

2021

BOTANY — HONOURS

Paper : CC-11

(Cell and Molecular Biology)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer **any five** questions from the following : 2×5
- (a) What is ribozyme? Give one example.
 - (b) What is Wobble hypothesis?
 - (c) What is meant by RNA interference?
 - (d) Differentiate between codon and anticodon.
 - (e) What are Okazaki fragments? Why such fragments are formed?
 - (f) What is quiescent stage in cell cycle?
 - (g) Name the enzyme required for PCR and mention its source.
 - (h) What is meant by RNA editing?
2. Answer **any two** questions from the following : 5×2
- (a) Give a brief account of apoptosis.
 - (b) Explain briefly the role of licensing factor in DNA replication.
 - (c) Give a brief account of point centromere and regional centromere.
 - (d) Describe with diagram the positive control of lac-operon.
3. Answer **any three** of the following :
- (a) Define gene cloning. Mention the properties of an ideal gene cloning vector. Write a note on the types of restriction endonucleases with one example of each. What is cDNA library? 2+3+3+2
 - (b) Explain amino-acylation of t-RNA. Describe in detail the different steps in prokaryotic translation with references to different factors involved in this process. Mention any two differences between prokaryotic and eukaryotic translation. 2+6+2
 - (c) (i) Describe briefly the packaging of DNA with reference to nucleosome concept.
(ii) Describe the ultrastructure of NPC. 7+3

Please Turn Over

- (d) Write a note on fidelity of DNA replication. Mention the post-transcriptional modifications observed in eukaryotic mRNA. 4+6
- (e) (i) What is meant by tumor suppressor genes? Cite examples.
(ii) What will happen in a cell, if the p53 gene is mutated?
(iii) Differentiate between benign and malignant tumor.
(iv) What is meant by metastasis of cancer? What is v-oncogene? 3+2+2+3
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