



**DBZ-003-1182004** Seat No. \_\_\_\_\_

**M. Sc. (Sem. II) (CBCS) (W.E.F. 2016) Examination**

**July - 2022**

**Zoology : ZOOL-210**

*(Analytical Techniques)*

**Faculty Code : 003**

**Subject Code : 1182004**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

**1 Answer the following : (any seven) 2×7=14**

- (a) What is fixation ?
- (b) What is electromagnetic radiation ?
- (c) Explain the principle of ion exchange chromatography for protein.
- (d) What is electrophoresis ?
- (e) What is phosphorescences ?
- (f) Give applications of NMR ?
- (g) Define the word Ionization.
- (h) What is G and g in centrifugation ?
- (i) Define the term isothermal and gradient elution.
- (j) What is homogenization and sonication ?

**2 Answer of the following : (any two) 7×2=14**

- (a) How the image forms in phase contrast microscope ?
- (b) Explain use of Electromagnetic radiation in spectroscopy.
- (c) Describe the Ion exchange chromatography for protein separation.

**3 Answer the following 7×2=14**

- (a) Briefly describe the annular diaphragm and phase plate in phase contrast microscope.
- (b) Write a short note on Planck's Quantum Theory.

**OR**

- (a) Describe the principle, procedure and application of Gel Filtration Chromatography.
- (b) Describe application of centrifugation.

**4 Answer the following : 7×2=14**

- (a) Describe in brief different methods of collection of fractionations.
- (b) Discuss the principle of HPLC and its advantages.

**5 Answer the following : (any two) 7×2=14**

- (a) Describe the principle and applications of autoradiography.
- (b) Explain infrared spectroscopy in detail.
- (c) What is Mass-Spectrometry ? Explain the different types of Mass analyzer use in LC-MS.
- (d) Describe Immunoblotting technique with its application.

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