



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR**

SECOND YEAR, SECOND TRIMESTER EXAMINATION

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

MAIN PAPER

COURSE CODE: BSP 222

COURSE TITLE: GENERAL PHARMACOLOGY

DATE: TIME

INSTRUCTIONS TO CANDIDATES

Answer All Questions

Section A: Multiple Choice Questions (MCQ)	20 Marks.
Section B: Short Answer Questions (SAQ)	40 Marks.
Section C: Long Answer Question (LAQ)	40 Marks

TIME: 3 Hours

*Moderated 8/7/2018
JAL*

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

Section A: Multiple Choice Questions (MCQ)

20 Marks

1. Pharmacokinetic is?
 - a. The study of biological and therapeutic effects of drug
 - b. The study of absorption, distribution, metabolism and excretion of drugs
 - c. The study of mechanism of new drug action
 - d. The study of mechanism of mechanism of new development
2. What does “pharmacokinetics” includes
 - a. Complications of drug therapy
 - b. Drug biotransformation in the organism
 - c. Influence of the drug on metabolism process
 - d. Influence of the drug on genes
3. What kind of substance that can not permeate cell membranes by passive diffusion?
 - a) Lipid – soluble
 - b) Non – ionized substance
 - c) Hydrophobic substance
 - d) Hydrophilic substance
4. The main mechanism of most drug absorption in gastrointestinal tract is ?
 - a) Active transport (carrier-mediated diffusion)
 - b) Filtration (aqueous diffusion)
 - c) Endocytosis and exocytosis
 - d) Passive diffusion (lipid diffusion)
5. What does the term “bioavailability” means?
 - a) Plasma protein binding degree of substance
 - b) Permeability through the brain-blood barrier
 - c) Fraction of an uncharged drug reaching the systemic
 - d) Amount of blood in the system in urine relative to the initial dose
6. Which is the best alternative means of drug administration that has minimal utilization via alimentary canal?
 - a) Oral
 - b) Sublingual
 - c) Intravenous
 - d) Intramuscular
7. Intravenous injections are more suitable for oil solution
 - a) True
 - b) False
8. Most drugs are distributed homogeneously
 - a) True
 - b) False
9. Biological barriers includes all except
 - a) Renal tubules
 - b) Cell membrane
 - c) Capillary walls
 - d) Placenta
10. What is the reason of complicated penetration of some drugs through brain-blood barrier?
 - a. High lipid solubility of a drug
 - b. Meningitis

- c. Absence of pores in the brain capillary endothelium
 - d. High endocytosis degree in brain capillary
11. Drug conjugation means that it is?
- a) Process of drug reduction by special enzymes
 - b) Process of drug oxidation by special oxidase
 - c) Coupling of a drug with endogenous substrate
 - d) Solubilization in the lipid
12. The study of drug properties, composition and medical applications is called
- a) Botany
 - b) pharmacology
 - c) paleontology
 - d) Ecology
13. A drug from both human and animal sources is:-
- a) Papaver somniferous (morphine)
 - b) Iodine
 - c) Insulin
 - d) Eucalyptus oil.
14. The approved (generic) name of a drug is:
- a) a name that is protected by copyright
 - b) a precise description of the drug's chemical composition and molecular structure
 - c) the name used to market the drug
 - d) The official drug name assigned by the manufacturer and approved by the local regulatory authority.
15. Drug is classified by all of the following methods, except:-
- a) Clinical use
 - b) Chemical formula
 - c) Manufacturer
 - d) Mechanism of action
16. The correct sequence of pharmacokinetic phases a drug may pass through is:
- a) Administration, inhalation, absorption and excretion
 - b) Formulation, absorption, metabolism and excretion
 - c) Disintegration, absorption, elimination and expiration
 - d) *Absorption, distribution, metabolism and excretion.*
17. Fast neurotransmitters in the central nervous system include
- a) *Glutamate*
 - b) Dopamine
 - c) Substance P
 - d) Prostanoids
18. Slow neurotransmitters and neuromodulators act mainly through
- a) Ligand-gated ion channels
 - b) *G-protein-coupled receptors*
 - c) Enzymes
 - d) Transcription factors release of nitric oxide
19. The N-methyl-D-aspartate receptor for excitatory amino acids is positively modulated by
- a) Amino butyric acid
 - b) Tyrosine
 - c) Glycine
 - d) Phenylalanine
20. Bacterial and fungal infections

- a) Are non-infectious diseases
- b) Can be cured by antibiotics
- c) Need to be helped through transmission cycle
- d) Always lethal

Section A: Short Answer Questions

40 marks

1. Outline **five** forms of drug preparation 5 marks
2. Explain **five** rights of drug administration 5 marks
3. Describe **four** phase I drug metabolism reactions 8 marks
4. Explain **four** factors that influence drug potency 8 marks
5. Outline **five** sources of drugs that a nurse should know 5 marks
6. Define the meaning of the following terminologies 5 marks
 - a) Pharmaceutics
 - b) Pharmacokinetics
 - c) Pharmacodynamics
 - d) Pharmacotherapeutics
 - e) Pharmacognosy
7. In table format, tabulate **two** common poisons, compounds and their antidotes 4 marks

Section C. Long Answer Questions (LAQs)

40 Marks

1. Antibiotics are the most common drug world wide used towards treatment of illness among the general populations:
 - a) ^{state} Outline **five** classes of antibiotics with one example in each category 5 marks
 - b) Explain the general mode of actions of antibiotics 10 marks
 - c) Describe **five** nursing implications of a nurse towards a patient receiving an antibiotic 5 marks
2. Discuss the following pharmacological concepts under the following subheadings 20 marks
 - a) Drug safety 5 marks
 - b) Drug clearance 5 marks
 - c) First pass effect 5 marks
 - d) Fick's law of diffusion 5 marks

BSP 222 GENERAL PHARMACOLOGY

Purpose of the Course

The course introduces the student to basic pharmacology of common drugs used, their importance in the overall treatment including Physiotherapy.

Expected Learning Outcomes

To be able to understand the general principles of drug action.

To understand the process of handling of drugs by the body.

To be aware of the contribution of both drug and physiotherapy factors in the outcome of treatment.

Course Content:

General Pharmacology

Introduction, Definitions, Classification of drugs, Sources of drugs, Routes of drug administration, Distribution of drugs, Metabolism and Excretion of drugs, Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, Adverse effects.

Autonomic Nervous System

General considerations – The Sympathetic and parasympathetic systems, Receptors, Somatic Nervous System. Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

Cardiovascular Pharmacology

Drugs used in Treatment of Heart Failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors, Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Alpha Agonists, Peripheral Alpha antagonists, Direct acting Vasodilators. Antiarrhythmic drugs. Drugs used in the Treatment of Vascular disease and tissue Ischaemia: Vascular disease, Hemostasis Lipid – Lowering agents, Antithrombotic, Anticoagulants and Thrombolytics Ischaemic heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers.

Neuropharmacology

Sedative-Hypnotic Drugs: barbiturates, Benzodiazepines, Antianxiety Drugs: Benzodiazepines, other Anxiolytics. Drugs used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors Tricyclic. Antidepressants, Atypical Antidepressants, Lithium. Antipsychotic drugs.

Disorders of Movement

Drugs used in Treatment of Parkinson's Disease. Antiepileptic Drugs. Spasticity and Skeletal Muscle Relaxants.

Inflammatory/Immune Disease

Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonasprin NSAIDs drug interactions with NSAIDs. Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids. Drugs used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout. Drugs Used in Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic inflammatory. Myopathies, systemic lupus Erythmatosus, Scleroderma, Demyelinating Disease.

Respiratory Pharmacology: Obstructive Airway Disease, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis.

Digestion and Metabolism

Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea
Drugs used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemics

Geriatrics

Pharmacology and the geriatrics population: adverse effects of special concern in the elderly, Dementia, Postural hypotension.

Mode of Delivery

Lectures

Demonstration

Hands on practical in the laboratory.

Instructional Material

Field visits

Audiovisuals equipment

Flip charts

Chalkboards

Handouts

Course Assessment

Continuous Assessment Tests

Written Examination

Practical Examination

Core Reading Materials

Theo Hallmann Phd (2008) Supervisory managerial for health care organization CHA USA St. Louis ISBN 0-697-14126-8

Stephen H. William (1993) Introduction to health services Delmar ISBN 0-8273-5010-4

Jonathans Rikich (1987) Cases in health services management 2nd Edition. Aupha USA ISBN 0-910591-04-0

Recommendation Reference Materials

David A. Decenzo (1988) Personnel human resource management Prentice Hall New Delhi ISBN 81-203-2711-x

Biswafeet Pattanayak (2005) Human resource management Prentice Hall New Delhi ISBN 81-203-2711-x