



KENYATTA UNIVERSITY
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
(MEDICAL LABORATORY SCIENCE)

HML 415: CLINICAL PHARMACOLOGY

1ST SEMESTER 2022/2023

TIME: 2 Hours

INSTRUCTIONS:

SECTION A : Answer questions all questions (4 marks each)

1. Explain the meaning of the following Pharmacological terminologies (4 marks)
 - i. Bioavailability
 - ii. Clinical pharmacology
 - iii. Adverse drug reaction
 - iv. Pharmacy
2. Using examples, state 2 enzymes responsible for the biotransformation of drugs
3. Explain any two factors affecting distribution of a drug to organs, tissues and body fluids
4. Explain the 4 parenteral routes of administration
5. Using examples explain how the dosage form of the drug affects absorption

Section B: Answer One Questions (20 Marks)

- Q6. Discuss 5 factors affecting drug absorption and Bioavailability (20 marks)
- Q7. Using HIV as a case scenario, (20 marks)
- i. Describe the viral replication process (14 marks)
 - ii. Explain the antiviral agent action in a case of HIV (6 marks)

Section C: Answer All Questions in the Answer Booklet (0.5 Marks Each)

1. Which of the following are enteral routes of administration
 - a. Intradermal
 - b. Ocular
 - c. Sublingual
 - d. Subcutaneous

2. Which statement most completely defines dosage form
- It is the way a drug is administered
 - It is the physical form of the drug
 - It is a solid
 - It is a tablet or capsule
3. Pharmacokinetics deals with (Select one best answer)
- Absorption, elimination, effect, metabolism
 - Metabolism, Biotransformation, Detoxification, Excretion
 - Absorption, distribution, metabolism, excretion
 - Absorption, distribution, metabolism, effect
4. Knowledge of pharmacodynamics is useful in
- Observing an effect of drug on a patient
 - Predicting a patient's response to medication
 - Understanding the effects of drugs
 - Understanding how a drug reaches its site of activity
5. In the filtration of plasma through the porous membrane of the Bowman's capsule. The most important factor is
- pH
 - Molecular size
 - Lipid solubility
 - Water solubility
6. Active transport of drugs into urine is called secretion. It differs from passive excretion because it requires
- That the drug be in the ionized form
 - Energy
 - That the drug be in lipid form
 - That the drug have small molecular size
7. The rate at which a drug is eliminated from the body is measured in terms of half-life. Using the following information determine the half life of drug Z

blood concentration	Time
10	7am
5	1pm
2.5	7pm
1.25	1 am
0.625	7am

The half life of drug Z is

- a. 7 hours
 - b. 9 hours
 - c. 8 hours
 - d. 6 hours
8. The following are factors influencing the effects of a drug Except
- a. Age, Sex, Body weight and build, Rate of elimination
 - b. Physiological status, Genetic factors, Tolerance, Patients compliance
 - c. Placebo effect (Emotional factors), Route of administration, Time of administration, Repeated administration and drug cumulation
 - d. Climatic factors, Regional factors
9. Slower drug metabolism generally tends to result in
- a. Neutral blood levels of drug
 - b. Moderate blood level of drug
 - c. Lower blood levels of drug
 - d. Higher blood levels of drug
10. Drugs which interact with a receptor to produce a response are called
- a. Antagonist
 - b. Agonist
 - c. Atropine
 - d. Metabolites
11. The following are adverse drug reactions except side effects
- a. untoward effects
 - b. idiosyncratic reactions
 - c. towards reactions
 - d. teratogenic effects

12. Which of the following form of drug is slower to be absorbed
- Suppository
 - Capsule
 - Solution
 - Suspension
13. The following drugs are poorly absorbed when given orally, even if given in solution except
- Neomycin
 - Methamphetamine
 - Kanamycin
 - Gentamycin
14. The following statement describe loading dose of drug
- Used to elevate the body level of drug to a desired level.
 - Used to keep the drug level in the body constant
 - Take 5-7 drug half lives to reach steady state
 - Takes for the level of drug in the blood to reduce by one half
15. Which of the following forces that attract the drug to its receptor give the strongest bond and an irreversible complex
- Vander waals force
 - Covalent bond
 - Ionic bond
 - Hydrogen bond
16. The following are different routes of drug excretion except
- Renal
 - Stomach
 - Hepato biliary
 - Gastrointestinal
17. When an individual has been sensitized to an antigen (allergen) further contact with that antigen can some times lead to tissue damaging reactions. The following are allergic reactions except
- immediate hypersensitive reaction
 - delayed hypersensitive reactions
 - idiosyncratic reactions
 - immune complex mediated reactions

18. Drug which is bound to the large plasma protein such as albumin is

- a. Filtered at the Bowmans capsule
- b. Not filtered the Bowmans capsule
- c. Absorbed at the Bowmans capsule
- d. Distributed at the Bowmans capsule

19. Peak effect occurs when

- a. Drug levels are highest
- b. Drug is metabolized and excreted faster than its absorbed
- c. Drug levels re lowest
- d. The patient is standing up

20. The following statement is true regarding Pharmacology

- a. It is the study of drugs in all aspects: history, source, physicochemical properties, dosage forms, methods of administration, absorption, distribution mechanism of action, biotransformation, excretion, clinical uses and adverse effects of drugs.
- b. It is the science of identification, selection, preservation, standardisation, compounding and dispensing of medical substances.
- c. Same as pharmacognosy
- d. It's the science of poisons.