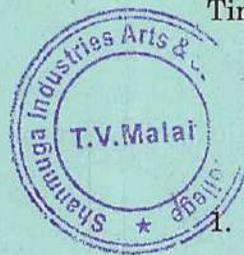


APRIL/MAY 2018

MCH13 — PHYSICAL CHEMISTRY - I

Time : Three hours

Maximum : 75 marks



SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Explain any one method for the determination of activity and activity coefficient of non-electrolytes.

Or

- (b) Explain the variation of fugacity with temperature and pressure.

2. (a) Explain the two component phase diagram of congruent system.

Or

- (b) Explain the phase diagram of acetic acid-chloroform-water system.

3. (a) Write a note on surfactants.

Or

- (b) Deduce the expression for zeta potential.

4. (a) Derive Eyring's equation.

Or

(b) Explain the influence of enthalpy and entropy of activations on reaction rates.

5. (a) Discuss the mechanism of acid-base catalysed reactions.

Or

(b) Derive Michaelis-Menten equation.

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. (a) How will you determine the fugacity of gases from graphical method? (10)

(b) Write a note on chemical potential. (5)

7. Explain briefly the three component phase diagram of sodium chloride-sodium sulphate-water and water-ethyl alcohol-Succinic nitrile systems.

8. Write a note on Donnan membrane equilibrium.

9. Explain the following :

(a) Hammett equation. (5)

(b) Influence of ionic strength on reaction rates. (10)

10. (a) Discuss in detail about the inhibition of enzyme catalysed reactions. (10)

(b) Write a note on Bronsted catalysis law. (5)

