NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF HEALTH SCIENCES

BACHELOR OF PHARMACY (HONOURS)

PHA513 - PHARMACOLOGY AND THERAPEUTICS III

SUPPLEMENTARY EXAMINATION

AUGUST 2023

TOTAL MARKS: 100 MARKS   **DURATION: 3 HOURS**

This examination paper consists of two sections, Section A (40 marks) and Section B (60 marks).

INSTRUCTIONS
- Answer all questions.
- Start each question on a new page.

SECTION A 40 MARKS

Q1. P-Drug Selection [10 marks]
a) Distinguish between P-drugs and P-treatments, give examples to support your answer. **[2]**
b) In the context of selecting a P-drug for stable angina pectoris, compare nitrates, beta blockers, calcium channel blockers and statins in terms of the criteria below.
   i) Efficacy **[4]**
   ii) Safety **[4]**
      - Name specific drugs from each class, and provide the rationale for your ranking.

Q2. Drug Use Indicators [10 marks]
a) Distinguish between patient care and health facility indicators; give examples to support your answer. **[2]**
b) The following results are extracted from a DUE study conducted across one network of Primary Health Care Clinics.

Table 1. WHO/INRUD Core Drug Indicators (January - December 2022)

Indicator	Results	Optimal value (range)
1. Average no. of drugs/encounter	4.2 ± 0.8	< 2 (1.6 - 1.8)
2. % of drugs prescribed by generic name	68	100
3. % of encounters with an antibiotic prescribed	46.8	< 30 (20.0 - 26.8)
4. % of drugs with an injection prescribed	37	< 25 (13.4 - 24.1)
5. % of drugs prescribed from EDL or formulary	89	100

   i) Discuss any **two** factors that could account for the differences between actual results and the optimal value (range) for indicator 1. **[4]**
   ii) Discuss any **two** possible consequences of the results with respect to indicator 4. **[4]**

Q3. Ensuring Medicine Safety and Quality [10 marks]
a) Distinguish between preventable and non-preventable adverse drug reactions; give examples to support your answer. **[2]**
b) Give a detailed overview of the clinical and economic impact of ADRs on patients with respect to the following classes of drugs:
   i) Antihypertensive drugs **[4]**
   ii) NSAIDs **[4]**
      - Name specific drugs, indications and subsequent ADRs to support your answer.

Q4. Ensuring Medicine Safety and Quality [10 marks]
a) Distinguish between ADRs and medication errors; give one example of each. **[2]**
b) Give **two** examples each of medication errors that can result in:
   i) Therapeutic failure **[4]**
   ii) Hospitalisation and/or death **[4]**
      - Describe specific, realistic situations and name specific indications and/or drugs to support your answer.

Q1. P-drug Selection [20 Marks]
Provide a detailed outline of the steps you would follow in selecting a P-drug and an alternative P-drug for asthma. **[20]**

INSTRUCTIONS
- Show all calculations.

Additional Information: Available Drugs

Drug Name	Strength; quantity; price
Aminophylline	100 mg tablets (ER); 1000; M89.76
Beclomethasone diproprionate	50 µg, 200 doses inhaler; 1; M37.08
Ipratropium bromide	200 µg, 200 doses inhaler; 1; M282.22
Salbutamol	4 mg tablets; 1000; M36.41 100 µg, 200 doses inhaler; 1; M26.86
Theophylline (Alcophyllex)	200 ml syrup; 1; M17.05
Prednisolone	5 mg tablets; 1000; M217.77

Q2. Rational Drug Use [20 Marks]
Define the concept of rational drug use **[4]** and, for each class of drugs below:
- i) Give **one** example of irrational drug use [2]**,** (name specific drugs, conditions/ situations to support your answer)
- ii) Discuss **one** cause/reason for the irrational drug use [1] and
- **iii)** Discuss **one** consequence of such irrational drug use [1]**.**

    a) Antibiotics **[4]**
    b) Antidepressants **[4]**
    c) Benzodiazepines **[4]**
    d) Oral hypoglycaemic agents **[4]**

Q3. Drugs and Therapeutics Committees [20 marks]
One of the functions of a hospital DTC is to develop policies to promote the rational use of drugs. This may include, but is not limited to development of drug restriction policies, and policies for ordering non-formulary drugs/drugs not in the EDL.

For each of the prescription drugs below:
- i) Briefly describe the pharmacological action/effect of the drug [1]
- ii) Give one example of a reasonable drug restriction policy (name specific indications/ criteria for use to support your answer) [3]
- iii) Discuss the rationale for implementing a drug restriction policy for the given drug. (Do not give high cost/expensive drug as a reason) [1]

    a) Morphine **[5]**
    b) Meropenem **[5]**
    c) Cyclosporine **[5]**
    d) Testosterone **[5]**