

(i) Printed Pages: 4

Roll No.

(ii) Questions : 9

Sub. Code :

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Exam. Code :

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B.A./B.Sc. (General) 2nd Semester

1048

BOTANY

Paper : B Genetics

Time Allowed : Three Hours]

[Maximum Marks : 36

Note :— Attempt five questions in all. Question No. I is compulsory and select one question from each unit.

I. (A) MCQ's (Choose the right answer) :

(i) Genotypic ratio of monohybrid cross is :

(a) 2 : 2

(b) 1 : 2 : 1

(c) 1 : 1

(d) 9 : 3 : 3 : 1

(ii) Which of the following is not category of Chemical mutagen ?

(a) Base modifying

(b) Base analogue

(c) Intercalating compound

(d) Ionising radiations

(iii) Chromosomal theory of inheritance was proposed by :

- (a) Mendel
- (b) Morgan
- (c) Sutton and Boveri
- (d) Bridges

(iv) Karyotype of *Drosophila* has following pair of chromosomes :

- (a) 4
- (b) 8
- (c) 23
- (d) 10

(v) Mutagenic effect of X-ray was first observed by :

- (a) Morgan
- (b) Beadle
- (c) Muller
- (d) De Vries

(vi) Which of the following is an example of co-dominance ?

- (a) Flower colour in *Lathyrus*
- (b) Fur colour in mice
- (c) Hair colour in cattle
- (d) ABO blood group in man

(B) Fill-up :

(vii) _____ is a replacement of purine with pyrimidine of vice-versa in DNA.

(viii) The phenomenon of masking of expression of a gene by another non-allelic gene is called _____.

(ix) Genes present on the Y-chromosomes are called _____.

(x) Mendelian factors are called as _____.

(xi) _____ blood group individuals are called universal donors.

(xii) F_2 ratio of 12 : 3 : 1 indicates _____. $1 \times 12 = 12$

UNIT—I

II. State and explain Mendel's law of segregation with example. 6

III. Differentiate between :

(a) Dominant and recessive gene

(b) Homozygote and heterozygote. 3,3

UNIT—II

IV. Write notes on :

(i) Quantitative and qualitative inheritance

(ii) Dominance and Epistasis. 3,3

V. What are supplementary genes ? Explain with example. 6

UNIT—III

- VI. Explain chromosomal theory of inheritance in detail. 6
- VII. Differentiate between nuclear and extranuclear inheritance with examples. 6

UNIT—IV

- VIII. What are gene mutations ? Give mechanism of it. 6
- IX. Write notes on (any **two**) :
- (i) DNA damage and repair
 - (ii) Prototroph and auxotroph
 - (iii) Chemical mutagens. 3,3