CHUKA

UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN PUBLIC HEALTH

PUHE113: BASIC PHARMACOLOGY

STREAMS: BSC (PUBLIC HEALTH) Y1S2   **TIME: 2 HOURS**

DAY/DATE: TUESDAY 23/03/2021   **8.30 A.M – 10.30 A.M**

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INSTRUCTIONS

Do not write anything on the question paper.
Mobile phones and any other reference materials are NOT allowed in the examination room.
The paper has three sections. Answer ALL questions in Sections I and II and ONE question in section III.
All your answers for Section I (MCQs) should be on one page.
Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.
Write your answers legibly and use your time wisely

SECTION 1: MULTIPLE CHOICE QUESTIONS [20 MARKS]

 1. The duration of action of a drug is dependent of its

> **(a)** Plasma and tissue binding
>
> **(b)** Metabolism

(c) Tubular filtration and secretion

(d) All the above

2. When a drug has a low therapeutic index, that drug should be

a) Used mostly orally

b) Used mostly intravenously

c) Considered a potentially toxic substance

d) Given only in sub-milligram doses

3. Teratogenicityis

(a) The acute reaction to drugs
(b) Intolerance to drugs
(c) Tumour formingaction of the drugs
(d) Malformation of the foetus

4.Mostdrugsandmetabolitesareexcreted by

(a) The kidneys

(b) The bile

(c) The lungs

(d) Perspiration, saliva and tears

5. An antagonisthas

(e) Intrinsic activity and no affinity

(f) Only intrinsic activityndno affinity

(g) Nointrinsic activity and no affinity

(h) Affinity samea sagonistandde void of intrinsic activity

(i) None of the above

6. If a drug has a constant bio-availability and first order elimination, its maintenance dose rate will be directly proportional to its

a) Volume of distribution
b) Plasma protein binding

c) Lipid solubility

7.   Total   body   clearance   Acetylcholineandatropineactiononthe muscarinicreceptorsisaclassicalexampleof

a) Competitive antagonism

b) Non-competitive antagonism

c) Non-equilibrium antagonism

d) Physiological antagonism

e) Chemical antagonism

8.Pharmacopoeia includes list of established drugs and medicinal preparation with the description of their

a)   Physical properties

b)   Identification test

c)   Purification test

d)   Potency test

e)   All the above

9. Inter-individual variations in equi-effective doses of a drug are most marked if it is disposed by

a)   glomerularfiltration
b)   Tubularsecretion
c)   Both (a) and(b)
d)   Hepaticmetabolism

10. For renal drug excretion, the factors important are

a) Extent of plasma protein binding of drugs
b) Glomerular filtrationrate
c) Active renal tubularre absorption
d) All of the above

11. The pharmacokinetic alternations in elderly are due to

a) Reduction in lean body massandtot lbody water

b) Increase in percentage of body fat

c) Reduced cytochromeP_{450} enzymes

d) All of the above

12. The chances of foetal malformation with a drug is maximum

    a) During first trim ester of pregnancy

    b) During second trimester of pregnancy

    c) During third trimester of pregnancy

    d) When given just prior to the labor

13. True drug tolerance develops because of

    a) Diminition in absorption

    b) Rapid excretion of the drug

    c) Both of the above

    d) None of the above

14. Bio-availability of a drug is

    a) The percentage of drug released from a formulation that becomes available for biological effect

    b) The percentage of drug that isionized from a formulation

    c) Thenetamo unto factua therapeutic agent present in the formulation

    d) Thedoseofadrugbywhich50%animals show signs of toxicity

15. A'toxic effect' differs from a'side effect' in that

    a) Itisnota pharmacological effect of the drug

    b) Itisam oreintense pharmacological effect that occurs at high dose or after prolonged medication

    c) It must involve drug induced cellular injury

    d) It involves host defence mechanisms

16. All of the following sub serve as intracellular second messengers in receptor mediated signal transduction except

    a) Cyclic AMP

    b) Inositol trisphosphate

    c) Diacylglycerols

    d) Gprotein

17. Biotransformation of drugs is primarily directed to

    a) Activate the drug

    b) Inactivate the drug

    c) Convert lipid soluble drugs into non lipid soluble metabolites

    d) Convert non lipid soluble drugs into lipid soluble metabolites

18. What is the best criterian for judging the therapeutic superiority of a drug overits congeners?

    a) Potency
    b) Wide range of activity
    c) Efficacy
    d) Variability

19. First pass metabolism

    a) Canincreasetheoralbio-availabilityofthe drug
    b) Occurs only in theliver
    c) Ishigheronintravenousadministration
    d) Necessitateshighoraldoseforcertaindrugs

20. Alcohol is rapidly absorbed from the intestine because

    a) Itislipidsolubleandnon-electrolyte
    b) Itislipidsolubleand highly ionised
    c) It is absorbed by active transport
    d) It is not absorbed quickly

SECTION II (30 Marks)

Answer _ALL_ Questions in this section

1. Outline the major reasons for drugs classification   (6 Marks)

2. Explain the meaning of following terms used in drug Pharmacokinetics: (6 Marks)

a) Half-life of a drug

b) Steady state plasma concentration

c) Adverse drug reactions

3. Describe how any **fou**r factors that modify drug action.   (8Marks)

4. Describe any three types of drug interactions.   (6Marks)

5. Explain how the following factors affect drug absorption and bioavailability   (4 Marks)

i.   Pharmaco genetic factors

ii.   Disease state

SECTION III (20Marks)

Answer any _One_ Question

1. You are a Public Health Officer in Boa County. You realize that Youth in the County have a problem drug and Substance abuse. Discuss the strategies you will put in place to control this Public health problem.   (20 Marks)

2. Discuss the routes of drug administration giving advantages and disadvantages for each route.

   (20Marks)