

Seat No. : _____

AB-111

April -2018

B.Sc., Sem.-VI

CC-307 : Microbiology (Genetic Engineering & Biotechnology)

Time : 3 Hours]

[Max. Marks : 70

- Instructions :**
- (1) Draw figures wherever necessary.
 - (2) Mention correct question number against each answer.
 - (3) Figures to the right indicate marks.

1. Answer the following : (any **two**) **14**
 - (A) Explain the basic mechanism/steps of genetic engineering.
 - (B) Enlist important tools necessary for rDNA technology. Explain the role of vectors in rDNA technique.
 - (C) Give importance of various enzymes in gene cloning technology.
 - (D) Polymerase chain reaction is a technique to make many copies of a specific DNA region *in vitro*. Explain.

2. Answer the following : (any **two**) **14**
 - (A) Describe various methods for joining isolated DNA with vector.
 - (B) What is cDNA ? How it is obtained and what are its advantages ?
 - (C) How is the rDNA transferred into suitable host cells ?
 - (D) Explain colony hybridization, as the method for the selection of recombinant population.

3. Answer the following : (any **two**) **14**
 - (A) Biotechnology is truly multidisciplinary in nature and it encompasses several disciplines of basic sciences and engineering. - Justify
 - (B) Write an essay on plant or animal tissue culture.
 - (C) Describe molecular hybridization and its application.
 - (D) Discuss the principle of electrophoresis and its applications in blotting techniques.

4. Answer the following : (any **two**)

14

- (A) What are genetically modified plants ? Explain their advantages.
- (B) Explain giving one example the role of enzymes in each of the following area.
 - (1) Diagnosis of disease.
 - (2) Use in detergents, textiles, foods, beverages and leather industry.
- (C) What is MEOR ? Describe the mechanisms involved in MEOR.
- (D) Describe different types of microbial insecticides, their mode of actions and applications.

5. Give short and specific answers in **1-2** lines only :

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- (1) What are cDNA libraries ?
 - (2) Give the application of gene probe.
 - (3) Which organism is considered as natural genetic engineer ?
 - (4) Who discovered the technique of site directed mutagenesis ?
 - (5) Which chemical stimulates the uptake of naked DNA by protoplasts ?
 - (6) Name plant growth regulators which play an important role in growth and differentiation of cultured plant cells and tissues.
 - (7) Name one of the enzymes commonly used in ELISA.
 - (8) What are xenobiotic compounds ?
 - (9) Who discovered DNA microarray technique ?
 - (10) What is bioethanol ?
 - (11) What are the two most important advantages of bioremediation ?
 - (12) Define "Intellectual Property Rights".
 - (13) Enlist few ethical issues of biotechnology.
 - (14) What is PGPR ? Give two examples.
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