

M. Sc. 1st Semester Examination, 2024

CND

PAPER — CND-102

Full Marks : 50

Time : 2 hours

Answer all questions

The figures in the right hand margin indicate marks

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

GROUP—A

Answer any **four** questions from the following :

1. What is amaplerosis ? Give example. 2 × 4
2. Name one rate limiting enzyme and one blocker of TCA cycle. 1 + 1

(Turn Over)

(2)

3. Why ascorbate is a more potent antioxidant than α -tocopherol ?
4. What specific information about an antigen can be obtained from ELISA and western blot ? 1 + 1
5. Name the techniques by which the structure and amino acid sequences of a protein are determined. 1 + 1
6. Mention the functions of SDS in SDS-PAGE.

GROUP – B

Answer any **four** questions from the following : 4 × 4

7. Write the role of NADPH in protecting cells against ROS.
8. Discuss the role of epinephrine in glycogenolysis.

9. Briefly discuss the steps of β oxidation of palmitic acid.
10. Differentiate analytical and preparatory chromatography. Define chromatogram. 2 + 2
11. How APS and TEMED help to polymerize acrylamide gel? What is the difference between reducing and non-reducing gel? Name the tracking dye and staining dye used in SDS-PAGE. 2 + 1 + 1
12. Distinguish between direct and indirect ELISA. Which substrate is used in ELISA and Western blot when alkaline phosphatase conjugated antibody is used? 2 + 2

GROUP – C

Answer any **two** questions from the following: 8×2

13. What are the characteristics of xenobiotics? Discuss briefly the phase-I reaction of Xenobiotics metabolism. What are the factors affecting metabolism of Xenobiotics? 2 + 4 + 2

(4)

14. What are the competitive, noncompetitive and uncompetitive inhibition of enzyme ? Give examples of each. What is activation energy ?
(2 + 2 + 2) + 2
15. Write the principle of flow cytometry. What information about a cell is obtained from forward light scatter and side light scatter ? Mention few applications of flow cytometry. What is FACS ?
3 + 2 + 2 + 1
16. Write the principle and application of 2-D gel electrophoresis. Explain how stacking gel helps to stack protein at the border of stacking and resolving gel. How native gel differs from SDS-PAGE ?
4 + 3 + 1

[Internal Assessment — 10 Marks]