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K25P 0930

Reg. No. :

Name :

IV Semester M.Sc. Degree (C.B.C.S.S.-OBE – Regular)
Examination, April 2025
(2023 Admission)
BOTANY
MSBOT04C15 : Cell and Molecular Biology

Time : 3 Hours

Max. Marks : 60

PART – A

Answer **any five** questions. **Each** question carries **3** marks.

1. Define non-disjunction and explain its consequences.
2. Differentiate between apoptosis and necrosis.
3. What are the key characteristics of transformed cancer cells ?
4. What are point mutations ? Give an example.
5. Describe the function of cohesions in chromosome segregation.
6. What is chromosome banding, and why is it significant ?

(5×3=15)

PART – B

Answer **any three** questions. **Each** question carries **6** marks.

7. Differentiate between tight junctions and desmosomes in terms of structure and function.
8. What are polytene chromosomes, and how do they differ from lampbrush chromosomes ?
9. Describe the role of tumour suppressor genes in preventing cancer.

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10. Explain the nucleosome model of eukaryotic chromosome organization.
11. Explain the mechanism of base excision repair in DNA.

(3×6=18)

PART – C

Answer **any three** questions. **Each** question carries **9** marks.

12. How do cyclins and cyclin-dependent kinases (CDKs) regulate the cell cycle ?
13. Compare mitochondrial and chloroplast genomes in terms of structure and function.
14. Describe the operon concept in bacteria with an example.
15. What are the major steps involved in cancer metastasis ?
16. Differentiate between prokaryotic and eukaryotic transcription.

(3×9=27)