[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2063)

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B. Pharmacy 2nd Semester Examination

Physical Pharmacy (O.S.)

HBP-102

Time : 3 Hours **Max. Marks : 80**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/ continuation sheet will be issued.

Note : Attempt any FIVE questions in all, selecting ONE question each from Sections A, B, C and D. Section E is compulsory.

SECTION - A

1. (a) What is meant by polymorphism? Give five examples of drugs that are known to possess different polymorphic states. How amorphous is different from crystalline form and what are the advantages and limitations of using them in formulations? **(8)**

   (b) Enumerate the properties of a powder. Explain the following terms: (a) angle of repose; (b) Hausner ratio; (c) Carr's index; (d) Specific surface area. **(8)**

2. (a) What is meant by 'glassy state' and 'glass transition temperature'? Explain the application of glass transition temperature in polymers sued for coating tablets. **(8)**

(b) Enumerate the methods used for determining particle shape. Discuss the role of particle shape in dosage form design and stability. **(8)**

SECTION - B

3. (1) Differentiate between surface and interfacial tension. Briefly explain the methods used for determining interfacial tension. **(8)**

(b) Giving examples describe the Newtonian and Non Newtonian flow behaviours in semi-solid preparations. **(8)**

4. (a) Explain the difference between thixotropy and negative thixotropy. Mention their applications. **(8)**

(b) Classify surfactants with respect to HLB scale giving examples. Explain the concept of mixed emulsifier system. **(8)**

SECTION - C

5. What are suspensions? Discuss the approaches used for flocculating suspended particles. How are flocculated suspensions better than deflocculated suspensions? **(16)**

6. What are complexes? Enumerate the methods used for determining drug-ligand ratio and discuss the method of continuous variation with suitable example. **(16)**

SECTION - D

7. Discuss the accelerated stability testing procedure using temperature as stress. Give relevant graphical representations and equations for this purpose. **(16)**

8. Explain the methods used for making injections isotonic with human plasma. A solution contains 1.0 g of a drug in 100 ml. (i) Calculate the quantity of sodium chloride to be added to make the solution isotonic (given that the sodium chloride equivalent of the drug is 0.23)? **(16)**

SECTION - E

9. Write in brief about:

   (a) Prevention of photo degradation

   (b) Clathrates

   (c) Wetting agents

   (d) Critical micelle concentration

   (e) Bulge in rheograms

   (f) Protective colloid

   (g) Kraft point

   (h) Granule porosity. **(2×8=16)**