



**MICHEAL CHILUFYA SATA SCHOOL OF MEDICINE  
DEPARTMENT OF BASIC SCIENCES**

**PROGRAM: MBChB**

**YEAR OF STUDY: 2<sup>ND</sup> YEAR**

**2020-2021 ACADEMIC YEAR**

**END OF TERM 2 TEST**

**COURSE: MBS 230 (Therapeutics)**

**DATE: THURSDAY – 17<sup>TH</sup> JUNE, 2021**

**TIME ALLOCATED: 2 HOURS**

**INSTRUCTIONS:**

1. The paper contains THREE (03) PARTS; section A, section B and section C
2. Answer all questions in each section.
3. Allocated marks are indicated in each section
4. Write your computer number on the attached answer sheets

### SECTION A

Each question contains 0.5 mark and please circle the best answer in the provided answer sheet.

1. Black widow spider venom can cause the following except.
  - a. Increase salivation
  - b. Sweating
  - c. Lacrimation
  - d. Urine retention
  - e. Changes in blood pressure
2. Pilocarpine falls under the following class of drugs.
  - a. Cholinesterase inhibitors
  - b. Direct acting cholinergic agonists
  - c. cholinergic antagonists
  - d. Neuromuscular blockers
  - e. muscarinic
3. The following has the shortest duration of action.
  - a. Cisatracurium
  - b. Pancuronium
  - c. Succinyl choline
  - d. Atracurium
  - e. Vecuronium
4. Patients with overactive bladder can be treated with following group of drugs.
  - a. Cholinesterase inhibitors
  - b. Cholinergic antagonists
  - c. 5 - phosphodiesterase inhibitors
  - d. Cholinergic agonists
  - e. Quasi cholinergic agonists
5. Differentiation of myasthenia crisis and cholinergic crisis can be enhanced by administering the following drug.
  - a. Neostigmine
  - b. Donepezil
  - c. Physostigmine
  - d. Edrophonium
  - e. Pyridostigmine
6. Physostigmine is used in the following condition
  - a. Reversal of muscle relaxation post surgery
  - b. As an antidote to atropine
  - c. Myasthenia gravis
  - d. Ophthalmoscopic examination
  - e. A, B and C

7. Acetylcholine causes all the following EXCEPT
- Miosis
  - Bradycardia
  - Bronchial muscle contraction
  - Urine retention
  - Vasodilation
8. Organophosphate poison is an example of the effects of the class of drugs.
- Cholinergic agonists
  - Cholinergic antagonists
  - Adrenergic agonists
  - Adrenergic antagonists
  - None of the above
9. All faucets turned on syndrome can be caused by the following drugs
- Atropine
  - Ipratropium bromide
  - Cevimeline
  - Acetylcholine
  - Varenicline
10. The following drug can be used to increase muscle tone postoperatively or postpartum in patients with non-obstructive neurogenic urinary retention
- Nicotine
  - Bethanechol
  - Carbachol
  - Pilocarpine
  - Acetylcholine
11. Decreased night vision can be caused by all the following EXCEPT
- Suxamethonium
  - Physostigmine
  - Pilocarpine
  - Hyoscine
  - Dicyclomin
12. Xerostomia can be treated using the following drugs
- Cervimeline
  - Pilocarpine
  - Atropine
  - Malathion
  - A and B

13. For cessation of smoking, the following drug has more superior properties

- a. Nicotine
- b. Varenicline
- c. Muscarine
- d. Clonidine
- e. Phentolamine

14. The following is are side effects of 5-phosphodiesterase enzyme (5-PDE) inhibitor EXCEPT

- a. Dry mouth
- b. Myalgia
- c. Visual disturbance
- d. Nasal congestion
- e. Headache

15. The following drug should not be used with tadalafil

- a. Nicotine
- b. Testosterone
- c. Acetylcholine
- d. Salbutamol
- e. Nitroglycerine

16. The following is a depolarizing neuromuscular blocking agent

- a. Pancuronium
- b. Rocuronium
- c. Suxamethonium
- d. Voluconium
- e. Cisatracurium

17. Atropine can be used for all the following EXCEPT

- a. Sinus tachycardia
- b. Ophthalmoscopic examination
- c. Muscarinic effects caused by cholinesterase inhibitors in patients with myasthenia gravis
- d. Urinary bladder spasms
- e. Organophosphate poisoning

18. Broncho secretions in asthma can best be managed using the following drug

- a. Scopolamine
- b. Ipratropium bromide
- c. Glycopyrrolate
- d. Hyocyamine
- e. Atropine

25. The first treatment of choice of cardiogenic shock is

- a. Norepinephrine
- b. Dopamine
- c. Epinephrine ✓
- d. IV fluids
- e. Epinephrine

26. The following have membrane stabilizing effects and hence exerts some local anesthetic effects

- a. Timolol
- b. Metoprolol
- c. Esmolol
- d. Pindolol ✓
- e. Carvedilol

27. Mydriasis of the pupil may be effected by administering the following

- a) Epinephrine
- b) Phenylephrine ✓
- c) Pseudoephedrine
- d) Brimonidine
- e) Acetylcholine

28. The following are B2 adrenergic agonists

- a) Propranolol
- b) Albuterol ✓
- c) Acebutolol
- d) Betaxolol
- e) None of the above

29. What recommendation would you give for a benign prostatic hyperplasia (BPH)?

- a) Silodosin
- b) Prazosin
- c) Doxazosin
- d) Terazosin
- e) A and D

30. The following only activates muscarinic receptors

- a. Bethanechol ✓
- b. Acetylcholine
- c. Carbachol
- d. Muscarine
- e. Pilocarpine

NS:

contains TWO sections; section A and B  
questions in each section.  
marks are indicated in each section



31. A  $\beta_2$  adrenoceptor agonist can cause all the following EXCEPT

- a. Muscle tremors
- b. Tachycardia
- c. Nervousness
- d. Bronchoconstriction
- e. Muscular relaxation

32. Which of the following are safe to be taken by hypertensive patients

- a. Pseudoephedrine
- b. Clonidine
- c. Xylometazoline
- d. Oxymetazoline
- e. Cocaine

33. Regulation of norepinephrine release can be achieved through the stimulation of the following receptors

- a.  $\beta_2$
- b.  $\alpha_1$
- c.  $\alpha_2$
- d.  $\beta_1$
- e.  $\beta_3$

34. The following acts both as a direct and an indirect adrenoceptor agonist

- a. Dopamine
- b. Dobutamine
- c. Epinephrine
- d. Norepinephrine
- e. C and D

35. A patient is brought into the emergency room and as a doctor on call, you are called attend to him. On examination you discover the patient is unconscious, has the BP of 70/50mmHg with warm extremities. Your conclusion is that this is one type of shock and no time should be wasted but to have treated.

Based on the conclusion you make regarding the type of shock the patient has, which vasopressor would you choose for this patient?

- a. Epinephrine
- b. Dobutamine
- c. Norepinephrine
- d. Dopamine
- e. Isoproterenol

36. A woman presents with contractions at 36 weeks of gestation. As an intern, you realize this situation needs to be controlled and contained to prevent complications. Which drug would you recommend for her?

- a. Terbutaline
- b. Propranolol
- c. Prazosin
- d. Pindolol
- e. Clonidine

37. The following is a non-selective alpha receptor antagonist

- a. Alfuzosin
- b. Terazosin
- c. Amphetamine
- d. Phenoxybenzamine
- e. Doxazosin

38. In terms of selectivity, which one amongst the drugs below is cardioselective?

- a. Propranolol
- b. Metoprolol
- c. Labetalol
- d. Pindolol
- e. Nadolol

39. Which of the following is uroselective in terms of receptor affinity?

- a. Alfuzosin
- b. Terazosin
- c. Doxazosin
- d. Prazosin
- e. A and B

40. In the management of myocardial ischaemia, which of the following drug has anti-apoptotic effect and enhanced reduction in the infarct size and scavenging properties?

- a. Bisoprolol
- b. Betaxolol
- c. Carvedilol
- d. Metoprolol
- e. Atenolol

## SECTION B

1. What are local anaesthetics (LA)? [ 2 marks]
2. List the two types of LA based on their chemical structure and give two examples of drugs in each category [4 marks]
3. State the mechanism of action of LA [2 marks]
4. Explain the rationale of adding vasoconstrictors to LA and give one example of a vasoconstrictor including its adverse effects [6 marks]
5. Write short notes on activated charcoal [4 marks]
6. Define hypertension and state two mechanisms of action of labetalol [ 3marks]

## Section C

1. A patient comes to the hospital with persistent dry cough. On examination, you realize that a patient has been on an anti-hypertensive therapy for more than 2 years. You decide to change the medication and prescribe an antitussive agent
  - a. Mention two anti-hypertensive agents that could have caused a persistent dry cough [2 marks]
  - b. Define an antitussive [1 marks]
  - c. Give one example of an antitussive and state its mechanism of action [3 marks]
  - d. Most antitussive are combined with an antihistamine. What is the rationale for this combination and give two examples of antihistamines [4 marks]
2. A patient who has ingested 20 tablets of 500mg of paracetamol following the break-up of a relationship is brought to the hospital for medical intervention.
  - a. Briefly with the aid of diagram, discuss paracetamol induced toxicity [5 marks]
  - b. What interventions would you give this patient? [4 marks]