

B.Sc. Semester - 6 (CBCS) Examination

May/June-2021 (OLD COURSE)

PHYSICAL AND ANALYTICAL CHEMISTRY(CORE)

Time: 1:30 Hours

Marks: 42

Instructions:

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

Q.1 (A) Calculate ionic strength of mixture of 50 ml 0.04M NaCl and 50 ml of 0.08M K₂SO₄. (04)

Q.1 (B) Answer any two questions (10)

- (1) Describe the determination of absolute entropy of solid, liquid and gas.
- (2) Explain the emf method to determine activity coefficient ionic solution.
- (3) Explain the corrections of Debye Huckel equation.

Q.2 (A) Explain liquid junction potential. (04)

Q.2 (B) Answer any two questions (10)

- (1) Explain two application of concentration cell.
- (2) Derive the equation for emf of electrolyte concentration without transference.
- (3) Describe the determination of dissociation constant of weak acid by emf method.

Q.3 (A) Write short note on normal distribution (Gaussian) curve. (04)

Q.3 (B) Answer any two questions (10)

- (1) Drive Nernst distribution law by partial molar property.
- (2) Describe the various types of error.
- (3) Explain significant figure rules.

Q.4 (A) Explain the factors affecting ion exchange. (04)

Q.4 (B) Answer any two questions (10)

- (1) Describe thin layer chromatography.
- (2) Discuss column chromatography.
- (3) Describe the applications of ion exchange chromatography.

Q.5 (A) Explain the principle of separation of chloride, bromide and iodide ions. (04)

Q.5 (B) Answer any two questions (10)

- (1) Discuss the separation of Cu⁺² and Cd⁺² ions.
- (2) Describe acid base titration by potentiometry.
- (3) Write the advantages and disadvantages of glass electrode.
