

**Second Semester FYUGP Degree (Reg/Sup/Imp) Examination
April 2026**

**KU2DSCCHE111 - BASIC PHYSICAL CHEMISTRY AND
FORENSIC CHEMISTRY
2024 Admission onwards**

Time : 1.5 hours

Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. What is permanganometry? Give an example for a permanganometric titration.
2. Name the indicator used in iodimetry. What is the expected colour change at the end point in an iodimetric titration.
3. Distinguish between isothermal and adiabatic process.
4. Define molar heat capacity and specific heat capacity
5. Write down the integrated rate equation for a first order reaction. Explain the terms
6. Write down the Arrhenius equation? Explain the terms
7. Give the mathematical expression for Freundlich adsorption isotherm and mention each term involved.
8. What are lyophilic and lyophobic colloids?

Section B

Answer any 4 questions. Each carry 6 marks.

9. What are the factors affecting the rate of a chemical reaction?
10. a) What are the important characteristics of a first order reaction? b) Show that the half life period of a first order reaction is independent of the initial concentration
11. Discuss the salient aspects of transition state theory of reaction
12. Write BET and Gibbs adsorption equation and indicate the terms.
13. Explain the dispersion methods of preparation of colloids.
14. a) What are protective colloids? b) Define gold number. Given that the gold number of Gelatin ranges from 0.005- 0.01 and that of Egg albumin ranges from 0.08-0.1, which one is the better protective colloid ?

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Section C

Answer any 1 questions. Each carry 14 marks.

15. Explain the role of blood analysis in forensic investigations.
16. (a) Write Gibbs -Helmholtz equation, explain the terms and give its significance.
(b) a) Derive expressions for hydrolysis constant and degree of hydrolysis of a salt of a strong acid and a weak base.