



"Investing in Africa's Future"

**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL
SCIENCES**

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

NSLS104: CLINICAL PATHOLOGY PRACTICAL

END OF SEMESTER FINAL EXAMINATIONS

APRIL 2023

LECTURER: MRS R. CHIRIMO

DURATION: 3 HOURS

INSTRUCTIONS

Answer **all** questions on separate answer sheets provided.

Mark allocation for each question is indicated in brackets at the end of the question

Credit will be given for logical, systematic and neat presentations

Answer all questions

Question 1

You are provided with urine **M** from a 60 - year old man complaining of painful and frequent urination. Carry out urinalysis for the sample using the following procedure:

Procedure

- i. Mix it thoroughly by swirling the specimen container and then pour it into a conical centrifuge tube to about two thirds full.
- ii. Dip a urine reagent strip into the urine and record the biochemical findings on the provided result template.
- iii. Centrifuge the urine in a centrifuge at 2500 rpm for 5 minutes.
- iv. Decant the supernatant completely.
- v. Resuspend the sediment by tapping the bottom of the tube and transfer one drop of the urine onto a microscope glass slide and cover with a cover slip.
- vi. Examine the wet preparation using a microscope starting with the 10X objective and then move on to the 40X objective.
- vii. Record your findings using the 40 X objective lens, on the result template on the next page

RESULTS

a) Urine appearance..... [1]

b) URINE CHEMISTRY

Leucocytes.....

Nitrite.....

Urobilinogen.....

Protein.....

pH.....

Blood.....

Specific gravity.....

Ketones.....

Bilirubin.....

Glucose.....

MICROSCOPY

WBC.....

RBC.....

Epithelial cells.....

Yeasts.....

Casts.....

Crystals.....

S. haematobium.....

Other

(20)

c) What possible diagnosis can you make from these results. Support your answer (3)

d) What further tests may be performed on this sample to confirm your diagnosis? (2)

Question 2

A woman who is about 7 months pregnant and is complaining of polyuria and a dry mouth visits an Antenatal Clinic and was asked to produce a random urine sample for glucose measurement. You are required to determine the amount of glucose in the urine sample labeled **Z** from the woman using the following procedure.

Urine glucose determination procedure

1. You are provided with 3 glucose standards which you are going to use for the approximation of glucose concentration in your urine sample. The standards have the following glucose concentrations.

STANDARD	[GLUCOSE]
1	0.0 mmol/l
2	28 mmol/l
3	56 mmol/l

2. Take 4 boiling test tubes and label them standard 1 to 3 and then **Z** for the 4th one.
3. Pour 2.5ml of Benedict's reagent into each of the 4 test tubes.
4. Add 0.2ml of glucose standard 1 to test tube labeled standard 1. Repeat the procedure for all the other standards and mix thoroughly.
5. Add 0.2ml of urine to the test tube labeled **Z** and mix thoroughly.
6. Place the tubes in boiling water for 5 minutes.
7. Remove the tubes from the boiling water and examine the solutions in each tube for colour changes. Use the colours in the 3 standards to report the glucose concentration in the urine by using the concentrations in the table above.

Questions

- a) Write the concentration of glucose in urine **Z**. [15]
- b) What is the importance of determining urine glucose concentration in pregnant women. [2]
- c) Is this method ideal for determination of glucose concentration in urine? Explain your answer. [3]

TOTAL MARKS: 20