BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

Second Semester 2022-23

PHA F216: Pharmaceutical Formulation I

Comprehensive Examination (Closed Book)

Weightage: 35% **Date: 08 July 2023** **Duration: 3 Hours**

Note: All questions should be attempted in sequence. There would be negative marking if not followed.

Q1. (a) A formulator mixed two compounds Menthol (130 g) and Camphor (260 g) as per the below table. What is the expected incompatibility with this mixture and how to overcome that? [1.5M]

(b) Sodium salicylate (10 g) and sodium bicarbonate (4 g) were mixed and made the solution with Chloroform Water (q.s) to 100 ml. The mixture solution turned into reddish brown. Write the reason and remedies for this color change. What will the impact on therapeutic efficacy of this issue? [1.5M]

(c) What are the effect of alkalinity of glass container on quality of stored preparations? Give examples. [2M]

Q2. (a) How to prepare: 60 ml of 1 in 4000 drug solution from its 1 in 200 solution. [1.5M]

(b) A pharmacist has 500 ml of solution of drug X having the concentration of 40% w/v. How will she make a 100 ml of solution having 12% w/v of drug X. [1.5M]

(c) Find the amount of NaCl to be included in 100 ml of 0.3% solution of Zinc Sulphate so that on dilution with an equal quantity of water, it will be isoosmotic with tissue fluids? Freezing point of 1% Zinc sulphate solution is -0.086 ºC. 1% NaCl freezing point = -0.576 °C [2M]

Q3. (a) For preparation of 50 mL of an o/w emulsion, 30% oil phase dispersed in water. The RHLB of mixture of oil phase was calculated as 12. The emulsion will be required 4 g of surfactant mixture (X and y). Calculate the require quantity of each surfactant for 100 mL of this emulsion. The HLB of Surfactant X and Y are 4 and 15 respectively. [1.5M]

(b) The granules for capsule filling showed 10 ml volume for its 8000 mg weight. What will be the content weight for filling in capsule size 3. Volume for capsule size 3: 0.30 ml. [1.5M]

(c) Write the composition (with respective example of components) of a parenteral intra-venous preparation. What are the quality parameters are expected in a parenteral preparation? [2M]

Q4. (a) Write advantages and limitations of Theobroma oil for suppository preparation. [3M]

(b) Discuss the factors affecting the systemic or local absorption of drug from its rectal suppository preparation. [2M]

Q5. Write short note on the followings: [5M]

(a) Write the ratio of oil to water to gum for a primary emulsion for 'mineral oils' and 'volatile oil' based emulsion preparations

(b) Soft paraffin ointment base (write examples also)

(c) Inorganic suspending agents (write examples also)

(d) Diffusible and Indiffusible suspensions (write examples also)

(e) Evaluation of Suspension preparation

Q6. (a) When direct compression method for tablet manufacturing is not suitable? Justify [1M]

(b) If the powder for tablet compression is having poor flow properties then what are the possible quality issues may come for final tablets? [2M]

(c) In what situations 'hard gelatin capsules preparation' are preferred over 'tablet preparation'. [1M]

(d) Write the equivalent volume measurement in **ml** for: one teaspoon (tsp.); one fluid ounces; one tablespoon; one cup. [1M]

Q7. (a) Discuss the approaches to improve the creaming issue of an o/w emulsion. [2M]

(b) Write the specific function of below compounds in the given preparations. (3 M)

S. N	Name of compound	Name of preparation	Function
a	Talc	Tablet	
b	sodium metabisulphite	Oral solution	
c	Microcrystalline cellulose	Capsule	
d	Chorobutanol	Ephedrine nasal drops BPC	
e	Polyvinyl pyrrolidone K 30	Capsule	
f	Chlorhexidine acetate	Eye drops	
g	Sodium Bicarbonate	Tablet	
h	Propylene glycol	Oral Solution mixture	
i	Bentonite	Suspension	
j	Phenyl mercuric nitrate	Parenteral preparation	
k	Glycerine	Suspension	
l	Tartrazine	Solution	