

**NATIONAL UNIVERSITY OF LESOTHO
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF PHARMACY**

BACHELOR OF PHARMACY (HONOURS)

PHA3301 – LOGISTICS AND SUPPLY CHAIN MANAGEMENT

JANUARY 2024

TIME: 3 HOURS

MARKS 100

INSTRUCTIONS

- **ANSWER ALL QUESTIONS**
 - **SUBMIT THE STOCK CARD TOGETHER WITH YOUR ANSWER BOOKLET**
 - **INDICATE YOUR STUDENT NUMBER ON THE STOCK CARD**
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Question 1: Medical gases (20 marks)

- (a) You have a patient diagnosed with bronchitis. This patient is on chronic use of oxygen and you have dispensed a cylinder of oxygen to them. Counsel this patient on the following issues.
- (i) Storage instructions. **(4 marks)**
 - (ii) Instruction for preparation for use. **(6 marks)**
- (b) In a hospital ward, medical gas cylinders are improperly stored, posing potential risks. As a pharmacist responsible for medical gases supply, research and present the causes, preventive measures, and corrective actions for inappropriate gas cylinder storage to the hospital ward staff. **(10 marks)**

Question 2: Supply Chain Management (20 marks)

- (a) Differentiate between allocation (push) and requisition (pull). **(2 marks)**
- (b) Differentiate between consumed and issued data. **(3 marks)**
- (c) Explain how demand forecasting can improve healthcare logistics in this scenario.
Scenario: A hospital uses historical patient data and trends to accurately forecast the demand for specific medical supplies and medications. **(5 marks)**
- (d) A pharmaceutical manufacturer discovers a defect in a batch of medications. They need to recall the affected products from the market, manage the recall process efficiently, and prevent similar incidents in the future. This may involve issuing a voluntary recall or working closely with regulatory agencies to ensure compliance with safety standards.
- (i) Explain Type A recall and indicate how you would implement it. **(5 marks)**
 - (ii) What impact would this recall have on the pharmaceutical manufacturer in the future? **(5 marks)**

Question 3: Cold chain (20 marks)

- (a) A clinic you are working at is going to carry out an outreach immunization session in the village. Prepare a vaccine carrier for transporting vaccines from the clinic refrigerator to outreach immunization session where refrigeration and ice are not available. **(10 marks)**

- (b) How would you solve following challenge related to cold chain management in pharmacy practice? **Challenge:** A power outage results in a cold chain break for vaccines stored in the pharmacy. **(6 marks)**
- (c) Water packs can be used in different ways. Differentiate between the following; frozen ice pack, conditioned ice packs, cool water packs, and warm water packs. **(4 marks)**

Question 4: Medication errors (10 marks)

- (a) Dosage calculations are the main causes of dispensing errors in the pharmacy. Prevention strategies include cross-checking and avoiding calculations where possible. What is your opinion on the effectiveness of the proposed prevention strategies, and can you justify your stance? **(5 marks)**
- (b) How would you minimize administration errors, especially when dealing with paediatric and elderly patients? **(5 marks)**

Question 5: Inpatient medication management (10 marks)

- (a) **Scenario:** City General Hospital uses a unit dose system for medication distribution. They have experienced challenges in controlling medication costs and excessive packaging waste.

Questions for Analysis:

- (i) Why might it be challenging to control medication costs with a unit dose system? **(5 marks)**
- (ii) What strategies can the hospital implement to reduce excessive packaging waste? **(5 marks)**

Question 6: Drug supply management calculations (20 marks)

- (a) In January 2001, Mabote clinic received from QE II hospital 24 tins of item in the store called Nevirapine 60 mg tablets. During January, two tins of 500 tablets were issued to the dispensing area. In February, four tins were issued, and in the next two successive months, two and two tins were issued respectively. Finally during the last two months, three and three tins were issued respectively.
- (i) What is the average monthly consumption of Nevirapine? **(2marks)**

(ii) Assuming the lead time is three months, what is the request indicator?

(4 marks)

(iii) Assuming the lead time is three months and add one month as reserve for unforeseen circumstances, what is the quantity to be ordered? **(4 marks)**

(b) Remember to enter all the necessary information on the bin card. Take this as a practical and you are in your store room working on paracetamol. Create a stock card for the item paracetamol 500 mg tablets, code number P500. It comes in a tin of 1000 tablets. On the 01/05/2023, during a stock check, balance in stock was 6 tins. On 5/5/2023, one tin was issued to the dispensing area. On 30/5/2023, three tins were found to have expired on the 01/05/2023 and they were returned to the central medical store. On 7/6/2023, 1 tin was taken to the dispensing area. On 15/6/2023, received 6 tins from the central medical store. On the 22/6/2023, two tins were supplied to a nearby clinic. ***NB: Enter this information in the stock card in the appendix.*** **(10 marks)**

