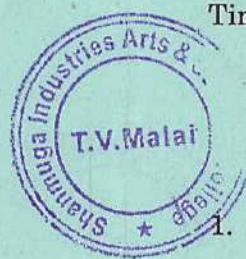


APRIL/MAY 2018

MCH13 — PHYSICAL CHEMISTRY – I

Time : Three hours

Maximum : 75 marks



SECTION A — ($5 \times 6 = 30$ 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 — ($3 \times 15 = 45$ 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)

