

M.Sc. BOTANY
Fourth Semester
CYTOGENETICS & PLANT BREEDING
(MSB – 402 A)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8
Question no. 1 is compulsory.

1. Describe the antisense RNA technology and its application in agricultural sector. (10)
2. Define GMO. Describe the biosafety level in India for rDNA technological research. (2+8=10)
3. Describe in details the eukaryotic genome organization citing example of human genome. (10)
4. What is gene splicing? Diagrammatically represent mechanism of mRNA splicing in eukaryotes. (3+7=10)
5. What is attenuation? Differentiate the inducible and repressible type of operons with example. (2+8=10)
6. How does karyotyping differ from chromosome banding? Write the taxonomic significance of karyotyping with suitable example. (5+5=10)
7. What is DNA damage? Explain the molecular basis of mutation. (3+7=10)
8. "Cell division is also one of the highly regulated biological processes" – Justify the statement stating cell division regulation mechanism. (10)