

B.Sc. (Honours) Examination, 2017

Semester-VI

Botany

Course: BBC-61 (Core)

(Cytology & Genetics)

Time: 3 Hours

Full Marks: 40

Questions are of value as indicated in the margin.

1. Answer **any eight** questions: 1x8=8
- i) What is solenoid structure of chromatin?
 - ii) What is numerical aperture?
 - iii) What is Down's syndrome?
 - iv) What is nuclear lamina?
 - v) What is the function of histone H1?
 - vi) What is transposon?
 - vii) What is median?
 - viii) Give the characteristics of polygenes.
 - ix) What is complete linkage?
 - x) What is haplo-diploidy system of sex determination?
 - xi) What is inhibitory factor?
 - xii) Define inbreeding depression.

Group-A(Cytology)

Answer **any two** questions:

2. What are the chemical components of DNA? Briefly describe the structure and characteristics features of DNA as proposed by Watson & Crick? 2+6=8
3. How does basic chromosome number differ from haploid number? With suitable example, elucidate the various types of polyploidy found in plants. 2+6=8
4. Mention the various stages of cell cycle. Describe the major cytological and molecular event occurring in various stages in mitotic cell division. 2+6=8

Group-B(Genetics)

Answer **any two** questions:

5. Distinguish between spontaneous and induced mutation. Describe the different types of point mutation based on addition/deletion of nucleotide and base substitution. 2+6=8
6. Describe any two methods for improvement of self pollinated plant through hybridization. What are the advantages of pure-line selection over mass selections? 6+2=8
7. Outline the procedure for preparing a chromosome map with the help of three point test cross. Give the mathematical explanation of correlation co-efficient. 6+2=8