

UKA TARSADIA UNIVERSITY**Maliba Pharmacy College**B.Pharm 3rd Semester Internal Examination Nov 2012**030020301 Physical Pharmacy I**

Time: 10:00 a.m. To 1:00 p.m.

Max. Marks: **70**

Date: 02/11/2012

Instructions:

- Question no. 1 is compulsory.
- From Q.2 to Q.7 attempt any **four** questions.
- Make suitable assumption whenever necessary.
- Figures to the right indicate full marks.

- Q.1** (a) Answer the following: (any six) **06**
- 1 Define: Buffer capacity.
 - 2 State Henry's law.
 - 3 What is application of freeze drying process?
 - 4 What is critical temperature?
 - 5 Define ferret and martin diameter?
 - 6 Write advantage and disadvantages of sieve analysis.
 - 7 Define: colligative properties.
 - 8 Define Solutions.
- (b) Describe in brief: (any four) **08**
- 1 Define: Eutectic mixtures. Enlist two examples of eutectic mixtures.
 - 2 What is the effect of pH and buffer capacity on tissue irritation?
 - 3 Explain consolute temperatures in nicotine-water system.
 - 4 Discuss Raoult's law and its deviation with example.
 - 5 An emulsion was analyzed by cone and plate viscometer. The torque was found 150 at 300 RPM. If the yield value is 10 and constant of instrument is 1.5 then find out plastic viscosity.
 - 6 What are the advantages of cone and plate viscometer over cup and bob viscometer?
- Q.2** (a) Explain temperature –composition diagram for the system containing water and phenol. Explain tie line and conjugate phases with suitable diagram. **04**
- (b) State phase rule. Write a note on application of phase rule with suitable examples. **05**
- (c) Explain polymorphism with four appropriate examples. How different polymorphs of one drug can be differentiated? **05**
- Q.3** (a) Explain procedure for adjusting tonicity and pH by cryoscopic method. **04**
- (b) The P_{k_b} of pilocarpine is 7.15 at 25°C. Compute the mole percent of free base at 25°C and at a pH of 7.4? **05**
- (c) Calculate amount of sodium chloride needed to make 200 ml of an isotonic aqueous solution of thiomersal. Concentration of this anti-infective drug is 0.2 gm/1000 ml. L_{iso} value is 3.4 and molecular weight is 404.84 gm/mol. **05**
- Q.4** (a) Write a short note on lowering of vapor pressure by addition of non-volatile solute to the volatile solvent. **04**
- (b) How to find out molecular weight of unknown solute by freezing point depression method? **05**
- (c) Discuss Arrhenius theory of electrolytic dissociation. **05**

Seat No.:-----

Enrolment No.:-----

- Q.5** (a) Formulation has theoretical weight of 350 mg. 50 gm sample of powder mass has bulk volume of 66 ml. What is the size of capsule to be selected? **04**
- (b) What are the specific surfaces, S_w and S_v of the particle assumed to be spherical having ρ (density) = 3.0 gm/cm³ and $d_{vs} = 2.57\mu\text{m}$? **05**
- (c) Discuss in detail about air permeability method. **05**
- Q. 6** (a) Classify solvents. Explain the mechanisms by which polar solvent act as solvent. **04**
- (b) Define different types of densities. Explain the differences among them. **05**
- (c) Explain solute-solvent interaction with example. Explain any two factors affecting solubility. **05**
- Q.7** (a) Explain Pseudoplastic system with rheogram, example and mathematical equation. **04**
- (b) Discuss principle, working, advantages, disadvantages and plug flow of Cup and Bob viscometer. **05**
- (c) Define Thixotropy. Explain factors affecting thixotropy with rheogram. **05**