CANDIDATE NUMBER.....

"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF HEALTH SCIENCES

NSLS103: CLINICAL PATHOLOGY

END OF SEMESTER FINAL EXAMINATIONS

NOVEMBER 2019

LECTURER: MR G. MALUNGA

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 [40MARKS]

- **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**

1. The following refers to lipoproteins
   - T F a) HDL Cholesterol is also known as bad cholesterol
   - T F b) LDL cholesterol is rich in triglycerides
   - T F c) Both HDL and LDL contain apolipoprotein B100
   - T F d) Chylomicrons are mainly synthesized in the liver

2. Kidneys produce the following hormones
   - T F a) Renin
   - T F b) Erythropoietin
   - T F c) Prostaglandin
   - T F d) Antidiuretic hormone

3. Blood 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

4. The following are positive acute phase proteins
   - T F a) α1 antitrypsin
   - T F b) Haptoglobulin
   - T F c) Transferrin
   - T F d) Ceruloplasmin

5. Plasma proteins can be detected by the following method/s
   - T F a) Immunoelectrophoresis
   - T F b) Spectrophotometry
   - T F c) Microscopy
   - T F d) ELISA

6. A urine dipstick detects the following
   - T F a) Leucocytes
   - T F b) Blood
   - T F c) Urine casts
   - T F d) Nitrite

7. The diagram in Fig 1 shows

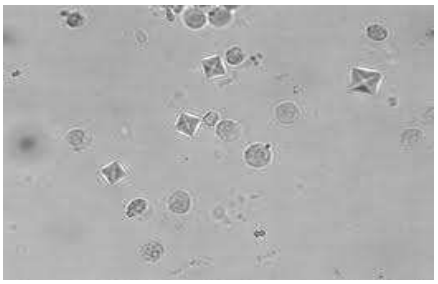

Fig 1

T F a) White Blood Cells
T F b) Calcium Oxalates
T F c) Granular Casts
T F d) *S. haematobium* ova

8. A common lipid profile consists of
T F a) Triglycerides
T F b) Total cholesterol
T F c) LDLc
T F d) IDLc

9. The following refers to electrolytes
T F a) Na^+ is the major extracellular cation
T F b) Cl^- exists in equal amounts both in ECF and ICF
T F c) K^+ is the major intracellular cation
T F d) HCO_3^- is an extracellular ion

10. Risk factors associated with coronary artery disease include
T F a) ↑Triglycerides
T F b) ↓HDLc
T F c) ↓VLDLc
T F d) ↑LDLc

11. Levels of serum calcium can be affected
T F a) Vitamin D
T F b) Calcitonin
T F c) Liver disease
T F d) Blood pH

12. The following refers to blood gases
T F a) Some of the CO_2 is transported in gaseous state in the blood
T F b) O_2 is transported bound to haemoglobin in the blood
T F c) Some of the oxygen is carried dissolved in plasma
T F d) CO_2 is transported in the form of HCO_3^-

13. Hypokalaemia can be caused by
    - T F a) Excess insulin
    - T F b) Hepatic disease
    - T F c) Acute alcoholism
    - T F d) Haemolysis

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 laboratory processes are done on a CSF sample
    - T F a) ZN staining
    - T F b) Urea and protein measurement
    - T F c) WBC and RBC counts
    - T F d) Geimsa staining

16. The biochemical analyte/s which is/are commonly measured in pericardial fluid, ascitic fluid and pleural fluid is/are
    - T F a) Chloride
    - T F b) Protein
    - T F c) LDH
    - T F d) Glucose

17. A transudative body fluid has the following laboratory findings
    - T F a) High specific gravity
    - T F b) High WBC
    - T F c) Low RBC
    - T F d) A cloudy appearance

18. The following are water soluble vitamins
    - T F a) Vitamin B
    - T F b) Vitamin D
    - T F c) Vitamin C
    - T F d) Vitamin K

19. Enzymes
    - T F a) lower E_a for chemical reactions
    - T F b) with a lower K_m have a higher substrate affinity
    - T F c) can be separated into isoenzymes through electrophoresis
    - T F d) efficiency can be affected by its V_{max}

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20. The following enzymes are cardiac markers

T	F	a) CK_{MB}
T	F	b) AST
T	F	c) LDH
T	F	d) CK_{MM}

SECTION B: [20 MARKS]

Answer all questions on separate answer sheets provided

1. State any 5 laboratory findings associated with Multiple Myeloma. [5]
2. State any 5 functions of electrolytes in the body. [5]
3. List any 5 functions of essential lipids in the body. [5]
4. Name any 5 aspirates which can be analyzed in a clinical laboratory. [5]

SECTION C [75 marks]

Answer any 3 questions from this section on separate answer sheets provided

1. Give a detailed account of the structure and functions of chylomicrons, VLDL, LDL, IDL and HDL. [25]
2. How are electrolytes regulated in the human body. [25]
3. Describe how a CSF sample is processed in a clinical laboratory. [25]
4. Write a detailed account of calcium and phosphate regulation in the body. [25]
5. Describe how proteins can be detected or measured in a clinical laboratory.[25]