

2024

PHYSIOLOGY — HONOURS

Paper : CC-9

(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.*

Group - A

1. Answer *any five* questions :

2×5

- (a) What are Promoters?
- (b) Mention the function of DNA Ligase.
- (c) State the role of sigma factor in RNA transcription.
- (d) Which type of blotting is used to detect DNA molecules?
- (e) Name the enzyme coded by Lac Y gene.
- (f) Why Chargaff's rule is not applicable for RNA?
- (g) What is meant by 'Secondary Antibody'?
- (h) Mention the function of Ethidium Bromide (EtBr) in Agarose gel electrophoresis.
- (i) What do you mean by velocity sedimentation?
- (j) What are Primers?

Group - B

2. Write short notes on (*any two*) :

5×2

- (a) tRNA
- (b) Gene therapy
- (c) DNA repair mechanism
- (d) SDS-PAGE
- (e) Polymerase Chain Reaction (PCR).

Please Turn Over

Group - C

3. Answer *any three* questions :

- (a) (i) What is upstream and downstream site?
(ii) How Shine-Dalgarno sequence initiate translation in prokaryotes?
(iii) What is stop codon? (2+2)+4+2
- (b) (i) What is meant by 'Enhancer'?
(ii) What is alternative splicing?
(iii) Briefly describe about different types of Gene mutation. 2+2+6
- (c) (i) How do cancer cells differ from normal cells?
(ii) What are Transgenic animals?
(iii) Delineate the significance of Wobble hypothesis. 3+2+5
- (d) (i) Write down the applications of Density gradient ultracentrifugation.
(ii) Briefly describe ion-exchange chromatography through diagrammatic representation. 5+5
- (e) (i) What is Northern blotting?
(ii) What do you mean by autoradiography?
(iii) State briefly the principle and applications of RIA. 2+3+(2+3)
- (f) (i) Name two radioisotopes that are commonly used in radio labelling.
(ii) How can you radio label a biomolecule?
(iii) What are the advantages of TLC compared to paper chromatography? 2+4+4
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