Seat No. : _____

AC-154

April-2019

M.Sc., Sem.-II

408 : Microbiology

Gene Regulation & Recombinant DNA Technology

Time : 2:30 Hours] **[Max. Marks : 70**

Instructions : (1) Question 1 and 2 carry 18 marks.
(2) Question 3 and 4 carry 17 marks.

1. (A) Describe molecular aspects of lysogeny. **14**

OR

(a) Define operon and explain lactose operon. **7**

(b) Write a note on attennated control. **7**

(B) Answer any **four** : **4**

(1) What is operator region ?

(2) Write in brief on repressor.

(3) Write the –35 and –10 consensus sequences.

(4) Write on sigma factor in two lines only.

(5) What is helix turn helix motif ?

(6) What is catabolite repression ?

2. (A) Write an exhaustive note on enzymes involved in genetic engineering. **14**

OR

(a) Explain cohesive and blunt end ligation. **7**

(b) What is c DNA ? Explain c DNA library. **7**

(B) Answer any **four** : **4**

(1) Type I and Type II endonucleases.

(2) Linkers

(3) Adapters

(4) Maximum procedure for DNA sequencing

(5) Sanger Coulson method of DNA sequencing.

(6) Steps of DNA isolation.

3. (A) Describe plasmid vectors in detail. **14**

OR

(a) Write a note on transformation, transfection and electroporation to introduce released DNA into host cell. **7**

(b) What is artificial chromosome ? Write a note on BAC vector. **7**

(B) Answer any **three** : **3**

(1) Types of vectors

(2) Draw diagram of PBR 322.

(3) Three properties of good host.

(4) Three properties of good vector.

(5) Colony hybridization.

4. (A) Describe DNA finger printing in detail. **14**

OR

(a) Explain DNA foot printing. **7**

(b) Discuss various types of microarrays. **7**

(B) Answer any **three** : **3**

(1) Southern hybridization

(2) Northern hybridization

(3) Advantages of non radioactive probes

(4) Application of microarrays.

(5) DNA chips.