

2023

Time - 3 hours

Full Marks - 60

Answer all groups as per instructions.

Figures in the right hand margin indicate marks.

Draw labelled diagrams wherever necessary.

GROUP – A

1. Answer all questions and fill in the blanks as required. [1 × 8]
- (a) Resolving power of light microscope is _____.
 - (b) Negative staining is used for examining _____.
 - (c) Which centrifugation depends on buoyant densities ?
 - (d) What is the wavelength range of UV spectrum of light ?
 - (e) In chromatography, the stationary phase can be _____ supported on a solid.
 - (f) The speed of migration of ions in electric field depends upon _____.
 - (g) What were the first two results of a central tendency test ?
 - (h) Which distribution is used for a testing hypothesis ?

[2]

GROUP – B

2. Answer any eight of the following questions within two to three sentences each. [1½ × 8

- (a) What is freeze etching ?
- (b) Define cryofixation.
- (c) Name the radioisotopes used in biological research.
- (d) What is differential centrifugation ?
- (e) Define autoradiography.
- (f) What is X-ray diffraction ?
- (g) Write the applications of TLC.
- (h) Define mode.
- (i) What is goodness of fit ?
- (j) Define mean deviation.

GROUP – C

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

- (a) Negative staining
- (b) Light microscopy
- (c) Pulse Chase experiment

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- (d) Density gradient centrifugation
- (e) Freeze fracture technique
- (f) Affinity chromatography
- (g) Use of SDS-PAGE
- (h) Standard deviation
- (i) Representation of data
- (j) Correlation

GROUP – D

Answer all questions within 500 words each.

4. Describe the principle and applications of fluorescence microscopy. [6]

OR

Discuss the principle and applications of transmission electron microscopy.

5. Describe the principle and applications of ultracentrifugation. [6]

OR

Discuss the principle and applications of spectrophotometry in biological research.

6. Describe the principle, techniques and applications of molecular sieve chromatography. [6]

P.T.O.

[4]

OR

Discuss the characterisation of proteins and nucleic acids by electrophoretic technique.

7. Describe in details about the measures of dispersion. [6]

OR

Describe the T-test by giving suitable examples.