

B.Sc SEMESTER II

MODEL PAPERS

PHYSICAL CHEMISTRY, CC-IV

LONG QUESTIONS

Q.1-What are intensive & extensive properties discuss with examples. Give the mathematical statement of first law of thermodynamics.

Q.2-Discuss open, closed, isolated system, state of system & state variables.

Q.3- State and explain the terms: - Heat capacity of a system, molar heat capacity at constant volume (C_v) and at constant pressure (C_p). Show that $C_p - C_v = R$

Q.4-(i) Derive Kirchoff's equation for the effect of temperature on heat of reactions.

(ii)-What is meant by the term entropy of a system?

Q.5- Derive the relation between the equilibrium constant K_p , K_c , K_x . Under what condition $K_p = K_c = K_x$.

Q.6-State and explain Raoult's law for vapour pressure of binary solutions of volatile liquids. What are ideal and non ideal solutions?

Q.7- Write an explanatory note on abnormal molar masses, Vant Hoff factor and osmotic pressure.

SHORT QUESTIONS

Q.8-What are colligative properties? Explain and describe their applications.

Q.9- State and explain Le-Chatelier's principle.

Q.10- State and explain the third law of thermodynamics.

Q.11- Discuss Coupling of exoergic and endoergic reactions.

Q.12- A 5 percent aqueous solution having density 1g/cm^3 by mass of a non-volatile solute boils at 100.15°C . Calculate the molar mass of the solute. $K_b = 0.52\text{Kkgmol}^{-1}$.