

AQ-893

M.Sc. (Part—I) Semester—II (CBCS Scheme)
Examination
BOTANY
Paper—V
(Cytogenetics and Molecular Biology)

Time—Three Hours]

[Maximum Marks—80

Note :—(1) All questions are compulsory and carry equal marks.

(2) Illustrate your answer with well labelled diagrams and suitable examples wherever necessary.

1. Write an account of chemical and physical methods used to induce polyploids. Add a note on its significance in crop improvement. 16

OR

- (a) What is 'inbreeding depression' ? Give in detail the consequences of inbreeding. 8
- (b) Explain methods of breeding in self pollinated crops. 8
2. What is multigene ? Describe various types of multigenes and proteins produced. Add a note on chaperones. 16

OR

In brinjal plant the following genes are present on chromosome number 3

+ → white fruit p → purple fruit
 + → spring calyx s → smooth calyx
 + → green stripes w → white stripes

results of the error +++/psw + psw/psw

+++	→	485
psw	→	424
+sw	→	37
p++	→	33
++w	→	11
ps+	→	07
+s+	→	02
p+w	→	01

1000

Find out the correct gene sequence, map the genes and determine the interference. 16

3. Describe :—

- (c) Cis trans test. 5
 (d) The role of Rec BCD proteins in site specific recombination. 6
 (e) YAC. 5

OR

- (f) Role of spliceosomes in mRNA splicing. 6
 (g) Holiday junction. 5
 (h) TATA Box. 5

4. Write on :—

- (i) RAPD. 5
 (j) Southern blotting. 5
 (k) Restriction endonucleases. 6

OR

- (l) AFLP. 5
 (m) DNA finger printing. 5
 (n) Construction of restriction map. 6

5. Write on :—

- (o) Dideoxy chain termination method of DNA sequencing. 5
 (p) Measures of central tendency. 5
 (q) Structure databases. 6

OR

- (r) Applications of DNA sequencing. 5
 (s) Chi square test. 5
 (t) Tools of Bioinformatics. 6