

B. Pharm / sem-II (CBSS)

29/04/16

PP-II

QP Code : 525400

(3 Hours)

[Total Marks : 70

- N.B. : (1) All questions are compulsory
(2) Draw neat labelled **diagrams** wherever **necessary**

1. (a) Determine the hydroxyl ion concentration of NaOH solution of pH 10. [Given $pK_w = 14$] 2
- (b) Discuss the effect of pressure and temperature on solubility of gases in liquids. 3
- (c) What is rate constant of a reaction? Derive relationship between rate constant and half life for a first order reaction. 3
- (d) Explain the terms spreading and spreading coefficient. 3
- (e) State Nernst equation and explain the terms involved. 2
- (f) Describe in brief lyophilic colloids. 2
2. (a) What are isotonic solutions? Discuss Class I methods to adjust tonicity. 4
- OR**
- Define buffer capacity. Explain buffers in biological systems.
- (b) Explain the concept of upper and lower consolute temperature for partially miscible liquids. 3
- (c) Derive the equation for rate constant of a second order reaction when $a \neq b$. (Where a and b are initial concentrations). 4
3. (a) Discuss the distribution of solid between two immiscible liquids and give its significance. 4
- (b) Define order of reaction. Explain half-life method to determine order of reaction. 4
- OR**
- Describe the term energy of activation. Explain the influence of temperature on rate of a reaction.
- (c) Give the significance of contact angle in the action of wetting agents. 3
4. (a) Define pH. Derive an equation to calculate pH of a buffer system consisting of weak acid and its salt. 4
- (b) Write a note on glass electrode. 3
- (c) What are lyophobic colloids? Explain the dispersion methods of preparation for lyophobic colloids. 4

OR

Explain electrical double layer theory of colloids.

[TURN OVER]