2023-24

Time - 3 hours

Full Marks - 60

Answer **all groups** as per instructions.
Figures in the right hand margin indicate marks.
Candidates are required to answer
in their own words as far as practicable.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Fill in the blanks. (all)   [1 × 8

   (a) Granularity of cell is detected by _____ in flow cytometry.

   (b) The machine by which metal coating is done is called _____.

   (c) The process of disruption of suspended cells is known as _____.

   (d) The optically transparent sample container in a spectrophotometer is called _____.

   (e) Ninhydrin is used to detect _____ in the paper chromatography.

(f) In SDS-PAGE, migration of protein is affected by _____ of protein.

(g) _____ is denoted by the formula n – 1.

(h) _____ is obtained by joining the top mid point of all rectangles of a histogram using a free hand.

GROUP - B

2. Write notes on any eight of the following within two or three sentences each. [1½ × 8

   (a) Principles of microscopy

   (b) Cryofixation

   (c) Radioactive decay

   (d) Collimator

   (e) Define Rf

   (f) Applications of HPLC

   (g) SDS-PAGE

   (h) Types of data

   (i) Histogram

   (j) Variance

GROUP - C

3. Write short notes on any eight of the following within 75 words each. [2 × 8

   (a) Flow cytometry

   (b) Differentiate between TEM and SEM

   (c) Negative Staining

   (d) Density gardient centrifugation

   (e) Pulse Chase Experiment

   (f) Beer-Lambert's law of absorption of light

   (g) Ion exchange chromatography

   (h) X-ray diffraction

   (i) Measures of dispersion and its types

   (j) Correlation and its types

GROUP - D

4. Answer any four of the following within 500 words each. [6 × 4

   (a) Give an account of fluorescence microscope and its uses.

   (b) Give an account of the basic principles and types of electron microscopy.

(c) What is centrifugation ? Discuss the basic principles and types of centrifugation.

(d) Give an account of principle, structural components and applications of spectrophotometry in biological research.

(e) Give an account of paper chromatography and its application.

(f) What is electrophoresis ? Describe briefly AGE and PAGE.

(g) What do you understand by measures of central tendency ? Describe its different types alongwith merits and demerits.

(h) What is Chi-Square test ? Explain how goodness of fit is tested with one example.