



UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD
OF BACHELOR OF SCIENCE NURSING**

NURS 217: PHARMACOLOGY I

STREAMS: B.Sc. NURS (Y2S1)

TIME: 3 HOURS

DAY/DATE: MONDAY 02/12/2019

8.30 AM. – 11.30 A.M.

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 MARKS)

1. Phase I drug studies involve
 - (a) The use of laboratory animals to test chemicals.
 - (b) Patients with the disease the drug is designed to treat.
 - (c) Mass marketing surveys of drug effects in large numbers of people.
 - (d) Healthy human volunteers who are often paid for their participation.
2. The generic name of a drug is
 - (a) The name assigned to the drug by the pharmaceutical company developing it.
 - (b) The chemical name of the drug based on its chemical structure.

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- (c) The original name assigned to the drug at the beginning of the evaluation process.
 - (d) The name that is often used in advertising campaigns.
3. Selective toxicity is
- (a) The ability of a drug to seek out a specific bacterial species or microorganism.
 - (b) The ability of a drug to cause only specific adverse effects.
 - (c) The ability of a drug to cause fetal damage.
 - (d) The ability of a drug to attack only those systems found in foreign or abnormal cells.
4. An example of a drug allergy is
- (a) Dry mouth occurring with use of an antihistamine.
 - (b) Increased urination occurring with use of a thiazide diuretic.
 - (c) Breathing difficulty after an injection of penicillin.
 - (d) Skin rash associated with procainamide use.
5. Which of the following is not a caution for the use of cephalosporins?
- (a) Allergy to penicillin
 - (b) Renal failure
 - (c) Allergy to aspirin
 - (d) Concurrent treatment with aminoglycosides
6. The goal of antibiotic therapy is
- (a) To eradicate all bacteria from the system.
 - (b) To suppress resistant strains of bacteria.
 - (c) To reduce the number of invading bacteria so that the immune system can deal with the infection.
 - (d) To stop the drug as soon as the patient feels better.
7. A patient receiving a fluoroquinolone should be cautioned to anticipate
- (a) Increased salivation.
 - (b) Constipation
 - (c) Photosensitivity.
 - (d) Cough
8. Biotransformation of the drugs is to render them:

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- (a) Less ionized
- (b) More pharmacologically active
- (c) More lipid soluble
- (d) Less lipid soluble

9. Half-life ($t_{1/2}$) is the time required to:

- (a) Change the amount of a drug in plasma by half during elimination
- (b) Metabolize a half of an introduced drug into the active metabolite
- (c) Absorb a half of an introduced drug
- (d) Bind a half of an introduced drug to plasma proteins

10. The volume of distribution (V_d) relates:

- (a) Single to a daily dose of an administered drug
- (b) An administered dose to a body weight
- (c) An uncharged drug reaching the systemic circulation
- (d) The amount of a drug in the body to the concentration of a drug in plasma

11. Chloramphenicol has the following unwanted effects:

- (a) Nephrotoxicity
- (b) Pancytopenia
- (c) Hepatotoxicity
- (d) Ototoxicity

12. Which of the following drugs belongs to nonnucleoside reverse transcriptase inhibitors

- (a) Zidovudine
- (b) Vidarabine
- (c) Nevirapine
- (d) Gancyclovir

13. Minimal duration of antibacterial treatment usually is:

- (a) Not less than 1 day
- (b) Not less than 5 days

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- (c) Not less than 10-14 days
 - (d) Not less than 3 weeks
14. 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
15. Concerning renal drug excretion:
- (a) Almost all drugs are filtered by the glomerulus
 - (b) A lipid-soluble, filtered drug will likely be reabsorbed by passive diffusion.
 - (c) PH partitioning (the drug is ionized at the urinary pH) enhances excretion
 - (d) Weak acids are excreted faster in alkaline urinary pH
16. The nurse is obtaining a medication history from an 18-year-old female patient who has been diagnosed with genital herpes. Which of the following drugs would the nurse expect this patient to be prescribed?
- (a) amantadine (Symmetrel)
 - (b) acyclovir (Zovirax)
 - (c) zidovudine (Retrovir)
 - (d) ribavirin (Virazole)
17. 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
- 18 Which of these "chemical forces" or "bonds" are the strongest:
- (a) van der Waals
 - (b) Covalent
 - (c) Ionic
 - (d) Hydrogen

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19. What term is used to describe a decrease in responsiveness to a drug that develops in a few minutes?
- (a) Refractoriness
 - (b) Cumulative effect
 - (c) Tolerance
 - (d) Tachyphylaxis
20. Antibiotics inhibiting the bacterial cell wall synthesis are:
- (a) Beta-lactam antibiotics
 - (b) Tetracyclines
 - (c) Aminoglycosides
 - (d) Macrolides

SHORT ANSWER QUESTIONS (40 MARKS)

1. Explain the role of nurse in pharmacotherapy. (4 marks)
2. Differentiate between
- (i) Idiosyncrasy and iatrogenic reaction.
 - (ii) Tolerance and dependence
 - (iii) Bactericidal and bacteriostatic (6 marks)
3. **State the two acts** of parliaments that control and regulate drugs/poisons in Kenya and briefly explain what each addresses (6 marks)
4. Explain '**first pass effect**' and its implications on drugs (4 marks)
5. Under the topic - **aminoglycosides**
- a. List four (4) examples (2 marks)
 - b. Outline two (2) indications (2 marks)
 - c. State three (3) side effects. (3 marks)
6. Explain the following concepts, as used in pharmacology:
- a. Metabolic activation of prodrugs
 - b. Selective toxicity as applied to antimicrobial drugs
 - c. Drug tolerance (9 marks)
7. Explain use of '**Acupuncture**' in contemporary medicine (4 marks)

LONG ANSWER QUESTIONS (40 marks)

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1. a. Using Penicillines as an example, describe the pharmacokinetic processes. (10 marks)
b. Briefly describe the Phases of drug development (10 marks)
 2. Mr. P has been admitted in medical ward with a history of night sweats, wasting and coughing for the last two months. A diagnosis of tuberculosis is made.
 - (a) Discuss the use of drugs in the treatment of Tuberculosis, focusing on the mechanism of action and main side effects of any FOUR main drugs used in treatment of Tuberculosis. (10 marks)
 - (b) Explain how you would carry out health education on self-medication to Mr. P. on discharge from hospital. (10 marks)
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