

**UNIVERSITY OF ESWATINI**  
**FACULTY OF HEALTH SCIENCES**

**FINAL EXAMINATION MAY 2021**

**TITLE OF COURSE: HAEMODIALYSIS DIALYSIS**

**COURSE CODE: GNS 475**

**TIME ALLOWED: TWO (2) HOURS**

**PAGES: 3 PAGES INCLUDING COVER PAGE**

**MARKS: 75**

**INSTRUCTIONS:**

1. ENSURE THAT YOU ARE WRITING THE EXAM FOR THE COURSE IN WHICH YOU ARE ENROLLED.
2. THERE ARE THREE (3) QUESTIONS IN THIS EXAM, ANSWER ALL THREE (3) QUESTIONS.
3. START EACH QUESTION ON A NEW PAGE.
4. WRITE LEGIBLY

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## QUESTION 1

**Scenario:** A 45-year-old male, fitness coach, who weighs 100kg and 190 cm tall has a creatinine concentration of 135  $\mu\text{mol/L}$ . The laboratory reports his estimated glomerular filtration rate (eGFR) as 50  $\text{ml/min/1.73 m}^2$ . A measured glomerular filtration tests using radioisotope assay reports his true GFR as 90 $\text{ml/min}$ .

- a) Does the creatinine-based CKD-EPI equation over-estimate or under-estimate the true GFR? [1]
- b) What factor explains the differences in GFR values by the two methods used? [2]
- c) Name a few disadvantages of using creatinine as a filtration marker in GFR calculations. [5]
- d) What other endogenous filtration marker provides a better estimate of GFR? [2]
- e) Name a few exogenous filtration markers [3]
- f) Use the Cockcroft Gault equation to calculate the estimated GFR and show your calculations for this patient. If the calculated body surface area is 2.2  $\text{m}^2$  correct your answer above for body surface area. [10]
- e) What other GFR equation is more accurate when compared with the Cockcroft Gault equation? [2]

**TOTAL= 25 MARKS**

## QUESTION 2

**Scenario:** Mr Mathonsi is a 65-year-old pensioner who has been hypertensive for the past 20 years with good BP control. He developed a recurrent urinary tract infection over the past 6 months and E. coli was isolated and treated. He is sent to casualty with severe low abdominal pain and has not been able to pass urine for the whole day. On examination he is found to be drowsy and vomited during the evaluation. His BP 90/45 mmHg and has a fever of 38°C. Urgent blood tests reveal a creatinine of 600  $\mu\text{mol/L}$ , Urea of 28  $\text{mmol/L}$  and potassium of 5.2  $\text{mmol/L}$ .

The nurse in casualty asks for your advice.

- a) What is the accepted definition of acute kidney injury? [3]
- b) What is the most likely cause of AKI in this patient [2]

c) Discuss the indications for urgent dialysis in AKI and which are applicable to this case? [4]

d) Discuss the action points that you would recommend for this patient in preparation for dialysis? [6]

e) AVF was constructed on the radio-cephalic, on the left wrist because he is right dominant. He came for haemodialysis via his new AVF, completed successfully. He however is unable to achieve haemostasis and reports feeling weak and dizzy. You notice that his linen is soaked in blood.

Discuss your emergency management of Mr. Mathonsi [10]

**TOTAL 25 MARKS**

### QUESTION 3

**Scenario:** A 75-year-old female has been on haemodialysis for the past 16 years via a right aneurysmal brachiocephalic arteriovenous fistula. She has a background of diabetes mellitus and hypertension for the past 25 years. Her insulin dose has been gradually reduced and was eventually put off insulin for the preceding 6 months. Her Blood pressure has been well controlled on a single antihypertensive agent. She develops nausea and vomiting after a meal intra-dialysis. Her BP is 85/40mmHg from a baseline BP of 124/82mmHg. Temperature is 37°C and heart rate of 101/min. her blood sugar is 2.3 mmol/L.

a) Explain why insulin requirements are reduced in end stage kidney disease?

[2]

b) Explain the definition of intradialytic hypotension (IDH) and the dangers associated with it [3]

c) Discuss the possible causes of IDH and which are applicable to this patient?

[5]

d) Discuss how you will manage this patient [5]

e) What problems do you foresee with regard to his future vascular access [10]

**TOTAL= 25 MARKS**