



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR**

SECOND YEAR FIRST TRIMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN CLINICAL MEDICINE, SURGERY AND COMMUNITY HEALTH

COURSE CODE: HCM 361

COURSE TITLE: Internal Medicine II (Upgrading)

DATE: Monday 4th December 2023

TIME: 8:00am – 10:00am

INSTRUCTIONS TO CANDIDATES

Answer all questions

Section A: Multiple choice questions (MCQ) (20 Marks)

Section B: Short answer questions (SAQ) (40Marks)

Section C: Long answer questions (LAQ) (40Marks)

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

Section I: Multiple Choice Questions. Choose one best response (20 marks)

1. Which of the following drugs is appropriate in promoting renal salt excretion and may be added to furosemide in a patient presenting with CKD with hyperkalemia and generalised oedema?
 - A. Spironolactone
 - B. Losartan
 - C. Metolazone
 - D. Hydrochlorothiazide
2. Regarding urinary tract infections, which of the following statements is TRUE?
 - A. Women presenting with recurrent UTI should undergo pelvic examination
 - B. Can only be said to be recurrent if there are positive urine culture
 - C. Asymptomatic bacteriuria should be treated urgently
 - D. Lower back pain in women/men should prompt urinalysis
3. Which of the following is TRUE regarding PSA levels in a patient presenting for urologic evaluation?
 - A. Normal values range from 3-10ng/ml
 - B. Values of 5-10ng/ml can occur in chronic prostatitis or BPH
 - C. Values greater than 10ng/ml increase probability of prostatic malignancy
 - D. PSA values are of no prognostic value in urological evaluation of a patient
4. Costovertebral angle tenderness (murphy's punch sign) may be present in one of the following conditions
 - A. Cystitis
 - B. Urethritis
 - C. Cholecystitis
 - D. Pyelonephritis
5. Common causative organism of urinary tract infection
 - A. Staph aureus
 - B. Escherichia coli
 - C. Citrobacter spp
 - D. Klebsiella spp
6. Which of the following may be used in estimating the glomerular filtration rate?
 - A. Serum creatinine
 - B. Serum creatine
 - C. Blood urea
 - D. Blood ammonia
7. Which of the following glomerular filtration rate corresponds with stage II of chronic kidney disease?

- A. 15mls/min
 - B. 30mls/min
 - C. 70mls/min
 - D. <15mls/min
8. Which of the following statements is FALSE regarding Acute Kidney Injury (AKI)?
- A. AKI complicates 57% of acute care hospital admissions
 - B. AKI is associated with increased risk of death in hospitalized individuals in ICU
 - C. AKI increases the risk for the development/worsening of CKD.
 - D. Patients who survive AKI are at risk of ESRD.
9. Which of the following explains the mechanism of AKI among patients taking NSAIDs and ARBS/ACEI respectively?
- A. ARBs reduce GFR by efferent vasoconstriction, NSAIDs by afferent vasodilation
 - B. NSAIDs reduce GFR by afferent vasoconstriction, ARBs by afferent vasodilation
 - C. Both ARBs and NSAIDs reduce GFR by similar mechanisms
 - D. ARBs reduce GFR by efferent vasoconstriction, NSAIDs by afferent vasodilation
10. Risk factors for postoperative Acute Kidney injury include all of the following except:
- A. Underlying chronic kidney disease
 - B. Young age
 - C. Diabetes mellitus
 - D. Congestive heart failure
11. Mechanism of kidney injury in patients being treated with amphotericin B and aminoglycosides
- A. Severe intrarenal efferent vasoconstriction
 - B. Enhanced acute and chronic inflammation
 - C. Tubular necrosis
 - D. Varied podocyte atrophy in basement membranes
12. In a patient with abnormal kidney function test following CT scan with contrast agent, which of the following is TRUE?
- A. There is need for urgent review by urologist or nephrologist, such patients may die within a week.
 - B. Kidney function abnormalities will maximum five days after the CT scan
 - C. Repeat the kidney function test after 1-2 weeks and ascertain the abnormality
 - D. Only get worried if the serum creatinine continues rising after 7-10 days
13. Acute kidney injury is best defined as
- A. Reduced GFR regardless of the cause
 - B. A rise in serum creatinine from baseline of at least 0.3 mg/dL within 2 days
 - C. Serum creatine rise at least 20% higher than baseline within 1 week
 - D. Reduced urine output below 400mls/day

14. Causes of hyperkalaemia in CKD patients include all of the following except which one?
- A. Limited dietary potassium intake
 - B. Protein catabolism
 - C. Hemolysis
 - D. Metabolic acidosis
15. Which of the following is a diuretic that may worsen hyperkalaemia in renal patients
- A. Enalapril
 - B. Losartan
 - C. Verapamil
 - D. Amiloride
16. Potassium binding resins include
- A. Calcium acetate
 - B. Potassium phosphate
 - C. Sodium polystyrene
 - D. Calcium carbonate
17. Bone manifestation in patients with CKD are due to the following
- A. Parathyroid hormone
 - B. Hyperphosphatemia
 - C. Malnutrition syndrome of kidney disease
 - D. Glomerular damage
18. Phosphate binders include
- A. Calcium resonium
 - B. Potassium phosphate
 - C. Sodium polystyrene
 - D. Calcium carbonate
19. In a CKD patient with elevated cardiac troponins (TnI&TnT), which of the following statements is FALSE?
- A. Cardiac troponin levels are frequently elevated in CKD
 - B. Elevated troponins always mean the patient has ischemic heart disease
 - C. Serial measurements may be necessary
 - D. If repeated and the troponin level is unchanged, it is possible that there is no acute myocardial ischemia.
20. Causes of anaemia in chronic kidney disease include all except
- A. Absolute deficiency of erythropoietin.
 - B. Diminished red blood cell survival.
 - C. Bleeding diathesis.
 - D. Iron deficiency.

Section II: attempt all questions. Short answer questions (40 marks)

1. A patient was admitted with confusion and abdominal pains following episodes of constipation. On further inquiry, it was found that the patient is on follow up for multiple myeloma. Investigations done include: PTH (low), PTHrP (high), serum calcium 13mg/dl, serum protein 2mg/dl. He is a known hypertensive patient on amlodipine 10mg OD and HCTZ 12.5mg OD for the last 3 years.
 - a. Calculate the corrected calcium level (3 marks)
 - b. Review the medications for the patient (2 marks)
 - c. Outline the management of the patient (5 marks)
2. Write short notes on specific autonomic neuropathies in patients with diabetes mellitus and state how such should be treated (10 marks).
3. Acute kidney injury is a common medical problem in Kenyan hospitals.
 - a. Explain the mechanism of NSAID and ACEI induced kidney injury (4 marks)
 - b. List any two ultrasound features that could suggest chronic kidney disease (2 marks)
 - c. List 4 causes of hyperkalaemia in chronic kidney disease (4 marks)
4. Explain the utility of thyroid function test in making a diagnosis of primary or secondary thyroid disease (10 marks)

Section III: Long essay question. Attempt all. Each carry 20 marks (40 marks)

1. Diabetes mellitus is a common disease among patients seen in medical outpatient clinics in Kenya and has a potential of medical emergencies such as diabetes ketoacidosis.
 - a. Outline the diagnostic criteria for DKA (3 marks)
 - b. Outline the management of DKA under the following subtopics
 - i. Investigations (4 marks)
 - ii. Fluid management (3 marks)
 - iii. Electrolyte disorders management (8 marks)
 - iv. Insulin administration (2 marks)
2. Urinalysis is a common simple test that can readily be done even in a dispensary. Discuss how you can use urinalysis report in making clinical decision in managing a patient presenting for urological evaluation (20 marks)

