Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

M.Sc., Winter 2019-20 Examination

Semester: 1 **Date: 27/11/2019**
Subject Code: 11203109 **Time: 10:30 am to 01:00 pm**
Subject Name: Biophysical Chemistry **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks) **(08)**
(a) Explain- Enzyme assays and controls.
(b) Explain methods of Cell disintegration.

Q.1. B) Answer the following questions (Any two)
(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) **(04)**
1. Application of Circular Dichroism
2. Dialysis and Ultra-filtration

(b) Short note – Plasma Emission Spectroscopy with diagrammatic representation **(04)**
(c) Short note – NMR and PMR with diagrammatic representation **(04)**

Q.2. A) Answer the following questions.
(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) **(04)**
1. Explain - Criteria for Protein purity and techniques for protein purification
2. Explain- Affinity Chromatography with diagrammatic representation

(b) Short note- HPLC and FPLC with diagrammatic representation **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Short note/ Multiple choice questions. (Each of 01 mark) **(03)**
1. Gradient electrophoresis
2. Pulsed field gel electrophoresis
3. Ion exchange chromatography

(b) Short note – Theory and applications of polyacrylamide and agarose gel electrophoresis **(03)**
(c) Short note – 2D Electrophoresis with diagrammatic representation **(03)**

Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) **(08)**
(a) Explain –Differential and Density gradient centrifugation
(b) Explain- Preparative centrifugation and Ultra-centrifugation

Q.3. B) Answer the following questions (Any two)
(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) **(04)**
1. RCF
2. Sedimentation Coefficient

(b) Short note – Types of Centrifugation **(04)**
(c) Short note – Determination of molecular weight by sedimentation velocity and equilibrium methods **(04)**

Q.4. A) Answer the following questions.
(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) **(04)**
1. Principles of Spectroscopy
2. Explain- Flow cytometry.

(b) Short note – Blotting Techniques with diagrammatic representation **(04)**

Q.4. B) Answer the following questions (Any two)
(a) Short note/ Multiple choice questions. (Each of 01 mark) **(03)**
1. Beer-Lambert Law
2. Flame Photometry
3. Atomic absorption spectroscopy

(b) Short note- Western Blot with diagrammatic representation **(03)**
(c) Short note – I R Spectroscopy **(03)**