northern blotting ? Mention its application (any two).

PART – B

Answer **any four** questions choosing **one full** question from **each** Unit.

2 . a) Write a short note on eukaryotic gene structure. **4**

b) Give an account on Watson and Crick model of DNA. **4**

c) Explain in detail about Hershey Chase experiment. **7**

OR

3. a) Write a note on homologous recombination. **3**

b) Write a note on DNA polymerases used in replication. **5**

c) Give an account on Griffith experiment. **7**

4. a) Explain about initiation of eukaryotic translation. **4**

b) Explain about Lac operon. **4**

c) With a neat labelled diagram explain about prokaryotic transcription. **7**

OR

5. a) Briefly explain about RNA polymerases. **3**

b) Explain attenuation of trp operon. **5**

c) Explain the steps involved in elongation and termination of prokaryotic translation. **7**

6. a) Explain about alkaline phosphatases. **4**

b) Describe about plasmid as vectors. **4**

c) Write a note on isolation and purification of DNA from animal cells. **7**

OR

7. a) Write a short note on DNA ligation. **3**

b) Explain in brief about nucleases. **5**

c) Describe in detail about the aim, scope and objectives of gene cloning. **7**

8. a) Write a short note on molecular probes. **4**

   b) Explain the construction of c DNA library. **4**

   c) Discuss the principle and applications of PCR. **7**

OR

9. a) Write a note on Southern blotting. **3**

   b) What is insertional inactivation ? **5**

   c) Discuss about the screening and selection of recombinants by selection media. **7**

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