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

BMLS 12S

AMP 4201: PHARMACOLOGY AND PHARMACOGNOSY

SPECIAL/SUPPLEMENTARY EXAMINATION

OCTOBER 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. Pharmacodynamics involves the following?
   a) Information about mechanisms of drug absorption
   b) Information about unwanted effects
   c) Information about biological barriers
   d) Information about excretion of a drug from the organism

2. What does 'affinity' mean?
   a) A measure of how tightly a drug binds to plasma proteins
   b) A measure of how tightly a drug binds to a receptor
   c) A measure of inhibiting potency of a drug
   d) A measure of bioavailability of a drug

3. Target proteins which a drug molecule binds are:
   a) Only receptors
   b) Only ion channels
   c) Only carriers
   d) All the above

4. An agonist is a substance that:
   a) Interacts with the receptor without producing any effect.
   b) Interacts with the receptor and initiates changes in cell function, producing various effects
   c) Increases concentration of another substance to produce effect
   d) Interacts with plasma proteins and doesn't produce any effect

5. Irreversible interaction of an antagonist with a receptor is due to:
   a) Ionic bonds
   b) Hydrogen bonds
   c) Covalent bonds
   d) All of the above

6. Pick out the correct definition of a toxic dose
   a) The amount of substance to produce the minimal biological effort
   b) The amount of substance to produce effects hazardous for an organism
   c) The amount of substance to produce the necessary effect in most of patients
   d) The amount of substance to fast creation of high concentration of medicine in an organism

7. Which effect may lead to toxic reactions when a drug is taken continuously or repeatedly
   a) Refractoriness
   b) Cumulative
   c) Tolerance
   d) Tachyphylaxis

8. What term is used to describe a more gradual decrease in responsiveness to a drug , taking days or weeks to develop?
   a) Refractoriness
   b) Cumulative effect
   c) Tachyphylaxis
   d) Tolerance

9. Drug resistance is a term used to describe the loss of effectiveness of antimicrobial drugs
   a) True
   b) False

10. Tolerance and drug resistance can be a consequence of
   a) Drug dependence
   b) Increased metabolic degration
   c) Decrease metabolic degradation
   d) Decreased renal tubular secretion

11. If 2 drugs with the same effect, taken together, produce an effect that is equal in magnitude to the sum of the effects of the drugs given individually, it is called as:
    a) Antagonism
    b) Potentiation
    c) Additive effect
    d) None of the above

12. A teratogenic action is
    a) Negative action on the fetus causing fetal malformation
    b) Toxic action on the liver
    c) Toxic action on blood system
    d) Toxic action on kidneys

13. Therapeutic index (TI) is:
    a) A ratio used evaluate the safety and usefulness of a drug
    b) A ration used to evaluate the effectiveness of a drug
    c) A ratio used to evaluate the bioavailability of a drug
    d) A ratio used to evaluate the elimination of a drug

14. What does 'pharmacokinetics' include?
    a) Complication of drug therapy
    b) Drug biotransformation in the organism
    c) Influence of drugs on metabolism processes
    d) Influence of drugs on genes

15. What is implied by "active transport'?
    a) Transport of drugs through a membrane by means of diffusing
    b) Transport without energy consumption
    c) Engulf a drug by a cell membrane with a new reside formation
    d) Transport against concentration gradient

16. Pick out the alimentary route that avoids first pass metabolish
    a) Rectal
    b) Oral
    c) Transdermal
    d) Intraduodenal

17. Which route will most likely undergo a first-pass effect?
    a) Sublingual
    b) Oral
    c) Intravenous
    d) Intramuscular

18. What is characteristic of the oral route?
    a) Fast onset of effect
    b) Absorption depends on GIT secretion and motor function
    c) Drug reaches the blood passing the liver
    d) Medicines should be stabilized

19. Parenteral administration
    a) Cannot be used with unconscious patients
    b) Generally results in a less accurate dosage than oral administration
    c) Usually produces a more rapid response than oral administration
    d) Is too slow for emergency use

20. Most drugs are distributed homogeneously
    a) True
    b) False

21. The alkaloids of Ipecacuanha root have what effect?
    a) Expectorant
    b) Pain killer
    c) Sedative
    d) Antipyretic

22. Opium is used in medicine as
    a) Pain killer
    b) Laxative
    c) Emetic
    d) Expectorant

23. Saponin containing drugs are used as
    a) Laxatives
    b) Bitter tonic
    c) Expectorant
    d) Emetic

24. Choose the cinchona alkaloid
    a) Cevan
    b) Tropane
    c) Ruboni
    d) Quinidine

25. How do you get a fixed oil for medicinal purposes?
    a) By extraction with a cold organic solvent
    b) By warm expression
    c) By extraction with cold water
    d) By cold expression

26. Which of the following is used as a thickening agent
    a) Acacia gum
    b) Cotton
    c) Potato starch
    d) Rauwolfia serpentina

27. Garlic has all the following properties except
    a) Antimicrobial
    b) Hypotensive
    c) Hypolipidemic
    d) Antitussive

28. The plant with digestive enzymes is
    a) Ergot
    b) Cinchona
    c) Papaya
    d) Peppermint

29. Vincristine is a plant constituent that has
    a) Antifungal properties
    b) Antitumour properties
    c) Antihypertensive properties
    d) Blood thinner

30. Strychnine is extracted from
    a) Strychnos nux-vomica
    b) Strychinos vomica
    c) Nux-momitus
    d) All the above

SECTION B

1. (a) Name and explain FOUR alimentary routes of drug administration. **(10marks)**

   (b) (i) Explain volume of distribution and write its formula.

   (ii) Explain the difference between 'one compartment model' and 'two compartment model' in pharmacokinetics .

   (10marks)

2. (a) List FIVE medicinal plants and outline their uses. **(10marks)**

   (b) Using TWO examples in each case, classifications of plant extracts **(10marks)**