

NATIONAL UNIVERSITY OF LESOTHO
FACULTY OF HEALTH SCIENCE
DEPARTMENT OF NURSING
NRS 3308 – PHARMACOLOGY

JANUARY 2024

MARKS: 100

TIME: 3 HRS

INSTRUCTIONS

1. Read instructions carefully
2. The question paper consist of 11 pages
3. Answer **all** 5 questions

QUESTION 1

Choose the most correct answer to the flowing questions. Simply write e.g. 2. B

- 1.1. Which one of the following is **NOT** a class of antidepressants?
 - A. Acetylcholinesterase inhibitor
 - B. Tricyclic antidepressants
 - C. Monoamine oxidase inhibitor
 - D. Selective serotonin reuptake inhibitor

- 1.2. The TCAs share all of the following adverse effects **EXCEPT** which one?
 - A. Orthostatic hypotension
 - B. Sedation
 - C. Seizures
 - D. Sexual dysfunction

- 1.3. Foodstuffs containing tyramine should be avoided when taken with which class of medication?
 - A. TCAs
 - B. MAOIs
 - C. SSRIs
 - D. Atypical antidepressants

- 1.4. Which of the following molecular processes best describes the mechanism of action of benzodiazepines?
 - A. Potentiate the effect of GABA at calcium ion channels
 - B. Blocking glutamate excitation
 - C. Blocking the inactivation of sodium ion channels
 - D. Binding to opioid receptors to produce sedation

- 1.5. Which of the following drugs is the preferred drug for treating most rickettsial infections including Rocky Mountain spotted fever and cholera?
 - A. Gentamycin
 - B. Doxycycline
 - C. Azithromycin
 - D. Linezolid

- 1.6. While providing home care to a client with congestive heart failure, the nurse is asked how long diuretics must be taken. The **BEST** response to this client should be what?
 - A. "As you urinate more, you will need less medication to control fluid."
 - B. "You will have to take this medication for about a year."
 - C. "The medication must be continued so the fluid problem is controlled."

- D. "Please talk to your physician about medications and treatments."
- 1.7. A two-year-old child with congestive heart failure has been receiving digoxin for one week. The nurse needs to recognize that an early sign of digitalis toxicity is:
- A. Bradypnea.
 - B. Failure to thrive.
 - C. Tachycardia.
 - D. Vomiting
- 1.8. Mrs. Koakoa has been dealing with uterine cancer for several months. Pain management is the primary focus of her current admission to your oncology unit. Her vital signs on admission are BP 110/64, pulse 78, respirations 18, and temperature 32.2 °C. Morphine sulfate 6mg IV, 4 hourly, prn has been ordered. During your assessment after lunch, your findings are: BP 92/60, pulse 66, respirations 10, and temperature 98.8. Mrs. Koakoa is crying and tells you she is still experiencing severe pain. Your action should be which one of the following?
- A. Give her the next ordered dose of Morphine.
 - B. Give her a back rub, put on some light music, and dim the lights in the room.
 - C. Report your findings to the MD, requesting an alternate medication order be obtained from the physician.
 - D. Call her daughter to come and sit with her.
- 1.9. The physician orders an intramuscular injection of Demerol (opioid) for the postoperative patient's pain. When preparing to draw up the medication, the nurse is careful to remove the correct vial from the narcotics cabinet. It is labeled what?
- A. Diclofenac.
 - B. Ketoprofen.
 - C. Meperidine.
 - D. Ibuprofen.
- 1.10. Which of the following is a contraindication for digoxin administration?
- A. Blood pressure of 140/90
 - B. Heart rate above 80

- C. Heart rate below 60
 - D. Respiratory rate above 20
- 1.11. The action of medication is inotropic when it does what?
- A. Decreased afterload
 - B. Increases heart rate
 - C. Increases the force of contraction
 - D. Is used to treat CHF
- 1.12. Mrs. Vilakazi has been on heparin for a week. Suddenly she starts bleeding severely from the nostril. Which is best drug to reverse the action of heparin?
- A. Vitamin K
 - B. Protamine Sulphate
 - C. Naloxone
 - D. Nikethamide
- 1.13. Which of the following drugs can cause severe hematologic disorders?
- A. Digoxin (Lanoxin)
 - B. Quinidine (Cardioquin)
 - C. Disopyramide (Norpace)
 - D. Procainamide (Pronestyl)
- 1.14. When administering an antiarrhythmic agent, which of the following assessment parameters is the most important for the nurse to evaluate?
- A. ECG
 - B. Pulse rate
 - C. Respiratory rate
 - D. Blood pressure
- 1.15. Which of the following calcium channel blockers has the most potent peripheral smooth muscle dilator effect?
- A. Diltiazem
 - B. Nifedipine
 - C. Nimodipine
 - D. Verapamil

- 1.16. Which of the following effects of calcium channel blockers causes a reduction in blood pressure?
- A. Increased cardiac output
 - B. Decreased peripheral vascular resistance
 - C. Decreased renal blood flow
 - D. Calcium influx into cardiac muscles
- 1.17. Mr. Ramahe is taking β blockers, all of the following should be included in his assessment except which one?
- A. Pulmonary function tests
 - B. Baseline ECG
 - C. Glucose level
 - D. Blood pressure
- 1.18. Competitive antagonism of which of the following occurs at β receptor sites?
- A. Catecholamines
 - B. Adrenergic sites
 - C. Acetylcholine
 - D. Norepinephrine
- 1.19. β blockers should be avoided in which of the following conditions?
- A. Bronchoconstriction
 - B. Hypertension
 - C. Angina
 - D. Myocardial infarction
- 1.20. As a knowledgeable nurse, you know that the action of nitrates is:
- A. Smooth muscle contraction
 - B. Vasoconstriction
 - C. Smooth muscle relaxation
 - D. Increase preload
- 1.21. A 50-year-old client is prescribed to take nitrate each day for his condition. As a competent nurse, you know the result of nitrate administration is what?
- A. Decreased myocardial oxygen demand
 - B. Increased myocardial oxygen demand
 - C. Increased left ventricular end-diastolic volume

- D. Increased atrial pressure
- 1.22. ACEs participate in the renin-angiotensin-aldosterone system to have which of the following physiologic effects?
- A. Inhibit conversion of angiotensin II to angiotensin I
 - B. Vasoconstriction and sodium depletion
 - C. Promote sodium and water retention
 - D. Stimulate vasodilation and inhibit sodium depletion
- 1.23. Magnesium sulphate and sodium sulphate are inorganic salts used in the treatment of which of the following?
- A. Diarrhea
 - B. Constipation
 - C. Vomiting
 - D. None of the above
- 1.24. Mr. Kamele is a hypertensive client who has been placed on captopril (Capoten). He states, "Dr. Dunamis keeps changing my pills and none are working. I feel like a guinea pig." Which of the following responses by the nurse would be most appropriate?
- A. "It often takes a while before the right medication is found."
 - B. "The doctor is just trying to help you control your blood pressure."
 - C. "The action of this drug is to work on both the arteries and to remove excess fluids."
 - D. "This drug is used when other drugs have failed."
- 1.25. Metochlopramide, hyoscine and promethazine are examples of which drugs?
- A. Antacids
 - B. Antidiarrheal
 - C. Antiemetic
 - D. Antiulcer
- 1.26. Which is the most dangerous metabolic side effect of general anesthesia that can occur during surgery?
- A. Hyperglycemia
 - B. Hyperthermia

- C. Hypoglycemia
 - D. Hypothermia
- 1.27. Mr. Katiba will be undergoing surgery with general anesthesia. The client should be given which of the following instructions preoperatively?
- A. Eat big breakfast
 - B. Expect to be incontinent of urine postoperatively
 - C. Double your medication doses
 - D. Expect nausea, vomiting, shivering, and pain postoperatively.
- 1.28. Student Nurse Lekoonya is reviewing for her upcoming quiz in Pharmacology. She should be aware that local and regional anesthesia act by which of the following?
- A. Inhibiting depolarization.
 - B. Increasing depolarization.
 - C. Producing a semiconscious state.
 - D. Inhibiting motor movement.
- 1.29. The nurse teaching a client who will receive thiopental (Pentothal) as an anesthetic explains that what common adverse effects might occur?
- A. Headache
 - B. Emergence delirium
 - C. Nausea and vomiting
 - D. Paralysis
- 1.30. The nurse observes a co-worker preparing to administer a solution of lidocaine and epinephrine to a client with multiple premature ventricular contractions. Which one of the following will be the appropriate action by the nurse?
- A. Offer to monitor the client's heart rhythm.
 - B. Notify the supervisor of the error.
 - C. Do nothing; the drug choice is correct.
 - D. Prevent the administration, and give a plain lidocaine solution.

(30 Marks)

QUESTION 2

Match the class of drugs in column A with the correct mechanism of action in column B. only write; e.g. 1. B.

<u>COLUMN A</u>	<u>COLUMN B</u>
2.1 Aminoglycosides	A. They inhibit reabsorption of sodium and chloride in the distal renal tubule.
2.2 Cephalosporins	B. They are bactericidal, inhibiting the synthesis of cell wall of sensitive organisms causing cell death in susceptible organisms.
2.3 Tricyclic antidepressants	C. They inhibit protein synthesis in susceptible strains of gram negative bacteria, appear to disrupt the functional integrity of bacterial cell membrane, causing cell death.
2.4 Thiazide diuretic	D. They are bactericidal, inhibiting synthesis of bacterial cell wall, causing cell death in susceptible bacteria.
2.5 Potassium sparing diuretics	E. They interfere with DNA replication in susceptible gram-negative bacteria, preventing cell reproduction and leading to death of bacteria.
2.6 Selective serotonin reuptake inhibitors	F. They block the effect of aldosterone on the renal tubule leading to a loss of sodium and water.
2.7 Macrolides	G. They are bacteriostatic, inhibit protein synthesis of susceptible bacteria, preventing cell replication.
2.8 Fluoroquinolones	H. They inhibit the pre-synaptic reuptake of the neurotransmitter norepinephrine and serotonin.
2.9 Penicillins	I. They are bacteriostatic or bactericidal in susceptible bacteria; they bind to cell membranes and cause changes in protein function, leading to bacterial cell death.

2.10 Tetracycline	J. They inhibit CNS neuronal uptake of serotonin and blocking uptake of serotonin with little effect on norepinephrine.
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(10 Marks)

QUESTION 3

Indicate whether the following statements are **True** or **False**. Simply write e.g. 1. True/False.

- 3.1. Patients on aminoglycosides treatment are not at risk of developing nephrotoxicity.
- 3.2. Calcium channel blockers inhibit the flow of calcium ions resulting in a positive inotropic effect.
- 3.3. Parenteral anticoagulants are indicated for only parents with severe deep vein thrombosis.
- 3.4. Mannitol is an ideal intervention for a patient with a nursing diagnosis: "fluid volume deficit related to diarrhea as manifested by dry skin.
- 3.5. Benzodiazepines are contraindicated if someone has hypersensitivity to valium.
- 3.6. Fluoroquinolones are also used to treat patients with cystic fibrosis who have pulmonary exacerbation.
- 3.7. TCAs (antidepressants) are structurally related to the phenothiazine antipsychotic drugs though their mechanism of action is unknown.
- 3.8. When managing a depressed and potentially suicidal patient on amitriptyline, the nurse need to ensure that the patient has limited access to the drug.
- 3.9. Erythromycin can be used in combination with other drugs to manage a patient with an acute infection caused by sensitive strains of streptococcus pneumonia.
- 3.10. Amitriptyline can be used in combination with phenelzine (MAOI) to manage serious depression.

(10 Marks)

QUESTION 4

Mrs. Lekoekoe is a known diabetic (on insulin OD, 5.1mmol/l; fasting) in your ward with the following prescription following an ear infection and haemophilus influenza:

Names: <u>Patsi Lekoekoe</u>	Age: <u>56</u>	Sex: <u>Male</u>	ID:
<u>NUR414/A</u>			
Date: <u>13th December 2023</u>			
<u>PRESCRIPTION</u>			
<ul style="list-style-type: none">• Sulfadiazine 2g Stat PO and 1g QID, 7/7, PO• Chloramphenicol 500mg IV QID 7/7• Aspirin 650mg QID, 7/7, PO• Acarbose 25mg TDS, 7/7, PO			
<u>SIGNATURE:</u> Dr. M.Z. Shelile			

- a) Why were these four drugs prescribed for Mr. Lekoekoe?
(4 Marks, 1 mark each)
- b) Based on the fact that Mr. Lekoekoe is a known diabetic, commend on medications given in this prescription.
(8 Marks, 2 marks each)
- c) What are the indications for antidiabetic drugs?
(6 Marks, 2 marks each)
- d) List the five key teaching points for a patient on antidiabetic drugs.
(5 Marks)
- e) Give any two gastrointestinal adverse effects of antidiabetic drugs.
(2 Marks)
- (25 Marks)**

QUESTION 5

Mr. Pampiri is admitted in your ward secondary to elevated blood pressure and BSL of 12.4 mmol/l. The doctor prescribed a calcium channel blocker, a diuretic and actrapid for the patient. Prior administering the drugs, your colleague Nurse P asked

Mr Pampiri if he was taking any other drugs. The following questions are based on this scenario.

a) Give any five calcium channel blockers that could be given to Mr. Pampiri.

(5 Marks)

b) In which situations will the doctor avoid the use of calcium channel blockers?

(5 Marks, 1 Mark each)

c) What dermatological adverse effects will you anticipate from a patient on calcium channel blockers?

(5 Marks, 1 Mark each)

d) Why was it imperative for the nurse to ask which medications was Mr. Pampiri currently taking?

(2 Marks)

e) Give four examples of loop diuretics.

(4 Marks)

f) If Mr. Pampiri experiences nausea, vomiting, diarrhea, anorexia and abdominal pain as adverse effect. Write any four nursing diagnosis that will guide your care for Mr. Pampiri.

(4 Marks)

(25 Marks)