5 SEM TDC BOT M 3

2 0 1 9

(November)

BOTANY

(Major)

Course : 503

(Genetics, Plant Breeding and Biostatistics)

Full Marks : 48

Pass Marks : 19/14

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

1. (a) Choose the correct answer of the
   following :   1×3=3

   (i) Which of the following is not a
       plasmid?

       F   factor/R   factor/Col   factor
       /nucleoid

   (ii) Crossing-over   occurs   during
        leptotene / zygotene / diplotene / dia-
        kinesis.

(iii) Hand emusculation is generally recommended in crops with very small flower/large flower /monecious condition/dioecious condition.

(b) Fill in the blanks : 1×2=2

(i) When two pairs of contrasting characters are taken in a cross, it is called _____ cross.

(ii) The square of standard deviation is known as _____.

(c) Write short notes on the following :

4+3+3+3=13

(i) Apomixis

(ii) Linkage

(iii) Karyotype

(iv) Chi-square test

2. What do you mean by cytoplasmic inheritance? Give a detailed account of cytoplasmic inheritance with special reference to plastid inheritance and Kappa particle inheritance. 2+5+4=11

Or

Write explanatory notes on the following :

5+6=11

(a) Microbial transformation

(b) XX female and XY male type of sex determination

3. What are the aims and objectives of plant breeding? Discuss about the mutation breeding and their advantages. 4+5+2=11

Or

Write short notes on the following : 5+6=11

(a) Role of heterosis in plant breeding

(b) Application of tissue culture in the improvement of crops

4. What is standard deviation? Calculate mean, median and mode of the data given below : 2+6=8

Class interval	Frequency
15–25	4
25–35	11
35–45	19
45–55	14
55–65	0
65–75	2

(4)

Or

Write notes on the following : 3+5=8

(a) Addition theorem of probability

(b) Application of statistics in biological science

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