

Reg. No.

--	--	--	--	--	--	--	--	--	--



**BCH 403**

**I Semester M.Sc. Degree Examination, December 2018**  
**BIOCHEMISTRY (CBCS)**  
**Analytical Biochemistry**

Time : 3 Hours

Max. Marks : 70

**Note** : Answer **any ten** from Part – **A** and **any five** questions from Part – **B**.

PART – A

1. a) Which markers could be used to identify mitochondria and lysosomes during sub-cellular fractionation ? (10×2=20)
- b) Mention two uses and advantages of X-ray crystallography.
- c) What is dialysis ?
- d) What is FPLC ? Give applications.
- e) Define the terms '*retention volume*' and '*retention time*'.
- f) What are the limitations of Beer-Lambert's Law ?
- g) What is native PAGE ?
- h) A vertical tube rotor has a radius of 4.5 cm. If the rotor is operated at a speed of 15000 rpm, what is the relative centrifugal field (RCF) ?
- i) What is the principle of fluorescence spectroscopy ?
- j) Write two applications of IR spectroscopy.
- k) Mention the safety measures to be taken during use of radioisotopes.
- l) Mention any two models used in biochemical investigations.

P.T.O.

**PART – B****(5×10=50)**

2. a) Write a note on instrumentation and applications of HPLC.  
b) Explain reverse phase partition chromatography. **(5+5=10)**
  3. a) Explain sub-cellular fractionation of liver cell organelles by differential centrifugation.  
b) Explain the principle and applications of UV-VIS spectrophotometer. **(5+5=10)**
  4. a) Explain the working and applications of anion-exchange chromatography.  
b) Explain isoelectric focusing. **(5+5=10)**
  5. a) Give principle and applications of Mass spectrometry in biochemical research.  
b) Explain the principle and application of Circular Dichroism spectroscopy. **(5+5=10)**
  6. a) Explain the process of counting radioactivity by Scintillation counter.  
b) Explain the process of identification of biomolecules by gas liquid chromatography. **(5+5=10)**
  7. a) Define the term 'curie'. Write a note on the interaction of radioactivity with matter.  
b) Explain the separation of biomolecules by capillary electrophoresis. **(5+5=10)**
  8. a) Explain the purification of antigen using immunoaffinity chromatography.  
b) Explain the principle and procedure of separation of proteins by denaturing PAGE. **(5+5=10)**
  9. a) Write a note on the determination of molecular weight of protein by gel filtration chromatography.  
b) Explain the applications of radioisotopes in biological sciences. **(5+5=10)**
-