UNIVERSITY OF ESWATINI

FACULTY OF HEALTH SCIENCES

FINAL EXAMINATION DECEMBER 2018

TITLE OF COURSE: HAEMODIALYSIS THERAPY

COURSE CODE: GNS 475

TIME ALLOWED: TWO (2) HOURS

PAGES: 7 INCLUDING COVER PAGE

MARKS: 75

INSTRUCTIONS:

1. ASSURE 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 FIVE (5) QUESTIONS.
3. START EACH QUESTION ON A NEW PAGE.
4. WRITE LEGIBLY

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QUESTION 1

SECTION: A

INSTRUCTIONS: For the following questions or statements select the most correct response. In your answer sheet write the letter that corresponds with the most correct response e.g. 1.C

1. Which of the following kidney functions is not replaced by the artificial kidney?
    A. Acid-base regulation
    B. Waste product removal
    C. RBC production
    D. Reduction of blood pressure.

2. The principle underlying waste product removal in haemodialysis is
    A. Osmotic pressure
    B. Hydrostatic pressure
    C. Filtration
    D. Diffusion

3. Substances removed from the blood by haemodialysis, other than urea and creatinine include excess
    A. Carbohydrates
    B. Proteins
    C. Acetate
    D. Potassium

4. A substance that is commonly used to create pressure is
    A. Glucose
    B. Potassium
    C. Phosphate
    D. Calcium

5. All of the following factors should be considered when choosing an appropriate dialyser, EXCEPT
    A. Clearance
    B. Resistant to flow
    C. Dialysate composition
    D. Priming volume.

6. When fluid replacement is necessary during dialysis, which of the following solution is often used
    A. 0.45% saline
    B. 0.9% saline
    C. 5% dextrose in water
    D. 5% dextrose in normal saline

7. A system of water treatment that removes pyrogens as well as solutes is called
    A. Gross filtration
    B. Reverse osmosis
    C. Deionization
    D. Softening

8. The primary function of a proportioning pump in a dialysis delivery system is to
    A. Reduce the pressure of the water inflow from the tape
    B. Deionize the concentrate and the dialysate
    C. Separate the air from the dialysate before it reaches the bubble trap
    D. Measure and mix the water and concentrate to form the dialysate.

9. The nurse attaches an air bubble monitor in order to detects the presence of air in the:
    A. Heparin line
    B. Dialysate line
    C. Venous line
    D. Concentrate line

SECTION B

INSTRUCTIONS: Match the terms in column A with the appropriate definition in column B. Each definition in column B can be used only once. In your answer sheet write the letter corresponding with the correct definition, e.g. 1. E

COLUMN A	COLUMN B
10. Diffusion	A. Movement of water molecule through a membrane from an area of lower concentration of solute to an area of a greater concentration of solute.
11. Osmosis	B. The passage of a solvent through a filter because of a difference in pressure.
12. Filtration	C. Process by which dissolved solute particles, ions, and molecules become evenly distributed throughout a solution
	D. The passage of a solute through a membrane which is exposed to water.

(12 marks)

SECTION C

INSTRUCTIONS: For the following questions or statements fill in the missing concept or word. In your answer sheet write the letter that corresponds with the most correct response e.g. 1. kidney

13. A complication resulting from diabetes mellitus is _____ which affects the kidneys eventually causing_____.

14. Glomerulosclerosis is _____.

15. _____" hardening of the kidney" is a complication affecting the kidneys that results from hypertension.

16. People with "hardening of the kidney", present with the following conditions:

_____

_____

_____

17. There are _____ main types of glomerulonephritis which is diagnosed through a renal _____.
18. Glomerulonephritis is an inflammation of the glomerulus leading to an impairment of renal function partly due to the formation of _____ complexes.
19. Patients with glomerular diseases present with abnormalities in the _____ , such as proteinuria.
20. The most common type of glomerulonephritis is called _____.
21. _____ is when the body develops an autoimmune response to the glomerular basement membrane.

(13 marks)

(TOTAL = 25 MARKS)

QUESTION 2

A. Mrs Nhleko 48years diabetic mellitus patient was on haemodialysis treatment for the last 5 years. She is overweight and has serum cholesterol of 6mmol/l. her daily activities consist of running a care centre for small children. She also established a vegetable garden in which she does most of the gardening herself.
Discuss the specific points of emphasis in evaluating Mrs Nhleko as diabetic patient, for a possible renal transplant. (5)

B. Mrs Dlamini, 65 years old, is the patient in a pre-dialysis stage and has attended the outpatient clinic since July 2014. She has been diagnosed with insulin dependent diabetes mellitus and hypertension, and presents with the following:

-poor eyesight;

-poor blood flow in both lower arms and signs of diminished blood supply to the hands;

- orthostatic hypotension;
- vomiting following meals;
- frequent cystitis

C. Mrs Dlamini is also treated with the following medication, due to hypertension.

- Hypoten (beta adrenergic blocker)
- Zestril (ACE inhibitor)
- Norvasc (Ca. channel blocker)

(i) Describe the pharmacological actions of each of the above. (3)

(ii) Mrs Dlamini suffers also from painful arthritis for which she is taking brufen, a non-steroidal anti-inflammatory drug (NSAID) over a long period of time. What effect will the prolonged of NSAID have on her kidney function? (2)

D. Hypertension and post streptococcal glomerulonephritis are the most common cause of end stage renal failure in Eswatini. Describe the reason why this situation exists in our country. (5)

(TOTAL = 25 MARKS)

Question 3

B. Mr. Khumalo is admitted to the intensive care unit with acute tubular necrosis due to traditional medicine over dose. His family indicated that he had vomiting and diarrhoea for about 4 days. He presents with the following:

- Urinary output: 500ml/day -- comatose
- Calcium: 2.01 mmol/l -magnesium: 138mmol/l
- Phosphate: 3.87mml/l -albumin: 40g/l
- Sodium: 1.28mml/l -potassium: 9.4mmol/l
- Co2: 10.4mmol/l - urea: 50.7mmol/l
- Creatinine: 902umol/l - blood pressure 160/100

(i) Discuss the reasons for these metabolic changes, (5)

(ii) You are going to dialyse Mr Khumalo. Why would you be concerned about possible disequilibrium syndrome and how will you prevent it? (5)

C. Mr Hlophe is on dialysis using a subclavian catheter,

- He is Hepatitis B positive,
- receiving 7000iu of heparin during dialysis, a bolus of 4000iu and receiving 1000iu every hour - but still show clots in the dialyser,
- poor flow,
- weight gain between dialysis is 3-3.5kg,
- dialyser fx 800

(i) Describe the factors you would take into account when choosing the right dialyser for the patient. (5)

(ii) Using a subclavian catheter for dialysis has complication. What observations would you do when evaluating the functional status of this catheter and also describe the measures you will take to prevent infection. (5)

(iii) The doctor prescribes clexane 40mg for anticoagulation. How does clexane differ from heparin in structure and anticoagulation effect? (5)

(TOTAL = 25 MARKS)