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

CLASS: B. PHARM **SEMESTER: V**
BRANCH: PHARMACY **SESSION: MO 2025**

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. Define Preformulation studies [CO1]

B. Calculate the % Carrs Consolidation index of a powdered drug of total weight 20gm and Bulk volume of the sample is found to be 50ml and the tapped volume is found to be 25ml. [CO1+CO2+CO3]

C. Provide examples for each category of cosmeceuticals:
   i. Depigmentation agent
   ii. Polishing agent used in Toothpaste
   iii. Sun Protective agents both Chemical and Physical

D. State true or false with proper reason for each:
   i. Mottling is a coating defect of Tablet
   ii. Aspartame is composed of Acetic Acid and Methyl alanine

E. What do you mean by Cap Locking and Polishing Technique?

F. What are the critical formulation factors for ophthalmic solutions?

G. State the role of particle size in influencing aerosol behaviour and drug delivery efficiency.

H. Explain the key difference between cold filling and pressure filling methods used in the manufacturing of aerosols.

I. What are ocular inserts?

J. Which type of glass is preferred for packaging and dispensing sterile pharmaceutical preparations?

PTO

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

(7 x 5 = 35 Marks)

Q2. Discuss the steps in granulation.
Q3. Discuss in details about the sugar coating technique
Q4. Calculate the HLB value of a mixture of emulsifying agent consisting of 40% of SPAN 60(HLB 4.7) and 60% of TWEEN 60 (HLB 14.9)
Q5. A mixture of two surface active agents having an HLB value of 13.5. Calculate the percentage of each if it consists of BRIJ 35 (HLB 6.9) and SPAN 80(HLB 4.3)
Q6. Discuss the processing problems along with their remedies associated during the tablet production and processing problems along with their remedies for tablet coating.
Q7. Describe the formulation considerations for long-acting parenteral formulations.
Q8. The vapour pressure of pure CFC 11 (molecular weight = 137.4 g/mole) at 21 ℃ is $p11^{\circ}$ = 13.4 psi, and that of pure CFC 12 (molecular weight = 120.9 g/mole) is $p12^{\circ}$ = 84.9 psi. What is the partial pressure of CFCs 11 and 12 in the 40:60 mixture (by gram weight), and what is the total vapour pressure of this mixture?
Q9. Explain the factors contributing to drug loss following ophthalmic administration.
Q10. Explain the term *packaging*. Describe the different types of packaging and distinguish between them with appropriate examples.

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

(2 x 10 = 20 marks)

Q11. Describe the different types of aerosol systems along with appropriate examples.
Q12. Derive the equations associated with the pH (both acidic and alkaline) required for the drug solubility during the formulation of oral liquid preparations.
Q13. Discuss the following:
    i. Preservatives and sweeteners used for oral liquid preparations
    ii. Theory of Emulsification and DLVO theory

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