Candidate number.....

AFRICA UNIVERSITY
A United Methodist-Related Institution

"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

NSLS103: CLINICAL PATHOLOGY

END OF SEMESTER FINAL EXAMINATIONS

NOVEMBER 2022

LECTURER: MRS R. CHIRIMO

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. 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 [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**

1. The following hormones are produced by the kidneys:

T F a) Renin

T F b) Erythropoietin

T F c) Prostaglandin

T F d) Antidiuretic hormone

2. The causes of adrenal gland disorders include:

T F a) genetic mutations

T F b) tumors

T F c) infections

T F d) a problem in another gland such as the pituitary

3. Lower than normal levels of uric acid may be due to :

T F a) Syndrome of inappropriate antidiuretic hormone (SIADH) secretion

T F b) renal failure

T F c) Wilson s disase

T F d) low purine diet

4. . 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

5. The following are involved in electrolyte regulation

T F a) Parathyroid hormone

T F b) Calcitonin

T F c) Calcitriol

T F d) aldosterone

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6. The liver

T F a) is a storage site for vitamin K

T F b) is the site of synthesis of immunoglobulins

T F c) is the site of synthesis of fibrinogen

T F d) synthesises urea

7. Match the hormone with the appropriate secretion site:

a. posterior lobe of the pituitary

b. anterior hypophysis

c. thyroid gland

d. hypothalamus

1. antidiuretic hormone 2. Corticotropin 3. Oxytocin 4. Cortisol

a_____ b_____ c_____ d_____

8. Calcium is involved in:

T F a) skeletal mineralisation

T F b) maintenance of osmotic pressure

T F c) muscle contraction

T F d) protein digestion

9. When a large amounts of water is consumed:

T F a) the ECF becomes hypertonic to the ICF

T F b) the volume of ICF will increase due to osmosis

T F c) the volume of the ECF will decrease

T F a) a fluid shift occurs and the volume of the ICF decreases

10. Concerning pathological jaundice in neonates:

T F a) the major cause is shortened red blood cell lifespan in the neonate

T F b) kenictreus commonly occurs when total bilirubin exceeds 350umol/l

T F c) usually starts before 24 hours

T F d) it is an evidence of an underlying condition

11. A urine dipstick detects the following

T F a) Leucocytes

T F b) Blood

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T F c) Urine casts

T F d) Nitrite

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. 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

15. The following methods may be used for measurement of serum and plasma calcium

T F (a) arsenazo 111

T F (b) atomic emission spectrophotometry

T F (c) flame photometry

T F (d) ion selective electrode

T F (e) diacetyl monoxime method

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

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17. 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

18. A transudate has the following properties:

T F a) usually cloudy in appearance

T F b) has a total protein less than 30g/l

T F c) low red blood cell count

T F d)usually due to a systemic disorder

19. In metabolic acidosis there is :

T F a) decrease in the blood pH caused by a decrease in the bicarbonate concentration.

T F b) decrease in the bicarbonate concentration due to accumulation of hydrogen

T F c) there is an increase in the bicarbonate concentration

T F d) there is always an increase in the pCO_2

20. In severe alcoholic liver disease

T F a) AST is elevated

T F b) ALT/AST ratio is less than 1

T F c) GGT may be normal

T F d)liver transaminases continue to be normal

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SECTION B [20 Marks]
Answer ALL questions on separate answer sheets

1. Write short notes on urea as a renal function test (5)
2. List the causes of pre-hepatic jaundice (5)
3. State any five (5) body aspirates that may be analysed in the laboratory (5)
4. State the acid –base imbalances that may occur in the human body (5)

SECTION C [75 Marks]

Answer any THREE questions on separate answer sheets

1. Write a detailed account of calcium and phosphate regulation in the body. [25]
2. Outline urine formation in the body (25)
3. Write a detailed account on the role and regulation of electrolytes in the body [25]
4. Discuss hormonal regulation using examples [25]
5. Discuss the methods for measuring serum creatinine in a clinical laboratory [25]