

ASTV 3rd Sem (Res)

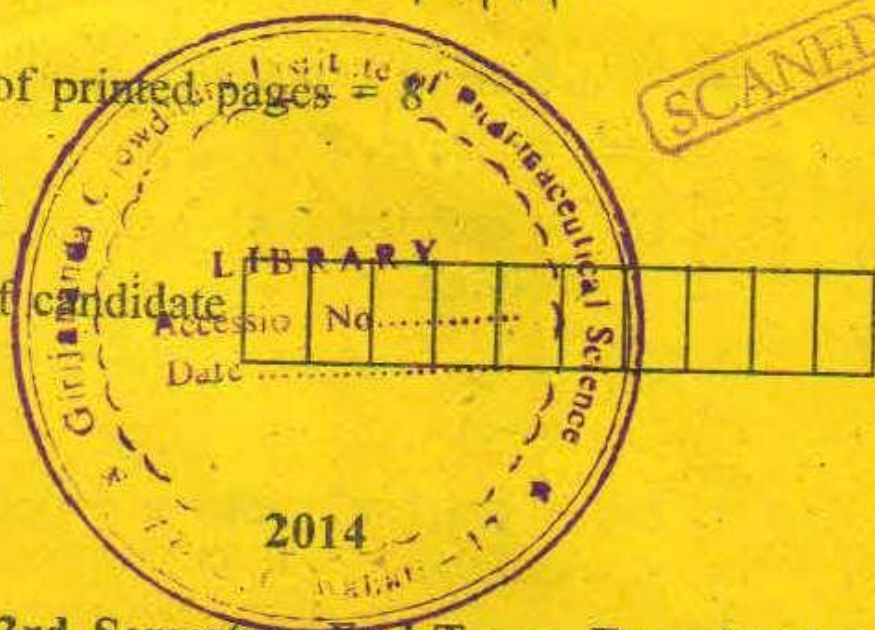
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SCANNED

PY 132301

Roll No. of candidate



B.Pharm 3rd Semester End-Term Examination

PHARMACEUTICS – II

(Phy. Pharm-I)

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

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

1. (a) The change of state from a solid directly to a gas is known as : 1
- (i) Fusion
 - (ii) Boiling
 - (iii) Sublimation
 - (iv) Evaporation.

[Turn over •

(b) Which of the following describes the gaseous state of matter ? 1

(i) A gas has both a definite shape and volume.

(ii) A gas has a definite shape but not a volume.

(iii) A gas has neither a definite shape nor volume

(iv) All of the above.

(c) The equation $\Delta S = \frac{q_{\text{rev}}}{T}$ can be used to calculate the entropy in : 1

(i) A reversible process

(ii) An isothermal process

(iii) An adiabatic process

(iv) None of the above.

(d) Solubility of most gases usually _____ with increase in temperature. 1

(i) Decreases

(ii) Increases

(iii) Does not change

(iv) First increases and then decreases.

(e) Buffers present in human plasma include : 1

(i) Carbonates

(ii) Carbonic acid

(iii) Acetates

(iv) Both (a) and (b).

(f) The concentration of surfactant at which it begins to form micelles is known as ———. 1

(g) For the proper wetting of solids by liquids, the contact angle should be nearly ———. 1

(h) Define Zeta Potential. 1

(i) Cryoscopic method used for the calculation of isotonic solutions is based on ———. 1

(j) The phenomenon in which a substance exists in more than one crystalline forms is known as ———. 1

2. Answer any *ten* questions : 2×10=20

(a) What are liquid crystals ? Give examples. 2

(b) Give the expression for the second law of thermodynamics. 2

- (c) How will you define Gibb's free energy ? 2
- (d) What are ideal and non-ideal solutions ? Give examples. 2
- (e) What do you understand by buffer capacity ? 2
- (f) Write the importance of isotonicity in the preparation of eye drops. 2
- (g) Write the application of spreading co-efficient in pharmacy. 2
- (h) What do you understand by solubilisation ? 2
- (i) Discuss BET equation. 2
- (j) What do you understand by latent heat of vaporisation and latent heat of fusion ? 2
- (k) How do real gases differ in their behaviour from an ideal gas ? 2
- (l) Write the limitations of Langmuir adsorption isotherm. 2

3. Answer *all* questions :

3×10=30

- (a) What do you understand by the phenomenon polymorphism ? Giving suitable examples write the application of polymorphism in pharmacy. 3
- (b) What are isothermal and adiabatic processes ? Give the expression for Clausius – Clapeyron equation. 3
- (c) Explain a suitable method for determining the saturation solubility of a solid in a liquid. 3
- (d) Give the buffer equation for solutions of weak acid and its salts. What are biological buffers ? Give examples. 3
- (e) What do you understand by HLB scale ? Write its application in pharmaceutical formulation. 3
- (f) With the help of a neat diagram, describe the phenomenon of electrical double layer and Zeta potential at interfaces. 3
- (g) What are surfactants ? Give a suitable chemical classification of surfactants with examples. 3

(h) Discuss Freundlich adsorption isotherm giving mathematical equation. 3

(i) What is meant by surface excess ? What are its applications in pharmacy ? 3

(j) Explain upper and lower consolute temperature with suitable examples. 3

4. Answer any *five* questions : 4×5=20

(a) With the use of phase diagram, illustrate the principle of sublimation. Give examples of materials that exhibit sublimation. 4

(b) Enlist the methods for adjustment of tonicity of solutions. Explain any one method. 4

(c) What do you understand by solubilisation ? Enlist the factors affecting critical micelle concentration (CMC). 4

(d) Define enthalpy and entropy of a system. How is heat capacity of a substance defined ? 4

(e) Give examples of solutions of gases in liquids. What are the influence of temperature and pressure on the solubility of gases in liquids ? 4

(f) Discuss the factors affecting the solubility of solids in liquids. 4

(g) Discuss the various applications of amphiphiles in pharmacy. 4

5. Answer any *four* questions : 4×5=20

(a) How does transition take place from one state of matter to the other ? Discuss the process in detail. 5

(b) State the third law of thermodynamics. How the entropy of a substance can be determined ? Discuss it briefly. 5

(c) What is pharmaceutical buffers ? Give examples of such buffers. A buffer solution contains 0.05 mole/litre of formic acid and 0.10 mole/litre of sodium formate. (pKa of formic acid = 3.75). Find the pH of buffer solution. 5

(d) Define the term surface tension. How will you determine the surface tension of liquid by capillary rise method. 5

(e) Define the term RHLB. Write the applications of surface active agents. 5

(f) What is Triple point ? Explain the phenomenon of Eutexia formation. 5