Total No. of Printed Pages—4

5 SEM TDC BOT M 3

2018

(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)* Express the following in *1* word : 1×3=3

(i) An alternative form of gene

(ii) Replacement of purine base by another purine base

(iii) The superiority of an F_1 hybrid over both the parents

(b) Choose the correct answers of the following : 1×2=2

(i) Phenotypic ratio of blending inheritance is 2 : 1/3 : 1/1 : 2 : 1.

(ii) The point on the scale above and below which lies one-half of the scores is called median/mode/mean.

(c) Write short notes on the following : 3×3=9

(i) Multiple alleles

(ii) In vitro culture

(iii) Tests of significance

2. (a) What are monohybrid and dihybrid experiments? Define 'Law of Independent Assortment'. Explain with an example that Mendel's law of independent assortment is not universally applicable. 2+2+4=8

Or

Distinguish between transition and transversion. Describe briefly the types of transition mutation found in living organisms. 2+6=8

(b) Write short notes on any *two* of the following : 3×2=6

(i) Gene cloning

(ii) Crossing-over with an example

(iii) Inheritance of kappa particles

(iv) Concept of gene mapping

(Continued)

3. Define 'hybridization' and state its objectives. Discuss briefly the different steps of hybridization procedure. Also define back-cross breeding. 2+2+5+2=11

Or

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

(a) Apomixis and its types

(b) Mass selection and its importance

4. Calculate mean, median and mode from the data given in the following table : 3×3=9

Class interval	*Frequency*
10–14	4
15–19	5
20–24	8
25–29	7
30–34	15
35–39	13
40–44	7
45–49	6
50–54	2
55–59	3

(Turn Over)

Or

Describe the following : 4+5=9

(a) Standard deviation

(b) Role of statistics in biological science

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