K25FY3329 Pages: 2 Reg No:.....
Name:.....

Third Semester FYUGP Degree (Reg) Examination
NOVEMBER 2025
KU3DSCCHE214 - REACTION KINETICS AND BIOMOLECULAR CHEMISTRY

2024 Admission onwards

Time : 1.5 hours Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. Write notes on chromatographic method used for the separation of amino acids
2. Write one chemical property of amino acids.
3. Explain cooperativity effect in hemoglobin.
4. Name the metal present in a) hemoglobin b) carboxy peptipdase
5. Name two factors affecting the position (shape) of a spectral line
6. 67/5000Why are diatomic homonuclear molecules (like O_2, N_2) IR inactive?
7. Mention two factors that affect the rates of reactions.
8. Write an expression for the solubility product of Ag_2CrO_4

Section B

Answer any 4 questions. Each carry 6 marks.

9. Explain the working principle of a UV-Visible spectrophotometer with a neat diagram.
10. Derive Beer–Lambert's law. Discuss its limitations
11. Explain the principles of fluorescence and phosphorescence. How do they differ in terms of excited state lifetimes and emission processes?
12. Time taken for 50% of the reaction to be complete is 13.86 hrs..Calculate the specific reaction rate of the reaction
13. Give the Arrhenius equation and account for the influence of temperature on the reaction rate.
14. Explain the common ion effect with a suitable example. How is it useful in qualitative analysis?

Section C

Answer any 1 questions. Each carry 14 marks.

15. a)What are the different steps involved in the biosynthesis of proteins ?
    b) Explain Michaelis Menten theory of the mechanism of enzyme action.

16. a)Explain the biochemical importance of zinc and iron
    b)Explain the biological functions of cobalt and calcium