

**CITY COLLEGE INTERMEDIATE EXAMINATION (CBCS - ONLINE), 2020**  
**DEPARTMENT OF BOTANY SEMESTER: IV COURSE - CC10 (HONS) GENETICS**  
**15/12/2020 (11:00 AM - 03:00 PM) Full Marks: 50**

**INTERNAL (A):**

1. **Answer any two:** 5x2
- a. Write a note on the split gene.
  - b. Write a note on DNA repair mechanism (any two types).
  - c. What is the transition and transversion type of mutation?
  - d. Illustrate meiotic behaviour of trisomics.

**THEORY (B):**

2. **Answer any two:** 10x2
- a. Write down Meiotic behaviour of paracentric and pericentric inversion. What will be the fate of the resultant chromatids?
  - b. Cytological proof of crossing over.
  - c. How does mutation occur due to - i. Base Analogue Incorporation ii. UV Rays Exposure.
  - d. Discuss Ac- Ds system in Maize.
  - e. What is the difference between Mendelian inheritance and epistasis? Write down about 9:7ratio with an example.
  - f. Write down a note on the origin of hexaploid wheat (amphidiploid).
3. **Answer any one:** 5x1
- a. Define deletion, duplication, Robertsonian translocation.
  - b. Define complete and incomplete linkage, crossing over.
  - c. Mutation by Alkylation.

**PRACTICAL (C):**

4. **Answer any one:** 10x1
- a. What is the somatic chromosome number of Allium Cepa ( $2n=?$ ). Describe the chromosome morphology (structure) in metaphase of A. Cepa after squash preparation.
  - b. What is Mitotic Index (MI)? Write down the formula of MI. Draw the observation table of MI.
  - c. Draw and write down the identifying characters of mitotic metaphase and anaphase stage.
5. **Answer any one:** 5x1
- a. Name one common pretreatment agent and fixative for plant chromosomes. Write down any two common properties of pretreatment agent or fixative.
  - b. Name a common stain for chromosome colouring. Write down the process of squash preparation of the root tip.