647510 **BSc6CheC603x** **Seat No :_____**

B.Sc. Semester - 6 (*CBCS*) Examination
March/April-2026 (NEW COURSE)
Physical and Analytical Chemistry (Core (New))

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1(A) Answer the following question. (04)

(1) Derive the equation to determine activity coefficient by emf method.

Que.1(B) Answer any two questions out of three. (10)

(1) Write the difference between thermal and photochemical reaction.

(2) Derive Raoult's law with the help of chemical potential.

(3) Derive the equation to determine absolute entropy of solid and gas.

Que.2(A) Answer the following question. (04)

(1) Derive the equation to determine the cell potential of electrolyte concentration cell without transference.

Que.2(B) Answer any two questions out of three. (10)

(1) What is LJP? How to eliminate LJP using salt bridge?

(2) Explain p^H metric titration of weak acid vs strong base using glass electrode as indicator and Calomel electrode as a reference electrode.

(3) How can we identify and separate CO_3^{-2}, SO_3^{-2} and S^{-2} from the mixture.

Que.3(A) Answer the following question. (04)

(1) List out the types of errors. Explain any two in detail.

Que.3(B) Answer any two questions out of three. (10)

(1) Explain accuracy and precision with suitable examples.

(2) Explain ascending paper chromatography in detail.

(3) Write short note about Thin Layer Chromatography.

Que.4(A) Answer the following question. (04)

(1) Derive Henry's Law with the help of chemical potential.

Que.4(B) Answer any two questions out of three. (10)

(1) Derive the equation of Debye-Huckel limiting law.

(2) How to determine solubility of sparingly soluble salt by emf method.

(3) Write a note on column chromatography in detail.

Que.5(A) Answer the following question. (04)

(1) Explain borax bead test with necessary equations.

Que.5(B) Answer any two questions out of three. (10)

(1) What is error? Give the methods to minimise the determinate errors.

(2) Explain test for third law of thermodynamics.

(3) Explain electrode concentration cell with one example.

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