



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF THE
DIPLOMA IN CLINICAL MEDICINE AND SURGERY
THIRD SEMESTER 2022/2023
[MAY-AUGUST, 2023]

CIMS 0182: PHARMACOLOGY AND THERAPEUTICS I

STREAM: Y2S3

TIME: 2 HOURS

DAY: THURSDAY, 2:00 – 5:00 PM

DATE: 27/07/2023

INSTRUCTIONS

1. Do not write anything on this question paper.

1. Drug administered through the following route is most likely to be subjected to first-pass metabolism:
 - a. Oral
 - b. Sublingual
 - c. Subcutaneous
 - d. Rectal
2. Compared to subcutaneous injection, the intramuscular injection of drugs:
 - a. Is more painful
 - b. Produces faster effect
 - c. Is unsuitable for depot preparations
 - d. Carries greater risk of anaphylactic reaction
3. Select the route of administration that carries the highest risk of adversely affecting vital functions
 - a. Intra arterial injection
 - b. Intrathecal injection
 - c. Intravenous injection
 - d. Intramuscular injection
4. Majority of the drugs cross biological membranes primarily by
 - a. Passive diffusion
 - b. Facilitated diffusion
 - c. Active transport
 - d. Pinocytosis
5. Bioavailability of a drug refers to:
 - a. Percentage of administered dose that reaches systemic circulation in the unchanged form
 - b. Ratio of oral to parental dose
 - c. Ratio of orally administered drug to that excreted in the faeces

- d. Ratio of drug excreted unchanged in urine to that excreted as metabolites
6. The blood-brain barrier which restricts entry of many drugs into brain, is constituted by:
- It is constituted by tight junctions between the endothelial cells of brain capillaries and the glial tissue
 - It allows passage of lipid soluble drugs into the brain
 - It limits entry of highly ionized drugs into the brain
 - It regulates passage of substances from brain into blood
7. Biotransformation of drugs is primarily directed to:
- Activate the drug
 - Inactivate the drug
 - Convert lipid soluble drugs into non-lipid soluble metabolites
 - Convert nonlipid soluble drugs into lipid soluble metabolites
8. A prodrug is:
- The prototype member of a class of drugs
 - The oldest member of a class of drugs
 - An inactive drug that is transformed in the body to an active metabolite
 - A drug that is stored in body tissues and is then gradually released in the circulation
9. The most commonly occurring conjugation reaction for drugs and their metabolites is:
- Glucuronidation
 - Acetylation
 - Methylation
 - Glutathione conjugation
10. The subject of pharmacokinetics is:
- Drug absorption and distribution
 - Drug biotransformation
 - Drug elimination
 - Drug biologic activity
11. Point out the correct statements for active drug transport
- Its energy dependent
 - Its not energy dependent
 - Requires carriers
 - Does not require carriers
- Drugs can stimulate receptors on cells to regulate the cellular activity; these are known as agonists and antagonists. Which of the following descriptions match the right word in question 12 and 13
12. A drug that binds to a receptor to activate the cell to produce a response.....
13. A drug that binds to a receptor to stop activation of the cell to produce a response.....
14. What process reduces the proportion of active drug available in the circulation?
- Bioavailability

- b. Lock and key mechanism
 - c. Churning
 - d. First pass metabolism
15. Which of the following acronyms means twice daily
- a. B.i.d
 - b. Cib
 - c. A.u
 - d. qd
16. What does the pc mean
- a. With food
 - b. Before meals
 - c. After meals
 - d. With a glass full of water
17. What does half life mean with regard to medications
- a. The amount of time it takes for the concentration of that medication in the patient's blood to be reduced by one half
 - b. Half of the amount of time it takes for the concentration of medication in the patient's blood to reach steady state
 - c. The average length of time it takes for patients to begin experiencing benefits of the medication
 - d. Half of the amount of time it takes for the body to clear half of the medication from the body
18. Drugs are excreted from the body through
- a. Kidney
 - b. Breast milk, saliva, sweat, bile
 - c. Intestine
 - d. All of the above
19. The rate of absorption of a drug is affected by
- a. Route of drug administration
 - b. Solubility of the drug
 - c. Site of administration
 - d. All of the above
20. Which of the following statements regarding drug administration is incorrect
- a. When the drug is administered by injection, there is very rapid response of drug
 - b. By parenteral route the drug go directly into the blood so no absorption is required
 - c. Parenteral route can be used in case of an unconscious patient
 - d. Parenteral route can not be used in case of an unconscious patient

SECTION B (40 marks)

1. Define the following terms
- a. Pharmacology
 - b. Pharmacokinetics
 - c. Pharmacodynamics
 - d. Bioavailability
 - e. Clearance

2. Give the latin abbreviations for the following directions in a prescription
 - a. gtt
 - b. p.r.n
 - c. q.i.d
 - d. t.i.d
 - e. a.c
3. List the 4 types of adverse drug reactions
4. Describe the three types of drug interactions
5. According to the pharmacy and poisons Act or the Narcotic drugs and psychotropic substances act, describe the following
 - a. Drug
 - b. Medicine
 - c. Part i poison
 - d. Part ii poison
 - e. Psychotropic substance
6. Define the following terms
 - a. Absorption
 - b. Distribution
 - c. Metabolism
 - d. Excretion
7. List Phase two reactions involved in drug metabolism
8. List 5 factors to consider while selecting a dosage form for your patient

SECTION C (40 marks)

1. Discuss the advantages and disadvantages of the following routes of drug administration (20 marks)
 - a. Intravenous
 - b. Intramuscular
 - c. Oral
 - d. Rectal
 - e. Transdermal
 - f. Inhalation
 - g. Subcutaneous
 - h. Sublingual
2. a) State the rules for writing a prescription for controlled drugs (7marks)
- b) Using a dummy prescription, describe the various parts of a prescription (13marks)