**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU -27**

**B.Sc. BOTANY – V SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2023**

**(Examination conducted in November /December 2023)**

**BO 5223 – CELL BIOLOGY AND GENETICS**

**(For current batch students only)**

**Time: 2 Hours Max Marks: 60**

**This paper contains ONE printed page and THREE parts**

**Draw diagrams wherever necessary**

**Part-A: Answer any TEN questions in one or two sentences 10X2=20**

1. Partial dominance

2. *Cis* and *Trans* Golgi

3. Pleiotropy

4. In snapdragon, crossing of two F1 aurea (Gg) plants resulted in the F2 ratio of 2:1, why?

5. Nullisomy

6. Frameshift mutation

7. Reciprocal chiasma

8. Physical mutagens

9. Active Y chromosome of *Melandrium*

10. B chromosomes

11. Holandric genes

12. Cytoplasmic inheritance

**Part-B: Write short notes on any FIVE questions 5X6=30**

13. Structure and functions of mitochondria

14. Cell cycle checkpoints

15. Nucleosome model of chromosome

16. Polymerism

17. Types of linkage

18. Three point test cross with maize plant

19. In sweet pea, the development of colored flowers requires the presence of two dominant genes, C and R. When either c (cc RR) or r (CC rr) or both the genes (cc rr) are present in homozygous recessive condition, white flowers are obtained. When a colored variety of sweet pea (CC RR) is crossed with a white-flowered variety (cc rr), the F1 (Cc Rr) has colored flowers. After selfing of F1 plants, what would you expect in F2 phenotypes and genotypes?

**Part-C: Explain any ONE question in detail 1X10=10**

20. Structural aberrations of chromosomes – Translocations and Inversions

21. Recessive epistasis