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PY 132301

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SCANNED

2016

B. Pharm 3rd Semester End-Term Examination

PHARMACEUTICS-II

(Physical Pharmacy-I)

Full Marks -100 Pass Marks - 35 Time - Three hours

The figures in the margin indicate full marks
for the questions.

1. Answer any ten : $3 \times 10 = 30$

(a) What are crystal hydrates and solvates ?

(b) Fill in the blanks :

Thermal energy = _____ \times _____.

Mechanical energy = _____ \times _____.

(c) What are thermochemical equations ? Give one example.

[Turn over

(d) What do you mean by ideal and real solutions ?

(e) Define molality and mole fraction.

(f) What is osmotic pressure ? Give its applications.

(g) What is solubilization ?

(h) Give the BET equation.

(i) What are the various buffer systems ?

(j) What do you mean by 'isothermal', 'adiabatic' and 'cyclic' processes ?

(k) In what proportion should Tween 80 (HLB 15.0) and Span 80 (HLB 4.3) be mixed to obtain a required HLB of 12.0 ?

(l) How tonicity is adjusted by sodium chloride equivalent method ?

2. Answer any *eight* :

5×8=40

(a) Explain the mechanism of action of acid and base buffers with suitable examples.

(b) What are the various crystal systems ? Draw the lattice structure and give examples.

- (c) State and explain the second law of thermodynamics in term of entropy.
- (d) What are surfactants ? Classify with suitable examples.
- (e) Derive an equation to calculate spreading coefficient from work of adhesion and work of cohesion.
- (f) Explain the wetting phenomena.
- (g) Explain surface free energy and derive an equation to calculate it.
- (h) What do you mean by elevation of boiling point ? How molecular mass is calculated from boiling point elevation ?
- (i) What is an adsorption isotherm ? Explain the Freundlich adsorption isotherm.
- (j) What are iso-osmotic and iso-tonic solutions ? How isotonic buffer solutions are prepared ?

3. Answer any *three* :

10×3=30

- (a) Explain the phase rule for an one component system and a two component system (eutectic mixture).

(b) Discuss the Arrhenius theory of electrolyte dissociation. Explain Vant Hoff theory and Debye-Huckel theories of solutions of electrolytes. $4+6=10$

(c) Explain the following terms : $2 \times 5 = 10$

(i) Critical temperature and pressure

(ii) Relative humidity

(iii) Latent heat

(iv) Enthalpy

(v) Zeta potential.

(d) Write few important applications of the following : $2.5 \times 4 = 10$

(i) Polymorphism

(ii) Adsorption

(iii) Buffer

(iv) Surface active agent.