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5217

Your Roll No

B.Sc. Programme/III

J

BIO – 302

GENETICS, BIOTECHNOLOGY AND IMMUNOLOGY

(Admissions of 2007 and before)

Time 3 Hours

Maximum Marks 75

*(Write your Roll No on the top immediately
on receipt of this question paper)*

Use separate answer-sheets for Sections A & B.

Attempt all parts of a question together

SECTION A

Attempt All questions

1 (a) Explain the following

(i) Euploidy

(ii) Isochromosomes

(iii) Down Syndrome

(iv) Mutations are the basis of variation in organisms (4)

(b) Differentiate

(i) Test Cross and Back Cross

(ii) Northern and Southern blotting

P T O (4)

(c) Define the following (Any **eight**)

- (i) Dihybrid Cross
- (ii) Transduction
- (iii) Pleotropic genes
- (iv) Plasmid
- (v) Bacteriophage
- (vi) Intrachromosomal transformation
- (vii) Non-histone protein
- (viii) Ligase
- (ix) Polyploidy
- (x) Dispermic fertilisation (8)

(d) Give contribution of the following (Any **five**)

- (i) A H Sturtevant
- (ii) Jacob and Monod
- (iii) Holley
- (iv) Baltimore
- (v) Saiki
- (vi) Mendel
- (vii) Carl Correns (5)

2 Diagrammatically represent the life cycles of phages
(No explanation) (8)

- 3 Discuss the role of chloroplast in extranuclear inheritance (8)
- 4 What is Non allelic gene interaction ? How many a mendelian 9 3 3 1 ratio be converted into a 9.7 ratio (8)
- 5 Write short notes (Any four)
- (i) Allopolyploidy
 - (ii) Point mutations
 - (iii) Holliday model
 - (iv) Multiple alleles
 - (v) Sex linked inheritance
 - (vi) Taq polymerase (10)

SECTION B

Attempt two questions in all, including Question No 1 which is compulsory

- 1 (a) Define the following
- (i) Hapten
 - (ii) Epitope (2)
- (b) Differentiate between the following
- (i) Memory cell and Plasma cell

(ii) Innate and Adaptive immunity

(iii) Naive and activated Lymphocyte (6)

(c) Write the full form of the following abbreviations

(i) ADCC

(ii) GALT (2)

2 (a) Explain the role of B and T Lymphocytes in giving adaptive immunity

(b) Why is Secondary immune response better than the primary response? (8,2)

3 Write short notes on any two of the following

(a) ELISA

(b) Antigen presenting cells

(c) Anatomical barriers of immunity

(d) Agglutination reactions (5,5)