Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc./IMSc Winter 2019-20 Examination

Semester: 1/7 **Date: 06/12/2019**
Subject Code: 11205104 **Time: 10:30 a.m. to 1:00 p.m.**
Subject Name: Analytical Chemistry-I **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)	**Write a short note. (Each of 04 marks)**	**(08)**
	(a). State principle of Ion selective electrodes. Explain H^+-ion selective electrodes.	
	(b). State principle of polarogrpahy. Explain effect of pH and applications.	
Q.1. B)	**Answer the following questions (Any two)**	
	(a) Write short answers. (Each of 02 marks)	**(04)**
	1. Mention applications of pH measurements.	
	2. Mention types of Amperometry titrations.	
	(b) Explain advantages, dis-advantages and applications of Amperometry titrations.	**(04)**
	(c) Derive relationship between half-wave potential and diffusion co-efficient.	**(04)**
Q.2. A)	**Answer the following questions.**	
	(a) Write short answers. (Each of 02 marks)	**(04)**
	1. State principle of Chromatography and its types.	
	2. State application of Paper chromatography.	
	(b). Describe Rate theory (Van Deemter equation).	**(04)**
Q.2. B)	**Answer the following questions (Any two)**	
	(a) Explain isolation of natural products using counter-current chromatography.	**(03)**
	(b) State principle and applications of Thin Layer chromatography.	**(03)**
	(c) Describe mechanism in HPTLC.	**(03)**
Q.3. A)	**Write a short note. (Each of 04 marks)**	**(08)**
	(a). Describe principle, working of Thermo balance.	
	(b). State Principle, applications and name factors affecting Thermo gravimetry analysis (TGA)	
Q.3. B)	**Answer the following questions (Any two)**	
	(a) Write short answers. (Each of 02 marks)	**(04)**
	1. State principle only of Differential thermal analysis.	
	2. State principle of Thermometric titrations.	
	(b) Write applications of thermo mechanical analysis (TMA).	**(04)**
	(c) differentiate between TGA and TMA.	**(04)**
Q.4. A)	**Answer the following questions.**	
	(a) Write short answers. (Each of 02 marks)	**(04)**
	1. Define Unit cell. Give its main types.	
	2. Give Bragg's equation. Mention its applications.	
	(b). Describe Debye-Scherrer method of X-Ray structural analysis.	**(04)**
Q.4. B)	**Answer the following questions (Any two)**	
	(a) Write a note on Miller indices.	**(03)**
	(b) Explain Laue method.	**(03)**
	(c) Write principle and measurement technique for scattering of neutrons by solids.	**(03)**