Seat No:_____ **Enrollment No:_____**

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

B.Sc. Summer 2017-18 Examination

Semester: 4 **Date: 12/05/2018**
Subject Code:11105251 **Time: 10:30AM TO 01:00PM**
Subject Name: Fundamentals of Chemistry-III **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) Answer the following questions (Each of 04 marks) **(08)**
(a) Write short note on electrolytes and non -electrolytes giving examples.
(b) Define Buffer solution. Explain types of buffer solutions.

Q.1. B) Answer the following questions (Any two)
(a) Write Short note (Each of 02 marks) **(04)**
1. State Ohm's law. Give its equation and unit.
2. Draw labeled pH scale.

(b) Derive Henderson's equation for buffer. **(04)**
(c) What is specific conductance and molar conductance? **(04)**

Q.2. A) Answer the following questions.
(a) Write Short note (Each of 02 marks) **(04)**
1. What is common ion effect?
2. What is hydrometallurgy?

(b) Explain Froth flotation process with diagram. **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Define (Each of 01 marks) **(03)**
1. Calcination
2. Roasting
3. Smelting

(b) Write short note on reverse osmosis and state its applications. **(03)**
(c) The resistance of 0.01 N solution of an electrolyte was found to be 210 Ohm at 298 K. Then calculate its conductance. **(03)**

Q.3. A) Answer the following questions (Each of 04 marks) **(08)**
(a) Write a note on osmosis and osmotic pressure.
(b) What is Raoult's law?

Q.3. B) Answer the following questions (Any two)
(a) Write Short note (Each of 02 marks) **(04)**
1. Which are the four commonly studied colligative properties?
2. What is freezing point depression?

(b) Write difference between photochemical and dark reactions. **(04)**
(c) Write Grotthuss-Draper law and Stark-Einstein law for photochemistry. **(04)**

Q.4. A) Answer the following questions.
(a) Enlist difference between fluorescence and phosphorescence. **(04)**
(b) Define quantum yield and write a note on it. **(04)**

Q.4. B) Answer the following questions (Any two)
(a) Define (Each of 01 marks) **(03)**
1. Fluorescence
2. Phosphorescence
3. Chemiluminescence

(b) Write a note on photosensitization and Quenching. **(03)**
(c) State reasons for high quantum yield. **(03)**