BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BPHARM **SEMESTER: Vth**
BRANCH: PHARMACY **SESSION: MO 2024**

SUBJECT: BP502T INDUSTRIAL PHARMACY-I

TIME: 3.00 Hours **FULL MARK: 75**

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
2. Before attempting the question paper, be sure that you have got the correct question paper.
3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.

PART-I
Objective types questions (Instruction: Answer all questions)

Q1. (10 x 2 = 20 Marks)

A. Provide rationale for Preformulation studies [CO1]

B. Provide one example for the following classes of excipients along with their uses. [CO1]
   a. Lubricants c. Binders
   b. Disintegrants d. Diluent

C. Write about the following terms:[CO2, CO3]
   i. Cap Locking
   ii. Origin and Composition of Pyrogens

D. Write the full form of the following instruments used for different studies during preformulation studies. [CO1]
   a. FTIR
   b. DSC
   c. TGA
   d. FESEM

E. Discuss the different stages of granule formation. [CO1]

F. State the significance of Dielectric constant (DEC) & Hydrotrophy in formulation of oral liquid formulation. [CO2]

G. Calculate the angle of repose for a 10gm of Paracetamol granules sample, falling from a height of 2cm of the hopper capturing 4cm circumference at the base. Indicate the type of flow and also provide rationale whether glidants are required or not. [CO2]

H. Calculate the % Carr's Consolidation Index for a 20gm of Paracetamol granules sample whose tapped volume is found to be 10ml and the bulk volume is found to be 40ml. [CO2]

PTO

I. Write the formula for **Base adsorption** and **Minim per gram factor** used for capsule formulation and also mention their significance. [CO2]

J. Provide the nomenclature of the following propellants: [CO3]
   a. Dichlorodifluoro methane
   b. Dicholoro tetra fluoro ethane
   c. Difluoroethane
   d. Tricholoro monofluoro methane

PART-II
Short Answers
(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

Q2. Discuss the following: [CO 3, CO4]
   a. What do you understand by Colourless Flint Glass?
   b. What are the different types of Moisturizers along with examples for each?
   c. Differentiate between Thermoplastic and Thermoset plastics.
   d. Write the mechanism of action of physical sunscreen and chemical sunscreen agents.
   e. Which reagent is used for cleaning of rubber closures used for parenteral preparations?

Q3. A formulator is required to formulate an O/W emulsion of the basic formula: [CO2 & CO3]
Liquid Paraffin----------20gm
Emulsifying agent (Required HLB 10.5)----------5gm
Water----------qs----------100gm
Calculate the fraction of Tween 80(HLB value of 15) & Span 80 (HLB of 4.3) used to produce a physically stable liquid paraffin emulsion

Q4. Discuss the configuration of Continuous spray valve system in details. [CO2]
Q5. Discuss the formulation of soft gelatin capsules with a schematic diagram. [CO2& CO3]
Q6. Discuss the sweeteners and preservatives used for oral liquid preparations. [CO2]
Q7. Discuss the following:
   i. Bloom strength of gelatin
   ii. Viscosity of gelatin
Q8. Calculate the vapour pressure at 70^0F of a propellant blend consisting of propellant 12/11 in the ratio of 30:70. The molecular weight of Propellant 11 is 137.38 and vapour pressure of pure propellant 11 is 13.4 psia and that of propellant 12 molecular weight is 120.93 and the vapour pressure of pure Propellant 12 is 84.9psia. [CO3]
Q9. Discuss in details the drug-plastic interactions. [CO4]
Q10. Discuss the DLVO theory in details for suspension formulation. [CO2, CO3 & CO4]

PART-III
Long Answers
(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

Q11. Discuss the quality control & evaluation parameters of Aerosols. [CO4, CO5]
Q12. Discuss the equations w.r.t maintenance of pH for the drug solubility during the formulation of oral liquid preparations. [CO2]
Q13. Discuss the evaluation parameters for uncoated & coated tablets. [CO2, CO3, CO4]

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