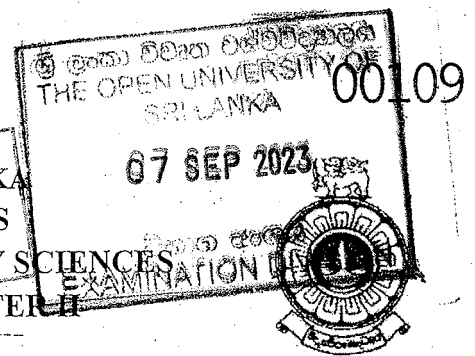


THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF MEDICAL LABORATORY SCIENCES
ACADEMIC YEAR 2022/2023 – SEMESTER II



BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS
MDU5401 – ADVANCED HAEMATOLOGY
FINAL EXAMINATION

DURATION: 03 HOURS

DATE: 07th SEPTEMBER 2023

TIME: 1.30 PM – 4.30 PM

INDEX NO:

Part B: Short Answer Question (40 marks)

Question 01

1.1 Define the term antiphospholipid syndrome. (02 marks)

.....

.....

.....

1.2 State two (02) common antiphospholipid antibodies. (02 marks)

1.....

2.....

1.3 Write the laboratory findings you would expect for the following investigations for a patient with antiphospholipid syndrome. (04 marks)

Investigation	Result
Activated Partial Thromboplastin Time (APTT)	
Platelet count	
Direct antiglobulin Test (DAT)	
Anti-Nuclear Antibody (ANA)	

1.4 Name two (02) tests that can be used for the confirmation of antiphospholipid syndrome. (02 marks)

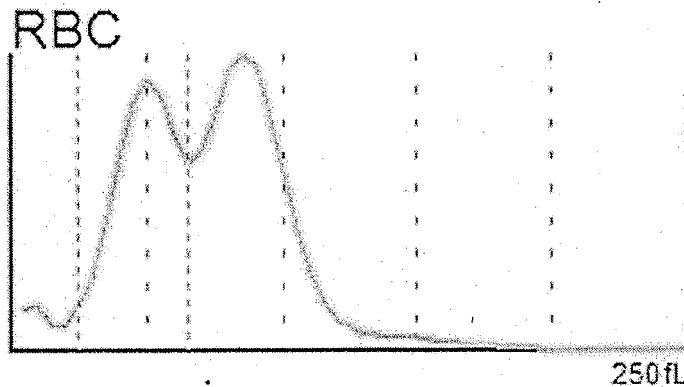
1.....

2.....

(Total: 10 marks)

Question 02

Given below is the Red Blood Cell (RBC) histogram taken from an automated haematology analyser.



2.1 What is the principle used by the Haematology analyzer to create the RBC histogram.

(01 marks)

2.2 What is the condition depicted by the histogram given above?

(01 marks)

2.3 Name two (02) pathological reasons that can lead to the above condition.

(02 marks)

1.....

2.....

2.4 Write the equations used by the Haematology analyzer to calculate the following RBC indices.

(06 marks)

HCT (Haematocrit):

MCH (Mean Corpuscular Haemoglobin):

MCHC (Mean Corpuscular Haemoglobin Concentration):

(Total: 10 marks)

Question 03

3.1 Name the three (03) sources of stem cell transplants. (03 marks)

1.....

2.....

3.....

3.2 Write one (01) advantage of autologous transplants over allogenic transplants. (02 marks)

.....

.....

3.3 Define the term Graft Versus Leukemia (GVL). (02 marks)

.....

.....

3.4 State the three (03) properties of pluripotent stem cells. (03 marks)

1.....

2.....

3.....

(Total: 10 marks)

Question 04

4.1 Name the three (03) predisposing factors of thrombosis given in the Virchow's Triad.

(03 marks)

1.....

2.....

3.....

4.2 Write two (02) indications for a thrombophilia screen.

(02 marks)

1.....

.....

2.....

.....

4.3 What is the optimal time for collecting a blood sample for the thrombophilia screen.

(02 marks)

.....

.....

.....

4.4 Write three (03) tests which are included in the thrombophilia screen.

(03 marks)

1.....

2.....

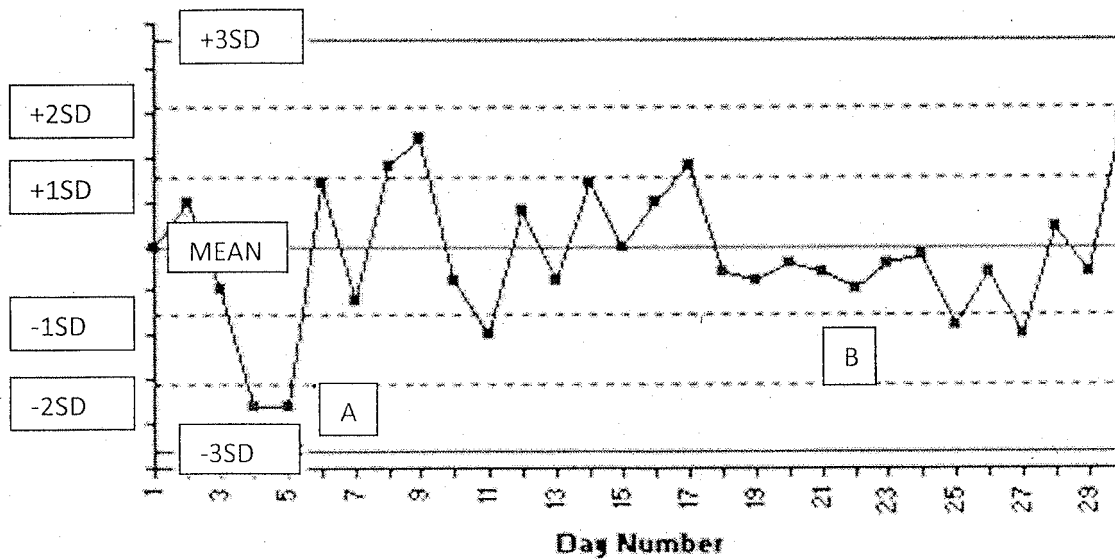
3.....

(Total: 10 marks)

Part C: Structured Essay Questions (30 marks)

Question 01

Given below is the Levy Jennings chart for the haemoglobin concentration of a laboratory.



1.1 State the primary purpose of Levy-Jennings charts? (02 marks)

.....

.....

.....

1.2 Name the two (02) Westgard rules violated in the above chart. (02 marks)

A –

B –

1.3 What type of error is indicated by the rule violation denoted by B. (01 mark)

.....

1.4 Provide four (04) possible reasons for rule violation identified in 1.3. (08 marks)

1.....

.....

2.....

3.....

4.....

1.5 What immediate action would you take upon encountering a rule violation on the Levy-Jennings charts while testing is still in progress? (02 marks)

.....

(Total: 15 marks)

Question 02

A 56-year-old male, was admitted to the hospital with a high fever, chills, and severe fatigue. Complete blood count (CBC) results showed significant abnormalities. His white blood cell (WBC) count was elevated, with a left shift in neutrophils and the presence of immature cells such as metamyelocytes and myelocytes. The hemoglobin level was decreased, and his platelet count was slightly elevated. A peripheral blood smear revealed the presence of nucleated red blood cells (NRBCs), immature myeloid cells.

2.1 What are the two potential differential diagnoses for this medical condition? (02 marks)

1.....

2.

2.2 Give two (02) differences you expect to see in the peripheral blood film of the two conditions mentioned in (2.1). (04 marks)

1.....

.....

2.....

2.3 Name a staining technique that can be used to differentiate the conditions mentioned in
(2.1). (01 mark)

2.4 Briefly explain how the above test can be used to differentiate the conditions mentioned in
(2.1). (04 marks)

2.5 Write two (02) technical considerations that should be taken into account when performing
the NAP score. (04 marks)

1.....

2.....

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