



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL
LABORATORY SCIENCES

AML 4201: PHARMACOLOGY AND PHARMACOGNOSY

SPECIAL/SUPPLEMENTARY EXAMINATION

FEBRUARY 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **TWO** sections **A** and **B**

Section A –Contains MCQS, any wrong response will be penalised. Answer **ALL** questions in **Section B**.

SECTION A – MCQs – (30marks)

1. The following drug is of plant origin
 - a) Selenium
 - b) Insulin
 - c) Paracetamol
 - d) Atropine

2. Which of the following formulations is suitable for administration in the vagina?
 - a) Suppository
 - b) Pessaries
 - c) Tincture
 - d) Lozenge

3. Pharmacodynamics can be best defined as
 - a) The study of the effect of drugs on populations
 - b) The study of the fate of drugs once ingested
 - c) The study of the mechanism by which drugs work
 - d) The study of cost effectiveness of drug treatment

4. Which of the following routes of drug administration assures the longest onset of action
 - a) Intravenous
 - b) Intramuscular
 - c) Subcutaneous
 - d) Oral

5. The following affect drug absorption EXCEPT
 - a) First pass effect
 - b) Lipophilicity of the drug
 - c) Blood supply of an organ
 - d) Quantity administered

Multiple true false questions

For question 6 -10, indicate whether True / False against each of the following statements in the spaces provided

6. The intravenous route has the shortest onset of action
7. Agonist have affinity but no efficacy
8. The lungs are useful in drug excretion
9. Binding of drugs to plasma proteins enhances elimination
10. Phase 1 metabolic reactions increase solubility of drugs

11. Which statement is true about first-pass effect
- a) Enhance the elimination of drugs
 - b) Occurs in the kidneys
 - c) Increase the bioavailability of a drug
 - d) Is significant when choosing the route of administration
12. The following are true about drug distribution EXCEPT
- a) Fat and bone tissues receive significant amount of drug very fast
 - b) The blood brain barrier is non selective to drug molecules
 - c) Plasma protein binding keeps in the vascular compartment
 - d) Protein binding is a cause of drug-drug interactions
13. The amount of drug required to produce a therapeutic effect is
- a) Potency
 - b) Affinity
 - c) Efficacy
 - d) Binding
14. A drug with a narrow therapeutic index is likely to
- a) Be toxic at low dose
 - b) Be toxic at high dose
 - c) Have variety of uses
 - d) Not to cause an adverse drug reaction

15. Which of the following statement about a plasma protein bound drug is TRUE
- a) It is readily eliminated
 - b) It is easily metabolized
 - c) It is highly active
 - d) It has longer duration of action
16. All the following drugs require receptors so as to mediate a pharmacologic effect except
- a) Morphine
 - b) Aluminium hydroxide
 - c) Adrenaline
 - d) Paracetamol
17. The following are characteristics of drug receptors interaction except
- a) Specificity
 - b) Unsaturation
 - c) Selectivity
 - d) Bonding
18. What is true in relation to receptors
- a) All drugs act through specific receptors
 - b) All receptors are enzymes
 - c) All agonist induce a conformational change in the receptors
 - d) All antagonist induce a conformational change in the receptors
19. The following is True about first order elimination kinetics
- a) The rate of elimination is constant
 - b) The rate of elimination depends on the plasma concentration
 - c) Very few drugs are eliminated this way
 - d) Ensures all the drugs is rapidly eliminated

20. Which of the following is not a physiological factor that leads to individual differences in drug metabolism
- a) Genetics
 - b) Health status
 - c) Drug interactions
 - d) Age
21. Which of these statements correctly describe tolerance
- a) Unresponsive of pathogens to antimicrobials
 - b) Unresponsiveness of receptors to agonist
 - c) Delayed toxic effect of drugs
 - d) Absence of therapeutic effect when using analgesics
22. Which of the following classes of drugs is incorrectly matched with its use
- a) Analgesics – management of pain
 - b) Emetics – inducing vomiting
 - c) Emollients soothing mucous membrane
 - d) Purgatives – management of diarrhea
23. Which of the following is not a solid drug form
- a) Tablet
 - b) Elixir
 - c) Powder
 - d) Capsule

24. Bioavailability of a drug refers to
- a) Percentage of administered dose that reaches systemic circulation in the unchanged form
 - b) Ratio of oral percentage 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.
25. The following statement is TRUE about the intravenous injections
- a) Drug is slowly absorbed
 - b) Large volumes of drug is administered
 - c) Should not be used in the unconscious patient
 - d) Toxic effects are difficult to reverse
26. The term that refers to the absence of foreign materials in crude drugs is
- a) Adulteration
 - b) Purity
 - c) Identity
 - d) Quality
27. In chromatography the following statement is true except
- a) Eluent: Fluid entering a column
 - b) Eluate: Fluid exiting the column
 - c) Menstruum is the fluid passing through the column
 - d) None of the above
28. The following are solvents used in drug extraction except
- a) Ethyl / Alcohol
 - b) Formalin
 - c) Water
 - d) Turpentine

29. The following drugs belongs to glycosides except

- a) Digitalis
- b) Cascara
- c) Nux Vomica
- d) Senna

30. Using alcohol as a solvent for extraction of drugs has several advantages except

- a) It is miscible with water in all proportions
- b) It is non toxic at all concentrations
- c) It is reasonable selective
- d) It inhibits growth of bacteria and moulds

SECTION B – (40marks) Answer ALL questions

1. Outline FIVE factors that predispose individuals to adverse drug reactions **(10marks)**
2. Explain the principle of gas chromatography as an analytical technique for the determination of chemical substance in biological products **(10marks)**
3. Explain FIVE other ways through which drugs work other than through receptors **(10marks)**
4. (a) Describe the term adulteration in relation to preparation of a crude drug **(2marks)**
(b) Briefly any TWO types of adulteration encountered in preparation of crude drugs **(4marks)**
(c) List any FOUR commonly used solvents used in extraction of crude drugs **(2marks)**
(d) Explain any TWO uses of the application of pharmacology and pharmacognosy in medical laboratory practice **(2marks)**