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Roll No. .....

B. Sc.(Biotech.)-II Year

NS-3467

B. Sc. (Biotechnology) Examination, May 2016

MOLECULAR GENETICS AND CYTOGENETICS

(B-204)

(New)

Time : Three Hours] *[Maximum Marks : 50*

Note : Attempt any *five* questions. All questions carry equal marks.

1. Discuss fine structure of Lozenze locus in *Drosophila* and rII locus in T_4 phage. 10

2. Write notes on the following : 5×2=10
   (a) Cis-trans effect
   (b) Position effect.

3. Describe in detail the phenomenon of inversions and translocations in chromosome. 10

4. Write an essay on "Selection" method of plant breeding. 10

5. Write short notes on the following : 2½×4=10
   (a) Deficiency
   (b) Alternate dysjunction
   (c) Tandem duplication
   (d) Bar eye in *Drosophila*.

6. What is polyploidy ? Discuss the role of polyploidy in evolution using specific examples of natural polyploidy. 10

7. Write short notes on the following : 2½×4=10
   (a) Nullisomic
   (b) Tetrasomic
   (c) Kihara's seedless watermelon
   (d) Triticale.

8. Write short notes on the following : 2½×4=10
   (a) Gene conversion
   (b) Test cross in Maize
   (c) Interference and coincidence
   (d) Cytological basis of crossing over.

9. Discuss in detail the use of following molecular markers: 5×2=10

   (a) Random amplified polymorphic DNA's (RAPD's).

   (b) Amplified fragment length polymorphism (AFLP).

10. Write short notes on the following: 5×2=10

   (a) Applications of molecular markers

   (b) Pulsed-field gel electrophoresis.