Total No. of Printed Pages—3

5 SEM TDC BOT M 3

2017

(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 : 1×2=2

(i) The gene that masks the effect of an another gene.

(ii) A physical or chemical agent which induces mutation.

(b) Fill in the blanks : 1×3=3

(i) The chromosome theory of linkage was proposed by _____ .

(ii) Crossing of two parents belonging to different species is called _____ cross.

(iii) The value in a series which occurs most frequently, i.e., has the maximum frequency is termed as _____.

(c) Write short notes on the following : 3×4=12

(i) Multiple gene

(ii) Cytological basis of crossing over

(iii) Mutation breeding

(iv) Cumulative frequency

2. What is cytoplasmic inheritance? Distinguish between cytoplasmic gene and chromosomal gene. Give a detailed account of cytoplasmic inheritance with special reference to plastid inheritance and Kappa particle inheritance. 1+3+7=11

Or

Write explanatory notes on the following : 5½+5½=11

(a) Sex-limited traits

(b) Microbial transduction

3. What do you mean by heterosis? Give genetic explanations of heterosis. Mention the role of heterosis in plant breeding. 2+6+4=12

Or

Write short notes on the following : 6+6=12

(a) Acclimatisation

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

4. Distinguish between standard error and standard deviation. Find out the mean, mode, median and standard deviation of the following data : 3+5=8

Size of item	10	11	12	13	14	15	16
Frequency	2	7	11	15	10	4	1

Or

What are the basic differences between statistics and biostatistics? Discuss the application and uses of statistics in biological science. 2+6=8

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