

B.Sc. Semester - 6 (CBCS) Examination
May/June-2021 (NEW 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) State the differences between thermal and photo chemical reactions. **(04)**

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

- (1) Derive Raoult's law by partial molar property.
- (2) Explain the tests of Third law of Thermodynamics.
- (3) Explain the corrections of Debye Huckel equation.

Q.2 (A) Explain the separation of Cl^- , Br^- and I^- ions. **(04)**

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

- (1) Derive the equation for emf of electrolyte concentration with transference.
- (2) Discuss the determination of dissociation constant of weak acid by emf method.
- (3) Explain any one acid base titration by potentiometry.

Q.3 (A) Discuss the methods to prepare chromplate of TLC. **(04)**

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

- (1) Describe various types of paper chromatography.
- (2) Explain the factors affecting ion exchange chromatography.
- (3) Discuss t-Test and Q-Test.

Q.4 (A) Calculate activity coefficient of Ba^{+2} , Cl^- and mean activity coefficient of ions of 0.5 M BaCl_2 solution. ($A = 0.509$) **(04)**

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

- (1) Explain the reasons of high and low quantum yield.
- (2) Explain pHmetry titration of weak acid against strong base and determination of dissociation constant of weak base.
- (3) Describe various types of error.

Q.5 (A) Explain: Range (Width), Standard deviation, Variance and Coefficient of variance. **(04)**

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

- (1) Discuss the intercept method to determine partial molar quantity.
- (2) Explain the types of electrode concentration cells.
- (3) Discuss various types of gas chromatography.
