Student Identification Number: ……

COPPERBELT UNIVERSITY

MICHEAL CHILUFYA SATA SCHOOL OF MEDICINE

DEPARTMENT OF BASIC SCIENCES

YEAR OF STUDY: 2ND YEAR

END OF TERM 1 TEST-2024

COURSE: MBS 230-THERAPEUTICS

Owen Mwale MBChB /owenmwale20@gmail.com/ +260970161850

Student Identification Number: ……

Owen Mwale MBChB /owenmwale20@gmail.com/ +260970161850

Student Identification Number: .....

SECTION A

1. Which of the following deals with drug disposition?
   a. Pharmacokinetics
   b. Pharmacodynamics
   c. Pharmacotoxicology
   d. Pharmacoeconomics
   e. Pharmacovigilance

2. Which of the following is NOT a route of drug administration?
   a. Intravenous
   b. Intramuscular
   c. Intradermal
   d. Interstitial
   e. Subcutaneous

3. Which of the following best exhibits an example of a route where the first pass effect is reduced?
   a. Topical route
   b. Epidural route
   c. Subcutaneous
   d. Intra-articular route
   e. Sublingual route

4. Which of the following is NOT a factor affecting drug absorption?
   a. Route of administration
   b. Drug formulation
   c. Blood flow to the site of administration
   d. Drug metabolism
   e. Surface area of absorption site

Student Identification Number: .....

5. Which term refers to the process by which a drug moves from its site of administration into the bloodstream?
   a. Adsorption
   b. Distribution
   c. Elimination
   d. Absorption
   e. Excretion

6. Which of the following statements about protein binding is true?
   a. Only free or unbound drug molecules are pharmacologically active
   b. Only protein-bound drug molecules are pharmacologically active
   c. Protein binding has no effect on drug distribution
   d. Protein binding decreases drug half-life
   e. Protein binding increases drug clearance

7. Which of the following does NOT influence bioavailability?
a. Route of administration
b. Drug formulation
c. Physiological factors
d. Protein binding
e. Affinity

8. All of the following factors affect drug distribution EXCEPT?
a. Protein binding
b. Drug metabolism
c. Blood circulation
d. Route of administration
e. Drug solubility

Student Identification Number: .....

9. Which of the following best describes a competitive antagonist?

a. Binds irreversibly to the receptor
b. Binds to a different site on the receptor
c. Increases the affinity of the agonist for the receptor
d. Has no effect on the agonist's binding
e. Binds reversibly to the same site as the agonist

10. Which of the following is a characteristic of partial agonists?

a. They have no intrinsic activity
b. They have high affinity for the receptor
c. They produce a maximal response
d. They have lower efficacy than full agonists
e. They cannot be displaced by full agonists

11. Which of the following is a phase I clinical trial?

a. Testing on animals
b. Testing on a small group of healthy volunteers
c. Testing on a large group of patients
d. post-marketing surveillance
e. Market analysis

12. Which of the following is NOT typically included in a New Drug Application (NDA)?

a. Preclinical data
b. Clinical trial results
c. Manufacturing information
d. Market competition analysis
e. Proposed labeling

Student Identification Number: .....

13. What is the primary goal of post-marketing surveillance?
    a. To assess the efficacy of the drug
    b. To monitor adverse reactions in a large population
    c. To determine the optimal dosage of the drug
    d. To evaluate the drug's mechanism of action
    e. To ensure compliance with labeling regulations

14. Which phase of clinical trials involves a detailed investigation of the drug's efficacy, safety, and dosage in a larger population?
    a. Phase I
    b. Phase II
    c. Phase III
    d. Phase IV
    e. Phase V

15. Which of the following is NOT a phase of drug development?
    a. Formulation
    b. Synthesis
    c. Discovery
    d. post-marketing surveillance
    e. Clinical trials

16. What is the primary mechanism of action of cholinergic agonists?
    a. Inhibition of acetylcholine breakdown
    b. Inhibition of acetylcholine release
    c. Stimulation of nicotinic receptors
    d. Stimulation of muscarinic receptors
    e. Inhibition of acetylcholinesterase

Student Identification Number: .....

17. Which cholinergic agonist is primarily used for the treatment of xerostomia (dry mouth)?
    a. Edrophonium
    b. Glycopyrolate
    c. Pilocarpine
    d. Neostigmine
    e. Donepezil

18. In which of the following conditions are Cholinergic agonists contraindicated?
    a. Asthma
    b. Hypertension
    c. bradycardia
    d. urinary retention
    e. myasthenia gravis

19. Which cholinergic agonist is often used to reverse the effects of non-depolarizing neuromuscular blocking agents?
    a. Methacholine
    b. Bethanechol
    c. Neostigmine
    d. Pilocarpine
    e. Donepezil

20. Which cholinergic agonist is used for the treatment of urinary retention?
    a. Neostigmine
    b. Atropine
    c. Pilocarpine
    d. Carbachol
    e. Bethanechol

Student Identification Number: .....

21. Which of the following cholinergic antagonists is used to treat overactive bladder?
    a. Oxybutynin
    b. Glycopyrrolate
    c. Ipratropium bromide
    d. Scopolamine
    e. Atropine

22. Which of the following drugs is used to treat sinus bradycardia?
    a. Glycopyrrolate
    b. Benztropine
    c. Scopolamine
    d. Atropine
    e. Sorafenacin

23. Mr. James just started cross-border business, recently he started using a plane as his means of transport. At first, he experienced extensive nausea which made him vomit on the plane. This experience seems to be repeating itself every time he is on a trip and hence his coming to see you as a doctor. Which of the following drugs do you think would help Mr. James?
    a. Scopolamine
    b. Benztropine
    c. Oxybutynin
    d. Glycopyrrolate
    e. Tiotropium

Student Identification Number: .....

24. Patient K has had chronic pulmonary disease (COPD) which recently has not been well controlled due to the bronchospasms and excessive presentation of mucus in the airway.
    Which of the following cholinergic drugs can be a good add on to his treatment?
    a. Benztropine
    b. Scopolamine
    c. Glycopyrrolate
    d. Tiotropium
    e. Carbachol

25. Which of the following cholinergic antagonists is used to treat peptic ulcers?
    a. Atropine
    b. Benztropine
    c. Scopolamine
    d. Glycopyrrolate
    e. Pirenzepine

26. Which adrenergic receptor subtype does epinephrine primarily have a better affinity when compared to norepinephrine?
    a. α1
    b. α2
    c. β1
    d. β2
    e. β3

Student Identification Number: .....

27. Which of the following drugs is a direct-acting α1-adrenergic agonist and is used for the treatment of nasal congestion and hypotension?
    a. Dobutamine
    b. Albuterol
    c. Isoproterenol
    d. Phenylephrine
    e. Terbutaline

28. Which of the following drugs is an α2-adrenergic agonist used in the treatment of hypertension?
    a. Dobutamine
    b. Albuterol
    c. Isoproterenol
    d. Clonidine
    e. Terbutaline

29. Which adrenergic receptor subtype mediates the positive inotropic and chronotropic effects?
    a. α1
    b. α2
    c. β1
    d. β2
    e. β3

30. Which of the following a selective beta blocker?
    a. Timolol
    b. Pindolol
    c. Metoprolol
    d. Propranolol
    e. Betaxolol

Student Identification Number: .....

SECTION B

1. Discuss the intramuscular route of drug administration and the basis on which bioavailability of drugs in this route is optimized [2Marks]
   .....
   .....
   .....
2. Explain what steady state and the role it plays? [2 Marks]
   .....
   .....
   .....
3. Explain the extreme phenomenons that affect the enzymatic activity in oxidative drug metabolism with specific examples of drugs that may cause such effects [2 Marks]
   .....
   .....
   .....
4. Explain receptor up-regulation and the mechanism by which it happens [2 Marks]
   .....
   .....
   .....
   .....
5. Briefly explain drug receptor affinity and its effects on the potency of drugs [2 Marks]
   .....
   .....
   .....
6. Discuss Pseudoephedrine as in what it is, its indications and the mechanism of action [2 Marks]
   .....
   .....

Student Identification Number: .....

7. Hachimbwali and his colleagues went on a hunting escapade and while there he was stung by a bee. He has just been brought in with a swollen head and now cannot breathe properly and hence making the condition an emergence and is now classified as anaphylactic shock.

   State which drug you would use and the mechanism of action by which it works in this condition [2 Marks]

   .....
   .....
   .....
   .....

   8. Patient MBM has both hypertension and benign prostatic hyperplasia. Your consultant says he may benefit from a drug that acts on the alpha receptor.

   Which best drug would you propose for patient MBM and state the reasons why? [2 Marks]

   .....
   .....
   .....

   9. Give an example of one depolarizing neuromuscular blocker and state two of its indications [2 Marks]

   .....
   .....
   .....

   10. Briefly discuss the Phase II clinical studies or trials [2 Marks]

   .....
   .....
   .....

Student Identification Number: .....

SECTION.C

1. Discuss drugs used in erectile dysfunction under the following themes

a. Examples [1 Mark]

.....
.....
.....

b. Mechanism of action [2 Marks]

.....
.....
.....

c. other indications [1 Mark]

.....
.....
.....

d. Interactions or cautions [1 Mark]

.....
.....
.....

2. Discuss adrenergic antagonists that target both alpha and beta receptors, elaborating special properties they exhibit and the indications [5 Marks]

.....
.....
.....
.....
.....
.....

Student Identification Number: .....

3. Emergency department has just received an unconscious patient who is reported to have poisoned himself with a chemical known to be used for controlling pests in the garden?

a. What parameters would you check for to verify the claim of the use of the pesticide? [1 Mark]

.....
.....
.....

b. Why would you use the parameters you have stated in question (3.a) above? (2 Marks]

.....
.....
.....

c. which drug would you suggest the patient be put on as treatment and why? [3 Marks]

.....
.....
.....

d. What treatment monitoring parameters would you check as response to the drug used in question (3 .c) [2 Marks)

.....
.....
.....

e. The patient has finally been resuscitated but it appears he has again suffered toxicity to the drug used above in question (3.c)

What drug do you think can be used to reverse this toxic effect of the drug above? [2 Marks]

.....
.....
.....

Student Identification Number: .....

NO	DRUG	CLASS	INDICATION	SIDE EFFECTS
1.			Phaeochromocytoma	
2.	Xylometazoline			
3.			Benign Prostatic Hyperplasia [BPH]	
4.	Cervimeline			
5.			Diagnosis of Myasthenia gravis	
6.			Vasospastic Angina	
7.	Salbutamol			
8.			Post operative or postpartum urine retention	
9.	Nicotine			
10.			Retention of local anesthetic drug in a region	

MUCH LOVE FROM DR OWEN ❤️ ✍️

Owen Mwale MBChB /owenmwale20@gmail.com/ +260970161850