

Seat No. : \_\_\_\_\_

**AQ-102**

**May-2016**

**B.Sc. Sem.-IV**

**CC-204 : Biotechnology  
(Basic Genetics)**

**Time : 3 Hours]**

**[Max. Marks : 70**

1. Answer the following : **14**

(A) Discuss fine structure analysis of gene done by Benzer over rII gene.

**OR**

Write Mendel's laws on inheritance and explain any one in detail.

(B) Explain the method for constructing genetic map by recombination frequency analysis.

**OR**

Define and explain with example (1) Co-dominance (2) Genetic linkage.

2. Answer the following : **14**

(A) Explain Cairn's models of chromosomal replication with diagrams.

**OR**

Describe the role of various protein factors in the process of DNA replication.

(B) List the means of DNA repair mechanism and explain any one in detail.

**OR**

Write a detailed note on genetic code.

3. Answer the following : **14**

(A) Define mutagen and explain mutagenic action of UV light.

**OR**

List phenotypic mutants types of bacteria and explain any two of them.

(B) Give principle, procedure and importance of Ames Test.

**OR**

Compare and Contrast mutations : (1) Spontaneous Vs Induced (2) Insertion Vs Deletion.

4. Answer the following : 14

(A) Explain Conjugation with diagram and define terms  $F^+$ , Hfr and  $F'$ .

**OR**

Explain Insertion and Transposable elements of prokaryotes.

(B) Discuss general properties of bacterial plasmids and discuss R-factor in detail.

**OR**

Discuss the Griffith's experiment on pneumococcal transformation.

5. Answer the following in brief : 14

(1) Name two sex-linked traits.

(2) What is Back cross ?

(3) What is meaning of Homozygous Recessive gene ?

(4) Who proved semi-conservative mode of DNA replication ?

(5) What is use of Equilibrium Density Gradient Centrifugation ?

(6) Which reaction is catalyzed by enzyme Reverse Transcriptase ?

(7) List three terminating codons.

(8) Name two t-RNA binding sites over ribosome.

(9) What is meaning of E.coli Lys mutant ?

(10) Who proved that DNA replication is semi-conservative ?

(11) What are conditionally lethal mutants ?

(12) What are bacteriocins ?

(13) Define Transduction.

(14) Name dye acting as mutagen.

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