

GUJARAT TECHNOLOGICAL UNIVERSITY
B.Pharm - SEMESTER– III • EXAMINATION – SUMMER 2017

Subject code: 230001**Date: 26/05/2017****Subject Name: Physical Pharmaceutics-II****Time: 02:30 PM to 05:30 PM****Total Marks: 80****Instructions:**

- 1. Attempt any five questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1**
- (a) Discuss Pharmaceutical applications of polymers in brief with suitable examples **06**
- (b) Enumerate methods to determine the molecular weight of polymers. Describe the equations to determine the different molecular weights and polydispersity of polymers **05**
- (c) Define the following terms with reference to polymers: **05**
1. Homo polymer
 2. Graft copolymer
 3. Cross linked polymer
 4. Isotactic polymer
 5. Dendrimers
- Q.2**
- (a) Define: Flux. Describe Fick's First law of diffusion and discuss its application. What is steady state diffusion? **06**
- (b) Define Diffusion and describe with relevant examples its applications in Pharmacy **05**
- (c) Define dissolution .What is the importance of dissolution for Pharmaceutical dosage forms? Explain the Noyes Whitney equation for describing rate of drug dissolution. **05**
- Q.3**
- (a) Define: Rate and Order of reaction. Describe the equation for zero order kinetics. How is the half life and shelf life determined for a zero order reaction? **06**
- (b) Explain the pathways of drug degradation in brief. **05**
- (c) Explain the influence of temperature on rate of drug degradation **05**
- Q.4**
- (a) What are the different types of complexes? Describe in brief chelates and their properties **06**
- (b) What is the significance of Protein Binding of drugs? **05**
- (c) Explain the Arrhenius theory of electrolytic dissociation. **05**
- Q.5**
- (a) An aqueous solution of exsiccated ferrous sulfate was prepared by adding 41.50 g of FeSO₄ to enough water to make 1000 mL of solution at 18°C. The density of the solution is 1.0375g/ml and the molecular weight of FeSO₄ is 151.9. Calculate (a) the molarity; (b) the molality; (c) the mole fraction of FeSO₄, the mole fraction of water, and the mole percent of the two constituents; and (d) the percentage by weight of FeSO₄. **06**

- (b) What are colligative properties? Describe any two colligative properties of nonelectrolytes in solution. **05**
- (c) What is the difference between Osmolarity and Osmolality? How is osmotic coefficient calculated? **05**
- Q. 6**
- (a) Explain the methods to determine molecular weight using colligative properties. **06**
- (b) Enumerate important properties of electrolyte solutions. **05**
- (c) Define: Drug release. How are dosage forms classified based on drug release? **05**
- Q. 7**
- (a) Explain the method to study dissolution using Paddle Apparatus. **06**
- (b) What is accelerated stability testing? How is the expiry date of a product determined? **05**
- (c) The measured conductance of a 0.1 N solution of a drug is 0.0563 ohm at 25°C. The cell constant at 25°C is 0.520 cm⁻¹. What is the specific conductance and what is the equivalent conductance of the solution at this concentration? **05**
