



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF SEPT-DECEMBER 2024 TRIMESTER EXAMINATIONS
SPECIAL EXAM**

UNIT CODE: PHT UNIT NAME: PHAMACOLOGY

DATE: Day/ Date/ AUGUST
TIME: TWO HOURS
START: 0:00 STOP : 0:00

INSTRUCTIONS

1. Do not write on this question paper

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This exam will take 2 Hours
4. Late submission of the answers will not be accepted
5. No movement is allowed during the examination
6. Idling of your machine for 5 min or more will lead to lock out from the exam
7. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam
8. In case you have any questions call the invigilator for this exam or the Head of Department
For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

Section 1

1. Which pharmacodynamics parameter indicates the relationship between drug concentration and effect?
 - A. Bioavailability
 - B. Therapeutic index
 - C. Dose-response curve
 - D. Volume of distribution
2. What is the primary process involved in pharmacokinetics?
 - A. The interaction of drugs with receptors
 - B. The metabolic pathways of drugs
 - C. The movement of drugs through the body
 - D. The chemical composition of drugs
3. Which of the following factors can influence drug absorption?
 - A. Route of administration
 - B. pH of the gastrointestinal tract
 - C. Presence of food in the stomach
 - D. All the above
4. If the patient has renal impairment, which pharmacokinetic process is most likely to be affected?
 - A. Absorption
 - B. Distribution
 - C. Metabolism
 - D. Excretion
5. What is the term for the time it takes for the plasma concentration of a drug to reduce by half?
 - A. Onset time
 - B. Duration of action
 - C. Half-time
 - D. Bioavailability
6. What is the primary mechanism of action of selective serotonin reuptake inhibitors?
 - A. Block dopamine receptors
 - B. Inhibit the reuptake of serotonin
 - C. Increase norepinephrine release
 - D. Enhance GABA activity
7. Which of the following drug is commonly used to manage Parkinson's disease?
 - A. Levodopa
 - B. Diazepam
 - C. Phenytoin
 - D. Haloperidol

8. Which drug is commonly used to treat epilepsy by prolonging the inactivation of sodium channels?
 - A. Levodopa
 - B. Phenytoin
 - C. Diazepam
 - D. Fluoxetine
9. Which of the following is an adverse effect commonly associated with antipsychotic drugs?
 - A. Bradycardia
 - B. Tardive dyskinesia
 - C. Increased muscle tone
 - D. Hyperreflexia
10. How do tricyclic antidepressants (TCAs) work to treat depression?
 - A. By inhibiting the reuptake of the neurotransmitters norepinephrine, dopamine or serotonin by nerve cells
 - B. By inhibiting the actions of gamma-aminobutyric acid (GABA) in the brain
 - C. By affecting the action of the neurotransmitter serotonin in the brain
 - D. By inhibiting the activity of monoamine oxidase preventing the breakdown of monoamine neurotransmitters
11. Which of the following is the primary action of general anesthetics?
 - A. Stimulate the central nervous system
 - B. Depress the central nervous system
 - C. Increase muscle tone
 - D. Act as a neurotransmitter
12. Ketamine differs from most general anesthetics because it:
 - A. Causes deep respiratory depression
 - B. Is characterized as a dissociative anesthesia
 - C. Acts as a muscle relaxant
 - D. Used only for pediatric anesthesia
13. What is the main route of elimination for inhaled anesthetics?
 - A. Liver metabolism
 - B. Renal excretion
 - C. Pulmonary excretion
 - D. Skin excretion
14. NSAIDs exert their anti-inflammatory effects primarily by inhibiting which enzyme?
 - A. Cyclooxygenase (COX)
 - B. Lipoxygenase
 - C. Monoamine oxidase
 - D. Acetylcholinesterase
15. Baclofen primarily acts on which of the following receptors?
 - A. GABA-B receptors

- B. GABA-A receptors
 - C. NMDA receptors
 - D. Nicotinic receptors
16. Which of the following is a peripherally acting muscle relaxant that directly affects the skeletal muscle?
- A. Baclofen
 - B. Dantrolene
 - C. Cyclobenzaprine
 - D. Methocarbamol
17. The primary mechanism of action of opioid analgesics is:
- A. Inhibition of prostaglandin synthesis
 - B. Activation of mu-opioid receptors
 - C. Blocking of sodium channels
 - D. Inhibition of dopamine receptors
18. Which of the following opioid analgesics is primarily used in anesthesia due to its rapid onset and short duration of action?
- A. Fentanyl
 - B. Codeine
 - C. Tramadol
 - D. Oxycodone
19. A patient taking 40mg of prednisolone daily for the past 3 months is experiencing the following signs and symptoms.
- A. Excessive bruising
 - B. Thinning of scalp hair
 - C. Weight gain
 - D. All the above
20. The following are common side effects associated with NSAIDs except?
- A. Bleeding problems
 - B. Gastrointestinal ulcers
 - C. Hypertension
 - D. Weight loss
21. Which of the following is a cardiac glycoside used in the treatment of congestive heart failure?
- A. Lisinopril
 - B. Metoprolol
 - C. Digoxin
 - D. Furosemide
22. Beta-blockers are effective in angina because they:
- A. Increase heart rate
 - B. Increase myocardial oxygen demand
 - C. Reduce myocardial oxygen demand

- D. Dilate coronary arteries
23. Which enzyme is inhibited by indirect-acting cholinergic drugs like neostigmine?
- A. Acetylcholinesterase
 - B. Monoamine oxidase
 - C. Cyclooxygenase
 - D. Phosphodiesterase
24. A major side effect of anticoagulant therapy is:
- A. Thrombosis
 - B. Hemorrhage
 - C. Hypertension
 - D. Pulmonary embolism
25. Which of the following drugs is a direct thrombin inhibitor?
- A. Heparin
 - B. Dabigatran
 - C. Warfarin
 - D. Aspirin
26. The primary goal of treating hyperlipidemia is to:
- A. Lower LDL cholesterol levels
 - B. Increase HDL cholesterol levels
 - C. Both A and B
 - D. Decrease blood glucose levels
27. Statins work primarily by inhibiting which enzyme?
- A. HMG-CoA reductase
 - B. Angiotensin-converting enzyme
 - C. Phosphodiesterase
 - D. Cyclooxygenase
28. Which drug is commonly used to treat hypothyroidism?
- A. Methimazole
 - B. Propylthiouracil
 - C. Levothyroxine
 - D. Hydrocortisone
29. Which vitamin is essential for calcium absorption in patients with osteoporosis?
- A. Vitamin A
 - B. Vitamin C
 - C. Vitamin D
 - D. Vitamin K
30. What is the mechanism of corticosteroids in the management of chronic asthma?
- A. Beta-2 receptor agonism
 - B. Inhibition of phosphodiesterase
 - C. Anti-inflammatory action via inhibition of cytokine production
 - D. Blockade of muscarinic receptors

Section 2

1. List the advantages and disadvantages of oral drug administration (4 marks)
2. What is the difference between pharmacokinetics and pharmacodynamics? (2 marks)
3. Why is the half-life of a drug important in determining dosing schedules? (2 marks)
4. Describe the role of opioids in pain management and their potential side effects? (4 marks)
5. Explain how corticosteroids reduce inflammation? (4 marks)
6. Why is it important for physical therapists to understand anticoagulant medications in patients (4 marks)

Section 3

1. Discuss the role of pharmacology in physical therapy practice (10 marks)
2. What is the importance of the professional code of conduct for physiotherapists in ensuring ethical practice and patient-centered care? (10 marks)
3. Explain the impact of muscle relaxants and anti-spasticity medications on rehabilitation outcomes (10 marks)