AFRICA UNIVERSITY
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COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

SLS 203 HAEMATOLOGY I PRACTICAL FINAL

END OF SECOND SEMESTER EXAMINATIONS

APRIL/MAY 2019

LECTURER: P NAGO

DURATION: 3 HOURS

INSTRUCTIONS

Do not write your name on the answer sheet

Use Answer Sheets Provided

Begin your answer for Each Question on a New Page

Credit is Given for Neat Presentation

SECTION A

Kudzi, policeman by profession, presented at Mahenye rural hospital. Her doctor examined her & confirmed that she was pregnant & was in the first trimester, hence the doctor ordered for all the baseline tests to be done. Because Kudzi was complaining of fatigue & seemed pale, the doctor needed to know Kudzi's haemoglobin level.

a. Determine Kudzi's haemoglobin level using the cyanmethaemoglobin method. **(30marks)**

PROCEDURE (Haemiglobincyanide (cyanmethaemoglobin) (HiCN) method

Preparing a calibration graph- Haemoglobin standard is given

1. Take 6 tubes & label them B (Blank), 1, 2, 3, 4, 5 as shown in table 1, below.
2. Pipette into each of the tubes as follows:

Table 1						
Tube	B	1	2	3	4	5
1in 201 diluted HiCN standard	-	4	3	2	1	5
Drabkin's fluid	5	1	2	3	4	-

3. Stopper each tube & mix.
4. Place a yellow –green filter in the colorimeter or set the wavelength to read 540nm.
5. Zero the colorimeter with Drabkin's neutral diluting fluid.
6. Read the absorbance of each standard beginning with the lowest.
7. Calculate the haemoglobin equivalent in g/dl of solutions in tubes 1 to 5 as follows:

Tube 1: Hb value of HiCN standard* x 4/5 =……..g/dl

- **(value of the given HiCN standard)***

Tube 2: Hb value of HiCN standard x 3/5 =……..g/dl

Tube 3: Hb value of HiCN standard x 2/5 =……..g/dl

Tube 4: Hb value of HiCN standard x 1/5 =……..g/dl

Tube 5: Hb value of undiluted HiCN standard =……..g/dl

8. Take the graph paper & plot the absorbance of each standard (vertical axis) against its concentration in g/dl(horizontal axis)
9. Draw a straight line from zero through the points plotted. Extend the line to get readings up to 20g/dl
10. From the graph , make a table for Hb values from 2 to 20 g/dl

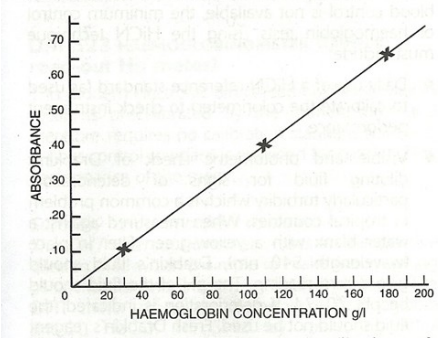

FIG. A: Example of a HiCN haemoglobin calibration graph using commercially made HiCN standards: 110,5g/l, 30.0g/l, & 180.0g/l

HiCN Test Method

1. Measure carefully 20µl (0.02ml) of capillary blood or well mixed venous blood & dispense into 4ml Drabkin's neutral diluting fluid.

2. Stopper the tube, mix, & leave the diluted blood at room temperature, for 4 to 5minutes. This is the adequate time for conversion of haemoglobin to HiCN when using a neutral (pH 7.0-7.4) Drabkin's reagent & Up to 20 minutes when using an alkaline Drabkin's reagent.

3. Place a yellow –green filter in the colorimeter or set the wavelength to read 540nm.

4. Zero the colorimeter with Drabkin's neutral diluting fluid & read the absorbance of the sample.

5. Using prepared calibration graph, read off the patient's sample Hb value

6. Submit the raw data, thus the used/filled-in calibration graph.

SECTION B SPOT QUESTIONS

i) Fig 1 is a symbol for ……2marks
ii) Identify the instrument labeled Fig 2 (2marks)
iii) Identify the white blood cell in the peripheral blood smear labeled Fig 3 (3marks)
iv) Identify the instrument labeled Fig 4 (2marks)
v) What is the reagent in the bottle labeled Fig 5 used for (3marks)
vi) What is the reagent in the container labeled in Fig 6 used for (3marks)
vii) Comment on the preparation of the peripheral blood film labeled Fig 7(2marks)
viii) Comment on the platelet count in the oil field as set on microscope Fig 8 (3marks)