

NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF PHARMACY

BACHELOR OF PHARMACY (HONOURS)

**PHA 3402- PHARMACEUTICAL DOSAGE FORMS
MANUFACTURING**

FINAL EXAMINATION

JANUARY 2024 TIME: 3 HOURS TOTAL: 100 MARKS

INSTRUCTIONS

- ANSWER ALL QUESTIONS.
- BEGIN EACH QUESTION ON A NEW PAGE

QUESTION 1: MANUFACTURE OF PHARMACEUTICAL SOLUTIONS

- a) Discuss why tap water is not normally used for the manufacture of pharmaceutical solutions. **[4 marks]**
- b) Outline how you would treat tap water such that it is suitable for preparation of pharmaceutical parenteral solutions. **[6 marks]**
- c) Discuss how you would go about in formulating a non-parenteral aqueous solution from a lipophilic form of a drug. **[10 marks]**
- d) Classify solutions according to their solvent system. **[4 marks]**

Question 2: Pharmaceutical Suspensions

- a) Mention and describe the best particulate DLVO zone of the colloidal suspension (5) and explain why this zone is desired in pharmaceutical suspensions (5). **[10 marks]**
- b) Explain the rationale behind the addition of sodium lauryl sulphate as one of the excipients in the formulation of pharmaceutical suspensions (4) and describe its mechanism of action in this dosage form (6). **[10 marks]**

Question 3: Emulsions and creams

Compare and contrast between emulsions and creams. **[6 marks]**

Question 4: Manufacture of gelatin capsules

- a) Outline the extraction of gelatin using basic hydrolysis. **[10 marks]**
- b) Outline the manufacturing process of empty hard gelatin capsule shells. **[10 marks]**

c) Describe the Bloom Strength (3) and explain how the desired Bloom strength values can be achieved (7). **[10 marks]**

d) Discuss the rationale behind the application of vacuum to the hot gel solution (5) and maintaining hopper heated at 60 °C while the moulds are maintained at room temperature (5). **[10 marks]**

Question 5: Granulation and tablet compaction

You are working as a production pharmacist for a reputable pharmaceutical company. The batch of granules for tablet compaction have just failed the test as they tend to adhere too much to each other. Analyse what could be wrong with this batch and come up with the proper solution to rectify this problem.

[10 marks]