*"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**

**NSLS 203 HAEMATOLOGY I PRACTICAL**

**END OF FIRST SEMESTER EXAMINATIONS**

**NOVEMBER 2022**

**LECTURER: Mr T. Marembo**

**DURATION: 3 HOURS**

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## *INSTRUCTIONS*

1. **Do not write your name on the answer sheet**
2. **Use Answer Sheets Provided**
3. **Answer all questions in Section A and B**

## SECTION A (25MARKS)

1. Determine the reticulocyte count for the patient labeled R. **(15marks)**

**RETICULOCYTE COUNT**

Procedure

i) Mix equal amounts of blood and new methylene blue stain (2-3 drops or 50µl each), allow and allow to incubate at room temperature for 20 minutes or 10 to 15 minutes at 35-37$^0$ C. (Double the amount of blood if the patient is severely anemic)

ii) Remix the preparation.

iii) Prepare a wedge smear (thin smear)

iv) In an area in which cells are close together but not touching, count 1000 red blood cells(RBCs) under oil –immersion objective lens. Reticulocytes are included in the total RBC count, noting the RBCs that are reticulocytes (count consecutive fields).

v) To improve the accuracy, have another laboratorian count the other smear or perform the counting process twice; the values should agree within 20%.

vi) Calculate the reticulocyte count: number of reticulocytes/1000 RBCs observed x100= percentage reticulocytes.

2. What is the reticulocyte count reference range? **(5marks)**
3. Name two major sources of error commonly encountered when performing reticulocyte count**(2marks)**
4. **Raised** reticulocyte counts are found in/following----------**(3marks)**

**SECTION B SPOT QUESTIONS (TOTAL MARKS 25)**

1. Comment on the blood samples labeled A, B & C **(6marks)**
2. Identify the blood cell with a nucleus in the peripheral blood smear labeled Fig 2 **(3marks)**
3. Identify the white blood cell in the peripheral blood smear labeled Fig 3 **(3marks)**
4. Using about 3 to 4 words, or not more than two sentences, comment on the peripheral blood film labeled Fig 4. Note: don't do the differential count **(6marks)**
5. Identify the equipment labeled Fig 5 **(2marks)**
6. What is the instrument labeled Fig 6 used for in haematology **(2marks)**
7. What is the instrument labeled Fig 6 used for in haematology **(3marks)**