8385

C 4709 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Botany

BOT 2C 04—CELL BIOLOGY, MOLECULAR BIOLOGY AND BIOPHYSICS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer any **four** *questions.*

Each question carries 2 *weightage.*

1. Explain how DNA replication is suppressed between meiosis I and meiosis II.
2. What is apoptosis? Briefly describe intrinsic pathway.
3. Explain the process of termination of transcription in prokaryotes.
4. Describe the regulation of *trp* operon when tryptophan levels are high in the cell.
5. What do you understand by C value paradox ? Discuss the hypothesis proposed to explain the paradox and give their relative merits and demerits.
6. Write notes on freeze drying and its application.
7. What are buffers ? Give an account on the functions of buffers in biological system and its use in biological research.

(4 × 2 = 8 weightage)

Turn over

Part B

Answer any **four** *questions.*

Each question carries 3 *weightage.*

8. Describe the check points in cell cycle.
9. Define aging. Discuss the causes of aging.
10. Write about metastasis and malignant transformation.
11. Write a detailed description about post transcriptional modification of mRNA.
12. Explain the structure of lac operon and regulation by cAMP.
13. Describe the molecular mechanisms of mutation.
14. Describe the structure of three RNA polymerases known in eukaryotes and compare them that of prokaryotic RNA polymerase. Discuss the function of these eukaryotic RNA polymer

(4 × 3 = 12 weig

Part C

Answer any **two** *questions.*

Each question carries 5 *weightage.*

15. Describe the organization of chromatin and chromosomes in cukaryotes with the help of dia
16. What biochemical events take place in cells before cellular divisions occur ? Compare the cyto view of chromatin in interphase of mitosis and meiosis.
17. Explain the role played by DNA repair mechanisms in ensuring the fidelity of DNA.
18. Discuss the principle of centrifugation. Write about different types of centrifuges a applications.

(2 × 5 = 10 wei