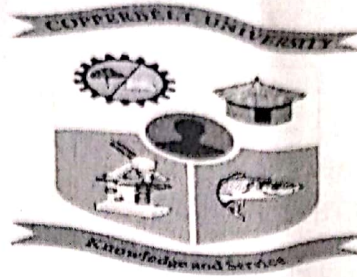


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## COPPERBELT UNIVERSITY



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

YEAR OF STUDY: 2<sup>ND</sup> YEAR  
END OF TERM 2 TEST - 2024

COURSE: MBS 230 - THERAPEUTICS

DATE: MONDAY – 9<sup>TH</sup> AUGUST, 2024

TIME ALLOCATED: 1 HOUR 40 MINUTES

#### INSTRUCTIONS:

1. The paper contains **THREE (03)** PARTS, section A, B and section C
2. Section A has **Thirty (30)** questions each carrying **1 mark** and you are supposed to pick one best answer out of the five provided options for all the questions
3. Section B has **Ten (10)** short answer questions each containing **2 Marks** all of which should be answered
4. Section C has **THREE (03)** questions carrying 5 marks, **ONE (01)** carrying 10 marks
5. **Section A** should be answered using the **answer grid provided** while **Section B and C** should be answered in the provided spaces within this question paper
6. In case you decide to change the answer under Section A, cross out the first choice, sign against it and then tick your new choice

7.

## SECTION A ANSWER GRID

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**SECTION A**

1. All of the following form part of the pathophysiology of cardiac failure EXCEPT
  - a. Cardiac remodeling
  - b. Inflammatory cytokines
  - c. Hypertension
  - d. Renin angiotensin aldosterone axis
  - e. The sympathetic nervous system
  
2. Which of the following drugs forms the main stay of treatment for congestive cardiac failure
  - a. Amlodipine
  - b. Lisinopril
  - c. Prazosin
  - d. Torasemide
  - e. Candesartan
  
3. Which of the following is the overall effect of diuretics in congestive cardiac failure?
  - a. Increase plasma volume
  - b. Improved cardiac output
  - c. Potassium control
  - d. Relieve acute symptoms of congestion and maintenance of volume
  - e. Interference with sodium retention
  
4. Which of the following induce prostaglandin mediated increase in renal blood flow?
  - a. Spironolactone
  - b. Chlorthalidone
  - c. Bumetanide
  - d. Hydrchlorothiazide
  - e. Metolazone
  
5. Which among the following has potassium sparing effects?
  - a. Spironolactone
  - b. Ethacrynic acid
  - c. Indapamide
  - d. Torasemide
  - e. Hydrchlorothiazide
  
6. Which of the following drugs help reduce the epinephrine and aldosterone usually seen in heart failure?
  - a. Milrinone
  - b. dobutamine
  - c. Lisinopril
  - d. Diltiazem
  - e. Verapamil



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7. Which of the following drugs belongs to Class I A anti-arrhythmic drugs?
- Disopyramide
  - Lidocaine
  - Amiodarone
  - Mexilitine
  - Prilocaine
8. Which of the following DO NOT cause arrhythmias?
- Electrolyte disturbance
  - Disturbed transmembrane potential
  - General anesthetic drugs
  - Inhibition of the sympathetic nervous system
  - Coronary ischemia and tissue hypoxia
9. Out of the options below, select one drug that also exhibits  $\alpha$ -adrenergic blocking effects
- Mexilitine
  - Quinidine
  - Lidocaine
  - Disopyramide
  - Procainamide
10. Technology has a great role to play in disease management one of which is Cardioversion or Defibrillation used for arrhythmias. Which of the following drugs has been replaced by Cardioversion?
- Lidocaine
  - Quinidine
  - Amiodarone
  - Metoprolol
  - Procainamide
11. Which of the following drugs may be used as an alternative to amiodarone in ventricular fibrillation or pulseless ventricular tachycardia?
- Mexilitine
  - Esmolol
  - Quinidine
  - Lidocaine
  - Flecainide
12. What group of drugs is known to slowly dissociate from sodium channels in management of arrhythmias?
- Class I A
  - Class II
  - Class I B
  - Class III
  - Class I C

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13. Which of the following is reserved for arterial fibrillation and or arterial flutter in patients without structural heart disease?
- Flecainide
  - Mexilitine
  - Esmolol
  - Quinidine
  - Lidocaine
14. Some drugs are known to exhibit various effects away from the most obvious. Which of the following is a known effect of HMG CoA drugs?
- Formation of platelet thrombus
  - Endothelial instabilization
  - Analgesic effects
  - Plaque stabilization
  - Narrowing of the vessel lumen
15. Which of the following is the most effective drug in increasing HDL-C?
- Atovastatin
  - Colestipol
  - Omega 3
  - Ezetimibe
  - Gemfibrozil
16. Which of the following is the extreme presentation of the side effects for statins
- Myopathy
  - Hypolipidemia
  - Rhabdomyolysis
  - Elevated live enzymes
  - Rebound atherosclerosis
17. Which of the following drugs is effective in treatment of familial hyperlipidemias?
- Simvastatin
  - Colestyramine
  - Omega 3
  - Niacin
  - Fenofibrate
18. Hypertriglyceridemia can best be treated by using the following drug
- Gemifibrozil
  - Niacin
  - Pravastatin
  - Colesevelam
  - Ezetimibe



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19. Mr Abambo, a 58 year old man has a long standing caase of angina and has been using Isorsobide dinitrate. He recently walks into the urology clinic with complaining of erectile dysfunction which he says has caused anxiety and hence coming to have this condition corrected.

What step would you take for his condition?

- a. Counsel Mr Abambo on the need to adhere to treatment and prescribe Sildenafil
  - b. Counsel Mr Abambo on the need to adhere to treatment and , advise that physician reduces Isorsobide dinitrate while you prescribe Sildenafil
  - c. Counsel Mr Abambo to adhere to treatment while advising him to abstain from sex
  - d. Advise the physician to increase the dose for isorsobide dinitrate even as you prescribe sildenafil
  - e. Caryy on with regular activities without any changes for as long as he is taking his medicines
20. Which of the following can be combined with nitroglycerine to help prevent the occurrence of reflex tachycardia?
- a. Enalapril
  - b. Terazosin
  - c. Bisoprolol
  - d. Salbutamol
  - e. Nifedipine
21. Patient K whose symptoms worsen when sleeping at night is likely to benefit from which of the following drugs?
- a. Once weekly i.V administration of Glyceryl trinitrate
  - b. Isorsobide mononitrate
  - c. Glyceryl trinitrate ointment
  - d. Sublingual Isorsobide dinitrate
  - e. Amyl nitrite
22. You are the covering intern Doctor. In your ward is a patient who suffered a stroke three days ago. After a day's review, you relay the condition of the patient to your consultant on Phone. He then tells you to add a calcium channel blocker to the treatment .
- Which one of the following would you prescribe?
- a. Amlodipine
  - b. Felodipine
  - c. Nifedipine
  - d. Nimodipine
  - e. Carvedilol
23. Mrs K was recently attended to when she had hypertensive crisis. She now has constipation. Which of the following drugs is likely to have caused this?
- a. Verapamil
  - b. Nicardipine

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- c. Propranolol
- d. Atenolol
- e. Nimodipine

24. Which of the following has more cardiac activity?

- a. Nimodipine
- b. Nifedipine
- c. Verapamil
- d. Amlodipine
- e. Nicardipine

25. Which of the following combinations can precipitate renal failure?

- a. Losartan + Diclofenac + Frusemide
- b. Enalapril + Frusemide + Amloride
- c. Amlodipine + Frusemide + Diclofeanac
- d. Lisinopril + Nifedipine + Frusemide
- e. Paracetamol+Amlodipine+Frusemide

26. One critical complication in diabetes is nephropathy. Which of the following is an effective treatment or prevention of this condition?

- a. Metalazone
- b. Ramipril
- c. Torasemide
- d. Nebivolol
- e. Prazocin

27. Kabwali is a known patient with history of sulfa hypersensitivity. As a doctor, which of the following drugs would you avoid prescribing for him because of this hypersensitivity history?

- a. Ethacrynic acid
- b. Bendroflumethiazide
- c. Bumetanide
- d. Telmisartan
- e. Frusemide

28. Which one of the following falls within the first line of hypertension treatment?

- a. Hydrochlorothiazide
- b. Atenolol
- c. Frusemide
- d. Captopril
- e. Telimsartan

29. All the following drugs can cause hypertension EXCEPT

- a. Domperidone
- b. Diclofenac



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- c. Phenylephrine
- d. Ethanol
- e. Prednisolone

30. Which of the following blocks the angiotensin receptors

- a. Ramipril
- b. Lovastatin
- c. Candesartan
- d. Sumatriptan
- e. Captopril

#### SECTION B

1. Patient GM has been on a combination of drugs including bendroflumethiazide, eplerenon, paracetamol and he recently was found to have developed hyperkalemia. Which of the listed drugs is likely to have caused this problem and why? [2 Marks]

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2. What side effect is known to be caused by spironolactone due to its action on the androgen and progesterone receptors and how would you go about controlling this effect? [2 Marks]

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3. Showcase the classification of anti-arrhythmic drugs [2 Marks]

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4. Briefly critique the use of propafenone in patients having arrhythmias and asthma [2 Marks]

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5. Write down the goals of treatment of hyperlipidemia [2 Marks]

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6. What is the mechanism of action of niacin [2 Marks]

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7. Discuss different types nitrate compounds by comparing their onset of action and duration of action [2 Marks]

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8. By what mechanism do beta blocker effect their role in angina pectoris? [2 Marks]

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9. Patient CM is a known hypertensive patient who has been taking a combination of amiloride, hydrochlorothiazide and nifedipine. In his recent review, he was diagnosed to also have diabetes which makes him a patient with both hypertension and diabetes. What steps would you suggest be taken regarding his treatment and justify your suggestion [2 Marks]

10. Highlight the classification of calcium channel blockers with specific examples [2 Marks]

### SECTION C

1. Compare thiazide and loop diuretics in line with their use in congestive cardiac and also start by giving at least two examples of each [5 Marks]

Thiazide diuretics	Loop diuretics



2. Discuss the mechanism of action Rosuvastatin and its benefits [5 Marks]

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3. Patient GM is a chronic stable angina pectoris patient who has come to you for continuous treatment during this time that he is visiting his relatives in your town. Briefly discuss the treatment you would recommend and why you would make that recommendation [5 Marks]

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4. Discuss ACE inhibitors under the following;

a. Examples (At least 2) [1 mark]

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b. Mechanism of action [2 Marks]

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c. Indications [3 Marks]

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d. Side effects and possible steps to be taken for some specific side effects [4 marks]

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