"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS DEGREE

NSLS403: CHEMICAL PATHOLOGY

END OF SEMESTER FINAL EXAMINATIONS

LECTURER: MR G. MALUNGA

2 June 2021 0900 hrs

DURATION: 7 HOURS

INSTRUCTIONS

1. Write your candidate number on your answer sheets.
2. Answer any **one** question of your choice.
3. Marks for each question are indicated in brackets at the end of the question.
4. Each full question carries 100 marks
5. Submit your answer script as a PDF.
6. Use the following specifications in your answer scripts:
   Font: Times New Roman
   Font size: 12
   Line spacing: 2.0
7. Credit will be given for logical, systematic and neat presentations.

Answer any ONE question

Question 1

A 65-year old woman presented to a clinic in a coma. On examination, she was noted to be jaundiced and her body mass index was high. Her husband said that she was on second line antiretroviral therapy. She had begun to pass out watery stools the previous day. Blood samples were taken for emergency investigations and the results are shown in Table 1.

Table 1: Serum results for the woman

Test	Result	Reference Ranges
Na^+	122 mmol/l	135-145
K^+	5.5 mmol/l	3.5-5.0
Cl^-	85 mmol/l	98-107
Urea	58 mmol/l	1.7-6.7
Creatinine	120 µmol/	50-100
HCO_3-	29 mmol/l	22 – 29
pCO_2	6.8 kPa	4.5 – 6.1
pH	7.23	7.35 – 7.45
Triglycerides	3.6 mmol/l	0.61-2.90
Total Cholesterol	8.6 mmol/l	4.30-7.50
Albumin	18 g/l	35-50
Total Protein	95 g/l	60-80
Total Bilirubin	345 µmol/l	0 - 21
Direct Bilirubin	290 µmol/l	0 - 10
ALT	210 U/l	1 - 41
AST	150 U/l	1 - 35
ALP	445 U/l	39 -117
Glucose	2.8 mmol/l	3.9-5.6

a) Give a detailed analysis of all the biochemical findings. [40]

b) What is the probable diagnosis of this woman? Support your answer. [10]

c) Explain the other diagnostic laboratory tests which can be carried out to have a definite diagnosis. [30]

d) Discuss the main approaches to clinical management of this patient. [20]

Question 2

Discuss the pathophysiology and laboratory diagnosis of the following conditions.

a) Metabolic alkalosis [30]

b) Dyslipidemia [40]

c) Hepatitis [30]

Question 3

a) Give an overview of laboratory investigation of dyslipidaemia. [50]

b) Explain the role of kidneys in acid-base balance in the body. [50]

The End