

**CHUKA****UNIVERSITY****UNIVERSITY EXAMINATIONS****SECOND YEAR EXAMINATION FOR THE AWARD OF  
BACHELOR OF SCIENCE NURSING****NURS:217 PHARMACOLOGY I EXAM.****STREAMS: BSc NURSING (Y1S2)    TIME: 2 HOURS****DAY/DATE:.....**.....  

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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
- 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.

**MULTIPLE CHOICE QUESTIONS ( 20 mks)**

1. Which of the following is the most important for movement through capillary walls?
  - a) Molecular size
  - b) Lipid solubility
  - c) Diffusion constant
  - d) pH
  
2. Stimulation of liver microsomal enzymes can:
  - a. Require the dose increase of some drugs
  - b. Require the dose decrease of some drugs
  - c. Prolong the duration of the action of a drug
  - d. Intensify the unwanted reaction of a drug
  
3. Biotransformation of the drugs is to render them:
  - a. Less ionized
  - b. More pharmacologically active
  - c. More lipid soluble
  - d. Less lipid soluble
  
4. For the calculation of the volume of distribution (Vd) one must take into account:
  - a. Concentration of a substance in plasma
  - b. Concentration of substance in urine
  - c. Therapeutical width of drug action
  - d. A daily dose of drug
  
5. Chloramphenicol has the following unwanted effects:
  - a. Nephrotoxicity
  - b. Pancytopenia
  - c. Hepatotoxicity
  - d. Ototoxicity
  
6. Elimination is expressed as :
  - a) Rate of renal tubular reabsorption
  - b) Clearance speed of some volume of blood from substance
  - c) Time required to decrease the amount of drug in plasma by one-half
  - d) Clearance of an organism from a xenobiotic

7. The reason for giving Metronidazole for oropharyngeal infection is due to its good activity against:

- a) Gram positive cocci
- b) Gram Negative cocci
- c) Gram positive bacilli
- d) Anaerobes like *B. fragilis*

8. Pharmacodynamics involves?

- a) Information about main mechanisms of drug absorption
- b) Information about unwanted effects
- c) Information about biological barriers
- d) Information about excretion of a drug from the organism

9. Which of the following describes minimal effective concentration (MEC)?

- a) The minimal drug plasma concentration that can be detected
- b) The minimal drug plasma concentration to reach therapeutic levels
- c) The minimal drug plasma concentration to interact with receptors
- d) The minimal drug plasma concentration to produce effect

10. Therapeutic index (TI) is:

- a. A ratio used to evaluate the safety and usefulness of a drug for indication
- b. A ratio 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

11. A 35 year old female taking medication for tuberculosis and oral contraceptives comes to the Gynaecology OPD with complaint of amenorrhea. Laboratory test shows a positive pregnancy test. Which one of the following drugs most likely caused her to become pregnant?

- a) Rifampicin
- b) Pyrazinamide
- c) Streptomycin
- d) Ethambutol

12. The mechanism of fluoroquinolones' action is:

- a. Inhibition of phospholipase C
- b. Inhibition of DNA gyrase
- c. Inhibition of bacterial cell synthesis
- d. Alteration of cell membrane permeability

13. Which of the following groups of antibiotics demonstrates a bacteristatic effect:
- a. Carbapenems
  - b. Macrolides
  - c. Aminoglycosides
  - d. Cephalosporins
14. Which of the following is NOT a recognized complication of ampicillin toxicity:
- a) Hemolytic anemia
  - b) Diarrhea
  - c) Nausea
  - d) Overgrowth of gram-positive organisms
15. If a patient misses three doses of their daily drug, which of the following (in general) is the best solution?
- a) Take a 4x dose at the next dose time
  - b) Do nothing and continue normal regimen
  - c) Setup an appointment to have the patient evaluated
  - d) Prescribe a higher dosage pill so missed doses will have less effect
16. Which of the following describes an agonist?
- a) Any substance that brings about a change in biologic function through its chemical action
  - b) A specific regulatory molecule in the biologic system where a drug interacts
  - c) A drug that binds to a receptor and stimulates cellular activity
  - d) A drug that binds to a receptor and inhibits or opposes cellular activity.
17. Disinfectants are:
- a) Strong chemical agents that inhibit or kill micro-organisms
  - b) Agents with sufficient toxicity for host cells
  - c) They kill both vegetative cells and spores
  - d) A process intended to kill or remove all types of micro-organisms including spores and include viruses.
18. Bacteristatic effect is:
- a. Inhibition of bacterial cell division
  - b. Inhibition of young bacterial cells growth
  - c. Destroying of bacterial cells
  - d. Formation of bacterial L-form
19. What is the type of drug-to-drug interaction which is the result of interaction at receptor, cell, enzyme or organ level?

- a) Pharmacodynamic interaction
  - b) Physical and chemical interaction
  - c) Pharmaceutical interaction
  - d) Pharmacokinetic interaction.
20. Which of the following drugs belongs to antibiotics-monobactams:
- a. Ampicillin
  - b. Bicillin-5
  - c. Aztreonam
  - d. Imipinem

### SHORT ANSWER QUESTIONS (40 mks)

1. Explain the role of nurse in pharmacotherapy. (4mks)
2. Discuss Chiropractic and its application as an alternative to contemporary medicine (5 mks)
3. Differentiate between the two phases of drug metabolism (5mks)
4. Under the topic - tetracyclines
  - a. List four (4) examples (2mks)
  - b. Outline two (2) indications 2mks
  - c. State three (3) side effects. (3mks)
5. Explain 'first pass effect' and its implications on drugs (4mks)
6. Write short notes on:
  - a. The importance of dose response curves in toxicity testing (3mks)
  - b. The concept of selective toxicity as applied to antimicrobial drugs (3mks)
  - c. Drug tolerance (3mks)
7. Based on etiological classification, briefly explain three (3) types of adverse drug reactions (6mks)

### LONG ANSWER QUESTIONS (40 mks)

1. Baby K has been admitted in paediatric ward with a diagnosis of pneumonia.

The child is put on Intravenous Benzyl penicillin, Gentamycin (aminoglycoside ) and metronidazole.

a) Describe the mechanism of action, clinical uses and main adverse effects of aminoglycosides. (10mks)

b) Using nursing process, explain how you would carry out health education to the mother of baby K. on home care before discharge. (10mks)

c) Using **Benzyl Penicillin** as an example **discuss pharmacokinetic processes**.  
(10 mks)

2. Describe drug development process. (10mks)