

NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF HEALTH SCIENCES

Department of Pharmacy

PHA 3403: SYSTEMS PHARMACOTHERAPEUTICS I

JANUARY 2024

TIME: 3 HOURS

100 MARKS

Instructions:

- The paper consists of **three (3) printed pages** including the **cover page**
- Answer **all** the questions
- Begin every question on a **NEW PAGE**
- The page consists of **four questions**

QUESTION 1**20 MARKS**

- a) **Discuss** the pathophysiology of left heart failure secondary to myocardial infarction (6); indicating the distinguishing symptom (2) and long-term complication (2).
- b) **Discuss** the pathogenesis of pulmonary embolism; indicating the aetiology (1), series of events leading to manifestation (5) of signs and symptoms (2) and long term complications (2)

QUESTION 2**30 MARKS**

Outline the stepwise treatment (drug [10] and non-drug [5]) of the following chronic illnesses as per the 2023 treatment guidelines, indicating dosing regimens, formulations and the criteria for moving from one-step to another (No OR statements)

15 marks each

- a) Essential hypertension
b) Diabetes mellitus type II

QUESTION 3**30 MARKS**

Outline in clear details, the mechanism of action of the following drugs, associated receptor-effector system (2), in the treatment of the disorders given (1) (activate prodrugs if any)

4 marks each

- 1) Telmisartan in hypertension
- 2) Nitroglycerine in angina pectoris
- 3) Furosemide in CCF
- 4) Adenosine in cardiac arrhythmias
- 5) Simvastatin in dyslipidaemia
- 6) Clopidogrel in clotting prophylaxis
- 7) Aminocaproic acid in haemorrhage
- 8) Folic acid in megaloblastic anaemia
- 9) Insulin in diabetes mellitus type I
- 10) Atorvastatin in diabetes mellitus type II

QUESTION 4**20 MARKS**

What therapeutic approaches (including drug regimens) would you recommend for the following patient cases?

2 marks each

- a) A known diabetes mellitus patient newly diagnosed with hypertension

- b) A newly diagnosed hypertensive patient at BP of >140/90 mmHg
- c) A known hypertensive patient whose BP is poorly controlled (>140/90 mmHg) on Hydrochlorothiazide 12.5mg orally once daily for over a month and Amlodipine 5mg orally once daily for over a month
- d) A secondary hypertensive patient whose BP is poorly controlled (>140/90 mmHg) at Telmisartan 40mg orally once daily for over a month and Amlodipine 5mg orally once daily for over a month
- e) A known hypertensive patient whose BP is poorly controlled (>140/90 mmHg) on Hydrochlorothiazide 25mg orally once daily for over a month, Amlodipine 10mg orally once daily for over a month and Enalapril 10mg orally once daily for over a month
- f) A known DVT patient on Warfarin 5mg orally once daily recently hospitalized been discharged on Warfarin 10mg orally once daily experience gum bleeding
- g) A severely malnourished inpatient sustaining deep burn wounds who cannot take anything by mouth
- h) A newly diagnosed DM I patient experiencing hypoglycaemia immediately after starting insulin therapy
- i) A known diabetic patient poorly controlled (HB_{1AC} >7%) complaining of recurrent vaginal candidiasis
- j) A known DM I patient admitted in emergency in coma; with fast, deep, fruity-smelling breath