Q.P. Code: 31091

[Time: Three Hours]   [Marks:80]

Please check whether you have got the right question paper.

N.B: 1.   All questions are compulsory.
        2.   Draw neat and well labelled diagram wherever necessary.

1.
    a. Differentiate between order & molecularity of reaction.   2M
    b. How is the process of diffusion utilized in formulations?   2M
    c. Explain any one method of complexation in brief.   2M
    d. Define pharmacokinetics & bioavailability.   2M
    e. Classify disperse systems with examples.   2M
    f. State the importance of dissolution in pharmaceutical formulations.   2M
    g. Explain the concept of energy of activation.   2M
    h. Elaborate on any one method for preparation of colloids.   2M
    i. How is drug absorption affected by solubility & pKa?   2M
    j. State the effect of temperature on drug degradation.   2M

2.
    a. State & explain Fick's first & second law of diffusion.   2M
                                        OR
    Explain the terms steady state diffusion & permeability.
    b. How is complexation measured by using solubility method?   4M
    c. Differentiate between flocculated & deflocculated systems. What is the impact of electrolyte
        addition on flocculation?   4M

3.
    a. Enlist the factors influencing rate of chemical reactions. Discuss effect of any two in detail. 4M
    b. State Noyes Whitney equation. Which are the factors that can affect dissolution rate of a particle? 4M
    c. Elaborate on any two dosage form related factors that can influence absorption   4M
                                        OR
    Explain with two examples the effect of physiological factors on drug absorption.

4.
    a. What is the role of a diffusion cell? Explain any one cell in detail.   4M
    b. State pathways of drug absorption and explain facilitated diffusion.   4M
    c. Classify & describe various inclusion complexes.   4M

5.
    a. Explain specific rate constant and derive equation for first order reaction rate constant.   4M
    b. Comment on kinetic & thermodynamic stability of disperse systems.   4M

OR

    Explain Nernst potential and Zeta potential.
    c. State various electrical properties of colloids.   4M

6.
    a. A drug follows 1st order degradation kinetics & its half life is 100 sec. find the time required for 75% degradation of the drug & reaction rate constant.   4M

OR

The concentration of drug A reduced to 9.6 mg/ml from initial values of 57.9 mg/ml after 65 minutes. Find the reaction rate constant & concentration after 25 minutes.
    b. What are the different reasons for instability of emulsions & what are the remedies for it?   4M
    c. State different classes of colloids & give their characteristics. Give Schulz Hardy rule.   4M

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