

Seat No. : _____

MM-122

March-2019

B.Sc., Sem.-VI

307 : Microbiology

Time : 2:30 Hours]

[Max. Marks : 70

- Instructions :**
- (1) All questions are compulsory.
 - (2) Draw figures wherever necessary.
 - (3) Write correct question number against each answer.
 - (4) Figures to the right indicate marks.

1. (A) Enlist important tools necessary for rDNA technology. Explain the role of vectors in rDNA technique with example. **14**
OR
 - (i) Give importance of various enzymes in gene cloning technology. **7**
 - (ii) Explain outlines of genetic engineering with diagram. **7**(B) Give short & specific answers in 1-2 lines only : (any **four**) **4**
 - (i) Which organism is considered as natural genetic engineer ?
 - (ii) Define genetic probe oligonucleotide.
 - (iii) Define phagemid.
 - (iv) Define cassette mutagenesis.
 - (v) Give role of DNA ligase in genetic engineering.
 - (vi) What is RT PCR ?

2. (A) Describe various methods for joining isolated DNA with vector and explain colony hybridization as the method for the selection of recombinant population. **14**
OR
 - (i) What is cDNA ? How it is obtained and what are its advantages ? **7**
 - (ii) How is rDNA transferred in to suitable host cells ? **7**(B) Give short & specific answers in 1-2 lines only : (any **four**) **4**
 - (i) Which chemical stimulates the uptake of naked DNA by protoplast ?
 - (ii) Give application of gene probe.
 - (iii) Give application of marker gene.
 - (iv) Define southern blot.
 - (v) Define Gene gun.
 - (vi) Define transfection.

3. (A) Write a note on biotechnology, discuss its diverse fields and mention its applications. 14

OR

- (i) Explain ELISA and discuss different variations of the technique. 7
- (ii) Write a detailed note on plant tissue culture. 7
- (B) Give short & specific answers in 1-2 lines only : (any **three**) 3
- (i) What are DNA chips ?
- (ii) Which radio labelled agent is used extensively to label antigens in RIA technique ?
- (iii) What is reverse phase chromatography ?
- (iv) Give example of continuous cell culture.
- (v) Give full form of SDS-PAGE.

4. (A) Describe different types of microbial insecticides, their mode of actions and applications. 14

OR

- (i) What is MEOR ? Describe the mechanisms involved in MEOR. 7
- (ii) Write a note on IPR. 7
- (B) Give short & specific answers in 1-2 lines only : (any **three**) 3
- (i) What are two most important advantages of bioremediation ?
- (ii) Enlist few ethical issues of biotechnology.
- (iii) What are PGPR ? Give two examples.
- (iv) What is bioethanol ?
- (v) Give example of enzymes used for diagnosis of disease.
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