

B.Sc. (With Credits)-Regular-Semester 2012 Sem II
2SBT-T2 - Biotechnology-II : Paper-II (Genetics)

P. Pages : 2

Time : Three Hours



GUG/W/16/5565

Max. Marks : 50

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

1. Discuss Mendel's law of independent assortment. 10

OR

Describe chromosomal theory of sex determination.

2. Describe various types of chromosomal structural abnormalities. 10

OR

Discuss the role of mitochondria and chloroplast in the extrachromosomal inheritance.

3. a) Write brief account of incomplete dominance. 2½

b) Give the significance of crossing over. 2½

c) Write a note on Klinefelter's syndrome. 2½

d) Explain with example the inheritance of X-linked recessive gene in humans. 2½

OR

e) What is co-dominance ? Explain with example. 2½

f) What is coupling repulsion hypothesis ? 2½

g) What is polyploidy ? Give its significance. 2½

h) Explain Hardy-Weinberg equilibrium. 2½

4. a) Give a brief account of multiple alleles. 2½

b) Explain one-plane and two-plane theory of crossing over. 2½

c) Write a note on Down syndrome. 2½

d) Giving example explain autosome recessive genetic disorder. 2½

OR

e) Discuss non-allelic interaction showing 13:3 ratio. 2½

- f) Write a note on Holliday junction. 2½
- g) Describe in brief aneuploidy. 2½
- h) Give a brief account of haemophilia. 2½

5. Attempt **any ten** of the following.

- a) What is test cross ? 1
- b) What is holandric gene ? 1
- c) What are pseudoalleles ? 1
- d) How many linkage groups are present in human male and female ? 1
- e) What is epistasis ? 1
- f) What is somatic crossing over ? 1
- g) What is Turner's syndrome. 1
- h) What is duplication loop ? 1
- i) What type of interaction are involved in 9:3:4 ratio? 1
- j) Define the term genotype. 1
- k) Define gene pool. 1
- l) What are supplementary genes ? 1
