Seat No:_____ Enrollment No:_____

# PARUL UNIVERSITY

## FACULTY OF APPLIED SCIENCE

## M.Sc., Winter 2017-18 Examination

**Semester: 1** **Date: 27/12/2017**
**Subject Code: 11203103** **Time: 10:30am to 1:00pm**
**Subject Name: Analytical tools & technique** **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 (Each of 04 marks)** **(08)**
(a) Difference between SEM and TEM.
(b) Write a brief note on TLC.

**Q.1. B) Answer the following questions (Any two)**
(a) Short note. (Each of 02 marks) **(04)**
1. Define chromatography.
2. Give example of stationary phase.

(b) Write down principle and application of UV Visible spectrophotometer. **(04)**
(c) Explain Lambert's and beer's law. **(04)**

**Q.2. A) Answer the following questions.**
(a) Short note. (Each of 02 marks) **(04)**
1. Define Optical Density.
2. Define Rf value.

(b) write a short note on HPLC **(04)**

**Q.2. B) Answer the following questions (Any two)**
(a) Short note/ Multiple choice questions. (Each of 01 marks) **(03)**
1. Give any two detectors name commonly used in GC.
2. Which electron microscopy is best suited to get the surface view of an object?
3. Write full form of ORD and CD.

(b) Write an applications of lyophilization. **(03)**
(c) Write an applications of ultra-centrifugation. **(03)**

**Q.3. A) Essay type/ Brief note (Each of 04 marks)** **(08)**
(a) Write a brief note on SDS-PAGE
(b) Write a note on Northen blotting.

**Q.3. B) Answer the following questions (Any two)**
(a) Short note (Each of 02 marks) **(04)**
1. Define electrophoresis.
2. What is radioactive isotopes?

(b) Write a principle and application of PAGE. **(04)**
(c) Write a short note on western blotting. **(04)**

**Q.4. A) Answer the following questions.**
(a) Short note. (Each of 02 marks) **(04)**
1. What is Iso-electric focusing?
2. What is an applications of gas sensing electrodes.

(b) Write a short note on autoradiography. **(04)**

**Q.4. B) Answer the following questions (Any two)**
(a) Short note. (Each of 01 marks) **(03)**
1. What is the role of TEMED in electrophoresis?
2. In SDS-PAGE what is the role of SDS?
3. Give an example of cation exchange resin.

(b) Applications of DNA fingerprinting. **(03)**
(c) Applications of radioisotopes in biological sciences. **(03)**