

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., Winter 2017-18 Examination

Semester: 1
Subject Code: 11205103
Subject Name: Physical Chemistry - I

Date: 22 /12/2017
Time: 02:00 pm to 04:30 pm
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. Give names of various methods of polymerization. Discuss any two methods in detail.
 - b. Enlist names of various mechanisms for polymerization. Discuss anyone in detail.
- Q.1. B) Answer the following questions (Any two) (04)**
- (a) Do as directed: (04)
 1. Write a note on ideal gas equation.
 2. Discuss Avogadro's law.
 - (b) Write a note on classification of polymerization. (04)
 - (c) Write a note on Maxwell distribution law for molecular velocity. (04)
- Q.2. A) Answer the following questions. (04)**
- (a) Do as directed: (Each of 02 marks) (04)
 1. Write a note on Boyle's law.
 2. Write a note on Charle's law.
 - (b) Write a note on polyester and polyamide. (04)
- Q.2. B) Answer the following questions (Any two) (03)**
- (a) Do as directed: (Each of 01 marks) (03)
 1. Define polymerization.
 2. State Graham's law of diffusion.
 3. Write the formula for number average molecular weight (M_n).
 - (b) Write a note on postulates of kinetic theory of gases. (03)
 - (c) Write a note on tacticity. (03)
- Q.3. A) Answer the following questions (Each of 04 marks) (08)**
- (a) Write a note on surface tension.
 - (b) Define first order reaction and discuss about it.
- Q.3. B) Answer the following questions (Any two) (04)**
- (a) Do as directed: (Each of 02 marks) (04)
 1. Discuss half life period.
 2. What is the effect of temperature on reaction rates?
 - (b) Enlist various methods for measuring surface tension. Discuss anyone in detail. (04)
 - (c) Discuss the factors affecting the critical micelle concentration and micellar size. (04)
- Q.4. A) Answer the following questions. (04)**
- (a) Do as directed: (Each of 02 marks) (04)
 1. Which are the applications of surfactants?
 2. Define Monomer and micellisation
 - (b) Write a note on classification of surfactants (04)
- Q.4. B) Answer the following questions (Any two) (03)**
- (a) Do as directed: (Each of 01 marks) (03)
 1. Define homogeneous reaction.
 2. Define micelle.
 3. A solution consists of a dispersion of micelles in a solvent is known as _____.
- | | |
|----------------------|------------------|
| a) Micelle | b) Micellization |
| c) Micellar solution | d) none |
- (b) Write a note on critical micelle concentration. (03)
 - (c) Define catalysis. Discuss about various types of catalysis. (03)