CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR BACHELOR OF SCIENCE IN PUBLIC HEALTH

PUHE113: BASIC PHARMACOLOGY

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

DAY/DATE: …… **…….**

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 ofits

(a) Plasma and tissuebinding

(b) Metabolism

(c) Tubular filtration andsecretion

(d) All theabove

2. When a drug has a low therapeutic index, that drug shouldbe

a) Used mostlyorally

b) Used mostlyintravenously

c) Consideredapotentiallytoxicsubstance

d) Givenonlyinsub-milligramdoses

3. Teratogenicityis

(a) The acute reaction todrugs
(b) Intolerance todrugs
(c) Tumourformingactionofthedrugs
(d) Malformation of thefoetus

4.Mostdrugsandmetabolitesareexcreted by

(a) Thekidneys

(b) Thebile

(c) The lungs

(d) Perspiration, saliva andtears

5. An antagonisthas

(e) Intrinsic activity and noaffinity

(f) Onlyintrinsicactivityandnoaffinity

(g) Nointrinsicactivityandnoaffinity

(h) Affinitysameasagonistanddevoidof intrinsicactivity

(i) None of theabove

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 ofdistribution
b) Plasma proteinbinding
c) Lipidsolubility

7. Total bodyclearance Acetylcholineandatropineactiononthe muscarinicreceptorsisaclassicalexampleof

a) Competitiveantagonism

b) Non-competitive antagonism

c) Non-equilibrium antagonism

d) Physiologicalantagonism

e) Chemicalantagonism

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

a) Physicalproperties

b) Identificationtest

c) Purificationtest

d) Potencytest

e) All theabove

9. Inter-individualvariationsinequi-effective doses of a drug are most marked if it is disposedby

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

10. Forrenal drugexcretionthefactorsimportant are

a) Extentofplasmaproteinbindingofdrugs
b) Glomerular filtrationrate
c) Activerenaltubulararreabsorption
d) All of theabove

11. The pharmacokinetic alternations in elderly are dueto

a) Reductioninleanbodymassandtotalbody water

b) Increase in percentage of bodyfat

c) Reduced cytochromeP_{450} enzymes

d) All of theabove

12. The chances of foetal malformation with a drug ismaximum

a) Duringfirsttrimesterofpregnancy

b) Duringsecondtrimesterofpregnancy

c) Duringthirdtrimesterofpregnancy

d) Whengivenjustpriortothelabor

13. True drug tolerance develops becauseof

a) Diminition inabsorption
b) Rapid excretion of thedrug
c) Both of theabove
d) None of theabove

14. Bio-availability of a drugis

a) The percentage of drug released from a formulationthatbecomesavailablefor biologicaleffect
b) Thepercentageofdrugthatisionizedfrom aformulation
c) Thenetamountofactualtherapeuticagent present in theformulation
d) Thedoseofadrugbywhich50%animals show signs oftoxicity

15. A‘toxiceffect’differsfroma‘sideeffect’ inthat

a) Itisnotapharmacologicaleffectofthedrug
b) Itisamoreintensepharmacologicaleffect that occurs at high dose or afterprolonged medication
c) Itmustinvolvedruginducedcellularinjury
d) Itinvolveshostdefencemechanisms

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

a) CyclicAMP
b) Inositoltrisphosphate
c) Diacylglycerols
d) Gprotein

17. Biotransformation of drugs is primarily directedto

a) Activate thedrug
b) Inactivate thedrug
c) Convert lipid soluble drugs into nonlipid solublemetabolites

d) Convert nonlipid soluble drugs into lipid solublemetabolites

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

a) Potency
b) Wide range ofactivity
c) Efficacy
d) Variability

19. First passmetabolism

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

20. Alcohol is rapidly absorbed from the intestinebecause

a) Itislipidsolubleandnon-electrolyte
b) Itislipidsolubleandhighlyionised
c) It is absorbed by activetransport
d) It is not absorbedquickly

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 ***four*** factors modify drug action. (8Marks)

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

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

i. Pharmacogenetic 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.Discus 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)