

CANDIDATE NUMBER.....



AFRICA
UNIVERSITY
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**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL
SCIENCES**
DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

NSLS103: CLINICAL PATHOLOGY

END OF SECOND SEMESTER FINAL EXAMINATIONS

APRIL/MAY 2022

LECTURER: MR G. MALUNGA

19 APRIL 2022 0900 HRS

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
2. Answer **all** questions in sections A on the question paper.
3. Answer **all** questions in section B on separate answer sheets provided.
4. Answer any **3** questions in section C on separate answer sheets provided
5. The mark allocation for each question is indicated at the end of the question
6. Credit will be given for logical, systematic and neat presentations in sections B and C

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SECTION A : MULTIPLE CHOICE [40 MARKS]

- Answer all questions by encircling the correct response T for TRUE or F for FALSE for each statement in all the questions
- Each correct response is allocated half mark

- The following affect levels of Calcium

T	F	a) Hepatitis
T	F	b) Bilirubin
T	F	c) pH
T	F	d) Calcitriol
- A nephron consists of the

T	F	a) Cortex
T	F	b) Glomerular membrane
T	F	c) Distal convoluted tubule
T	F	d) Proximal convoluted tubule
- Serum urea levels can be affected by

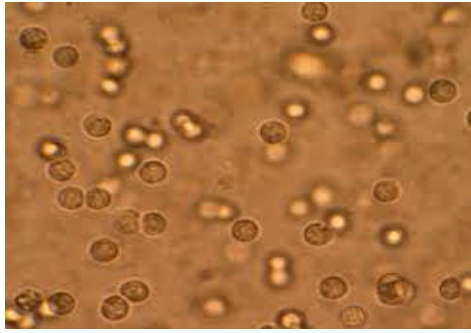
T	F	a) Dietary protein levels
T	F	b) Liver disease
T	F	c) Renal insufficiency
T	F	d) Glomerular membrane damage
- A renal tubule can secrete

T	F	a) H^+
T	F	b) HCO_3^-
T	F	c) K^+
T	F	d) Ca^{2+}
- Acute renal failure can be diagnosed by the following test/s

T	F	a) Serum creatinine
T	F	b) Glomerular Filtration Rate
T	F	c) Urine protein
T	F	d) Urine osmolarity
- A urine dipstick detects the following

T	F	a) Specific gravity
T	F	b) Blood
T	F	c) Urine crystals
T	F	d) pH

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7.

Fig 1

The diagram in Fig 1 shows

- T F a) White Blood Cells
 T F b) Epithelial cells
 T F c) Red Blood Cells
 T F d) Bacteria
8. Which electrolyte/s exist in large quantities in the intracellular fluid
- T F a) Na^+
 T F b) HCO_3^-
 T F c) K^+
 T F d) Cl^-
9. Hyponatremia can be caused by
- T F a) Excessive sweating
 T F b) Acute alcoholism
 T F c) Vomiting
 T F d) Burns
10. The following are biochemical features of hepatitis
- T F a) Normal urobilinogen
 T F b) Elevated ALT
 T F c) Low GGT
 T F d) Highly elevated albumin
11. The measurement of the following analyte/s is **greatly** affected by haemolysis
- T F a) K^+
 T F b) HCO_3^-
 T F c) Urea
 T F d) Cl^-
12. The following hormones regulate acid – base status of the blood
- T F a) Antidiuretic hormone
 T F b) Renin
 T F c) Cortisol
 T F d) Insulin

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13. Carbon dioxide is transported in the blood in the following way/s
- | | | |
|---|---|------------------------------------|
| T | F | a) gaseous form |
| T | F | b) dissolved in the plasma |
| T | F | c) bound to haemoglobin |
| T | F | d) in the form of HCO_3^- |
14. Samples for blood gas analysis
- | | | |
|---|---|---|
| T | F | a) Must be collected in blood tubes containing an anticoagulant |
| T | F | b) Can be collected from veins |
| T | F | c) Must be sent to the laboratory on ice |
| T | F | d) Must be centrifuged before analysis |
15. The following refers to CSF composition
- | | | |
|---|---|---|
| T | F | a) Low molecular weight plasma proteins don't appear in CSF |
| T | F | b) Sodium and chloride are not present in CSF |
| T | F | c) It is normal to get occasional RBCs and WBCs in CSF |
| T | F | d) Levels of protein and glucose in CSF are higher than in plasma |
16. Meningitis
- | | | |
|---|---|--|
| T | F | a) Is only caused by <i>Cryptococcus Neoformans</i> |
| T | F | b) Is an opportunistic infection |
| T | F | c) Can be as a result of a complication of late syphilis |
| T | F | d) Causes a stiff neck |
17. Clinical conditions which may be associated with ascites are
- | | | |
|---|---|---|
| T | F | a) Leakage of fluid into the peritoneal cavity |
| T | F | b) Increased permeability of peritoneal capillaries |
| T | F | c) Tuberculosis |
| T | F | d) Hepatocellular carcinoma |
18. Laboratory tests of iron status include
- | | | |
|---|---|----------------|
| T | F | a) TIBC |
| T | F | b) Transferrin |
| T | F | c) Ferritin |
| T | F | d) Hepcidin |
19. Fat soluble Vitamins include
- | | | |
|---|---|--------------|
| T | F | a) Vitamin D |
| T | F | b) Vitamin K |
| T | F | c) Vitamin B |
| T | F | d) Vitamin C |
20. Hyperphosphataemia can be caused by
- | | | |
|---|---|---------------------------|
| T | F | a) Vitamin D intoxication |
| T | F | b) Rhabdomyolysis |
| T | F | c) Alcoholism |
| T | F | d) Fanconi's syndrome |

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SECTION B [20 MARKS]**Answer all questions on separate answer sheets provided**

1. What is the importance of measuring proteins in urine? [5]
2. a). Define
 - (i) osmolality
 - (ii) osmolar gap
- b). How can osmolality be calculated? [5]
3. What are the differences between transudative and exudative pleural effusions. [5]
4. What is the clinical significance of Liver Function Tests? [5]

SECTION C [75 marks]**Answer any 3 questions from this section on separate answer sheets provided**

1. Describe how urine is formed in the kidneys . [25]
2. Describe the laboratory measurement of Calcium. [25]
3. Explain how blood pH is maintained in the body. [25]
4. Give an overview of hormonal regulation. [25]
5. Discuss the laboratory assessment of cerebrospinal fluid. [25]