

No. of Printed Pages : 04

Roll No.

18C65

B. Tech. EXAMINATION, 2020

(Third Semester)

(C Scheme) (Main & Re-appear)

(BT)

BT211C

Introductory Biotechnology

Time : 2½ Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks

1. (a) How do you define Biotechnology ? Discuss the origin of this science and elaborate upon some of its major discoveries in the twentieth and the twenty-first century.
(b) Which macromolecule forms the genetic material ? Discuss its types, chemical structure, properties and metabolism.
2. (a) Define Molecular Markers. Discuss the principle and applications of the major molecular markers used in Biotechnology.
(b) With the help of suitable diagrams, explain the differences between the two major sequencing types.
3. (a) What are the different steps involved in a basic recombinant DNA technology experiment ? Give a descriptive account of the major tools involved in it.
(b) Discuss the construction of a cDNA and genomic DNA library.

4. Write a descriptive note on the major features, advantages and disadvantages of the different vector systems commonly used in recombinant DNA technology. Also differentiate between cloning vectors and expression vectors.
5. (a) Discuss the advantages, disadvantages and applications of plant tissue culture.
(b) Describe the composition of one of the most common culture medium used for plant tissue culturing. Also discuss the role of different hormones used as additives in plant tissue culture medium.
6. Explain briefly :
 - (a) Sterilization methods used for tissue culture
 - (b) Suspension cultures
 - (c) Subculturing and maintenance of cell lines.

7. With the help of some recent examples, discuss the applications of Biotechnology in the field of :
- (a) Agriculture
 - (b) Healthcare and diagnostics.
8. Write notes on the following :
- (a) Intellectual Property Rights
 - (b) Protein and Metabolic Engineering.