

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE  
OF BACHELOR OF SCIENCE (NURSING)

NURS 217: PHARMACOLOGY I

STREAMS: BSC (NURS) (Y1S2)

TIME: 2 HOURS

DAY/DATE: TUESDAY 05/12/2017

2.30 P.M. – 4.30 P.M.

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**INSTRUCTIONS:**

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- Do not write anything on the question paper
- Mobile phones and any other reference material 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 (10 MARKS)**

1. The main mechanism of most drug absorption in GI tract is:
  - (a) Active transport (carrier-mediated diffusion)
  - (b) Filtration (aqueous diffusion)
  - (c) Endocytosis and exocytosis
  - (d) Passive diffusion (lipid diffusion)
2. 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) Tolerance
  - (d) Tachyphylaxis

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3. Biotransformation of the drugs is to render them:
  - (a) Less ionized
  - (b) More pharmacologically active
  - (c) More lipids soluble
  - (d) Less lipid soluble
4. For the calculation of the volume of distribution ( $V_d$ ) 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 on-half
  - (d) Clearance of an organisms from a xenobiotic
7. Idiosyncratic reaction of a drug is:
  - (a) A type of hypersensitivity reaction
  - (b) A type of drug antagonism
  - (c) Unpredictable, inherent, qualitatively abnormal reaction to a drug
  - (d) Quantitatively exaggerated response
8. Which of the following is NOT a pharmacokinetic process?
  - (a) Alteration of the drug by liver enzymes
  - (b) Drug metabolites are removed in the urine
  - (c) Movement of drug from the gut into general circulation
  - (d) The drug causes dilation of coronary vessels

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 minimum drug plasma concentration to produce effect
10. Therapeutic index (TI) is:
- (a) A ratio 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

**SHORT ANSWER QUESTIONS (40 MARKS)**

1. Differentiate between:
- (i) Tolerance and dependence
  - (ii) Bactericidal and bacteriostatic [ 4marks]
2. Outline four (4) challenges of incorporating herbal therapy into conventional drug therapy. [4 marks]
3. (a) Explain ways through which route of drug administration affect the bioavailability of drug. [4 marks]
- (b) Differentiate between the two phases of drug metabolism. [5marks]
4. Under the topic ‘Tetracyclines’
- (a) List four (4) examples. [4 marks]
  - (b) Outline two (2) indications [2 marks]
  - (c) State three (3) side effects [3 marks]
5. State three (3) mechanisms of action of antimicrobials. [3 marks]
6. Based on MNEMONIC ABCDE, briefly explain different types of adverse drug reactions. [5 marks]
7. Drug A is more potent than drug B and C, but it is less efficacious than both. Drug B and C have the same efficacy but drug C is more potent than drug B. draw a dose response curve showing the relationship between the three. [8 marks]

**LONG ANSWER QUESTIONS (20 MARKS)**

1. (a) Outline the two Acts of parliament controlling drug therapy in Kenya.[4 marks]
  - (b) Briefly describe the phases of drug development. [8 marks]
  2. Describe the mechanism of action, clinical uses and 4 major adverse effects of aminoglycosides. [8 marks]
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