AFRICA UNIVERSITY
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COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

HAEMATOLOGY EXAM PRACTICAL

LECTURER: Prof. Emmanuel Obeagu

DATE: NOVEMBER 2024

DURATION: 3 HOURS

INSTRUCTIONS

1. Answer **all** questions.
2. Mark allocation for each question is indicated at the end of the question.
3. Credit will be given for logical, systematic and neat presentations.

Answer ALL questions

Question 1

a) Using the Westergren erythrocyte sedimentation rate (ESR) procedure given below, measure the ESR of the sample labelled 1A. Record the ESR value and give the normal range (20 marks)
b) List 5 sources of error that must be guarded against when performing this test (5 marks)
c) Name disease states that can be associated with a high ESR (5 marks)

Westergren erythrocyte sedimentation rate procedure

1. Pipette 0.4 ml of sodium citrate anticoagulant into a container
2. Add 1.6 ml of EDTA anticoagulated blood and mix well before pouring into an ESR cup
3. Fill the Westergren pipette with the thoroughly mixed citrated blood and adjust to the zero mark
4. Place the pipette vertically onto the rack and leave to stand for sixty minutes

Question 2

Various blood cells are found in the peripheral circulation of the human body. The cells can be seen under the microscope when stained by appropriate haematology stains.

(a) Discuss the principle of reticulocyte count technique commonly used in the laboratory and describe in detail how reticulocyte count is carried out. (30 marks)
(b) Estimate the reticulocyte count on slide labelled 2A(10 marks)
(c) What is the usefulness of the reticulocytes count in patient with anaemia? (5 marks)
(d) When do you expect the reticulocyte to be high or low in (5 marks)

i. Iron deficiency anaemia?
ii. Aplastic anaemia?
iii. Autoimmune haemolytic anaemia?
iv. Hypersplenism?
v. Bone marrow infiltration?

Question 3: Using the procedure provided below answer the following questions

Procedure for the question

1. Prewarm reagents and patient sample specimens to 37℃ prior to performing this test.
2. Pippet 100ul of Citrated plasma into a labeled 12X75mm test tube.
3. Add 100ul of R1 to the test tube.
4. Mix and incubate for five minutes at 37℃.

5. Add 100ul of R2 to the test tube.
6. On addition of R2 start stop watch simultaneously.
7. Mix and determine coagulation time by tilting tube back and forth (checking for clot formation)
8. Stop stopwatch as soon as clot forms
9. Record and report results.

Questions:

a. Using the method provided demonstrate fibrin clot formation then answer the following questions (10)
b. State the principle of this test and which coagulation pathway is measured (5)
c. State and discuss the results obtained using this method (5)

THE END

TOTAL 100 MARKS