

AU-310

M.Sc. (Part—I) Semester—II (CBCS Scheme) Examination

ZOOLOGY

(Tools and Techniques in Biology)

Paper—VI

Time : Three Hours]

[Maximum Marks : 80

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

1. Explain the following :

- (a) Principle and uses of spectrophotometer.
- (b) Principle of NMR spectrometer.
- (c) Uses of atomic absorption spectrophotometer.
- (d) Principle of radioactivity counter.

OR

- (e) Principle and uses of colorimeter.
- (f) Uses of ESR Spectrometer.
- (g) Principle and uses of XRD.
- (h) Principle and uses of spectrofluorometer.

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2. Give an account of the following :

- (i) Principle and application of phase contrast microscopy.
- (j) Methods of sterilization.
- (k) Biochemical mutants and their use.
- (l) Microbial assays.

OR

- (m) Principle of Scanning Electron Microscopy.
- (n) Application of Atomic Force Microscopy.
- (o) Inoculation and growth monitoring.
- (p) Use of fermenters.

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3. Describe the following :

- (q) Cell separation by density gradient centrifugation.
- (r) Design of tissue culture laboratory.
- (s) Cell viability testing.
- (t) Tissue engineering.

OR

- (u) Cell separation by affinity adsorption.
- (v) Poly-layer culture.
- (w) Cell proliferation measurement.
- (x) Cell harvesting method.

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4. Describe the techniques of cryopreservation for cell and tissue.

OR

Explain molecular separation techniques by ion exchange and affinity chromatography.

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5. Give an account of magnetic resonance imaging.

OR

Describe immunological techniques based on antigen-antibody interactions.

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