

AQ-898

**M.Sc. (Part—I) (Semester—II) (CBCS Scheme)
Examination
ZOOLOGY
Paper—VI
(Tools and Techniques in Biology)**

Time—Three Hours]

[Maximum Marks—80

- Note :—** (1) All questions are compulsory
(2) All questions carry equal marks.
(3) Illustrate your answers with suitable diagrams.

1. Describe the following :—

- (a) Principles of calorimeter.
- (b) Uses of spectrofluorometer.
- (c) Uses of atomic absorption spectrophotometer.
- (d) Principles of XRD.

OR

- (e) Principles of spectrophotometer.
- (f) Principles of NMR spectrometer.
- (g) Uses of Radioactivity counters.
- (h) Uses of XRD.

16

2. Describe principles and applications of scanning electron microscope.

OR

Describe media preparation and sterilization. 16

3. Describe the following :—

- (i) Cell separation by density gradient centrifugation.
- (j) Cell separation by affinity adsorption.
- (k) Scaffold in tissue engineering.
- (l) Cell viability testing. 16

OR

- (m) Cell separation by unit gravity centrifugation.
- (n) Cell proliferation measurements.
- (o) Cell harvesting methods.
- (p) Monolayer cell culture. 16

4. Describe the following :—

- (q) Cryopreservation for cells.
- (r) Thin layer chromatography.
- (s) Molecular separation by gas chromatography.
- (t) Molecular separation by agarose gel electrophoresis.

OR

- (u) Polyacrylamide Gel Electrophoresis.
- (v) Freeze-drying for physiologically active substances.
- (w) Molecular separation by ion exchange chromatography.
- (x) Molecular separation by affinity chromatography. 16

5. Describe the liquid scintillation spectrophotometry.

OR

Describe ELISA & RIA immunological techniques. 16