

VI Semester B.Sc. Examination, May/June 2018
(CBCS) (Fresh + Repeaters) (2016 - 17 and Onwards)
BOTANY - VII

Cytology, Genetics, Evolution and Plant Breeding

Max. Marks : 70

Time : 3 Hours

Instructions : 1) Answer **all** Parts.
2) Draw diagrams wherever necessary.

PART - A

A. Explain/Define **any ten** of the following in **two to three** sentences : (10×2=20)

- 1) What is Karyotype ?
- 2) What is 2R-hypothesis ?
- 3) What is Pollen Bank ?
- 4) What is an allele ?
- 5) What are caspases ?
- 6) Mention the types of chromosomes based on the position of centromere.
- 7) What are Chiasmata ?
- 8) Mention the types of chromosomal aberrations.
- 9) Differentiate between Phenotype and Genotype.
- 10) Any two significances of Mitosis.
- 11) What is Neo-Darwinism ?
- 12) What are Homologous chromosomes ?



PART – B

(4×5=20)

B. Write critical notes on any four of the following.

- 13) Mitotic Apparatus.
- 14) Incomplete Linkage with an example.
- 15) Objectives of Plant Breeding.
- 16) Pachytene and Diplotene stages of Meiosis-I.
- 17) Differences between Mitosis and Meiosis.
- 18) Explain the Law of segregation with a monohybrid cross.

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PART – C

C. Give a comprehensive account of any three of the following.

(3×10=30)

- 19) Describe the structure of a chromosome and add a note on nucleosome.
- 20) Complementary factors with a suitable example.
- 21) Describe Grafting and Layering with suitable sketches.
- 22) Role of Polyploidy in plant evolution.
- 23) In *Antirrhinum majus*, tall (DD) is dominant over dwarf (dd) and the red flowers (RR) are incompletely dominant over white (rr), the hybrid being pink.
When a pure tall red is crossed to dwarf white, give the expected phenotypes both in F_1 and F_2 .

