

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS
MDU4501 – HAEMATOLOGY II
FINAL EXAMINATION **DURATION: 03 HOURS**

DATE: 15th MARCH 2023 TIME: 09.30 AM – 12.30 PM

Part B: Structured Essay Questions (40 marks)

Question 01 **(10 marks)**

A 23-year-old male patient presented with pallor, fatigue and red colour urine. Laboratory investigations were carried and the following findings were obtained.

Parameter	Result	Normal range
Haemoglobin (g/dL)	9.2	14.0 - 17.5
LDH (U/L)	1708	<250
Reticulocyte count (%)	3.6	0.5-1.5
Haptoglobin (mg/dL)	3	30-200

1.1 Taking the laboratory investigations into consideration, what could be the haematological condition resulting in the clinical symptoms mentioned above? (02 marks)

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1.2 When taking the medical history, it was noted that the patient had ingested fava beans which could have triggered the onset of the above condition. What could be the underlying disease causing the condition mentioned in 1.1? (02 marks)

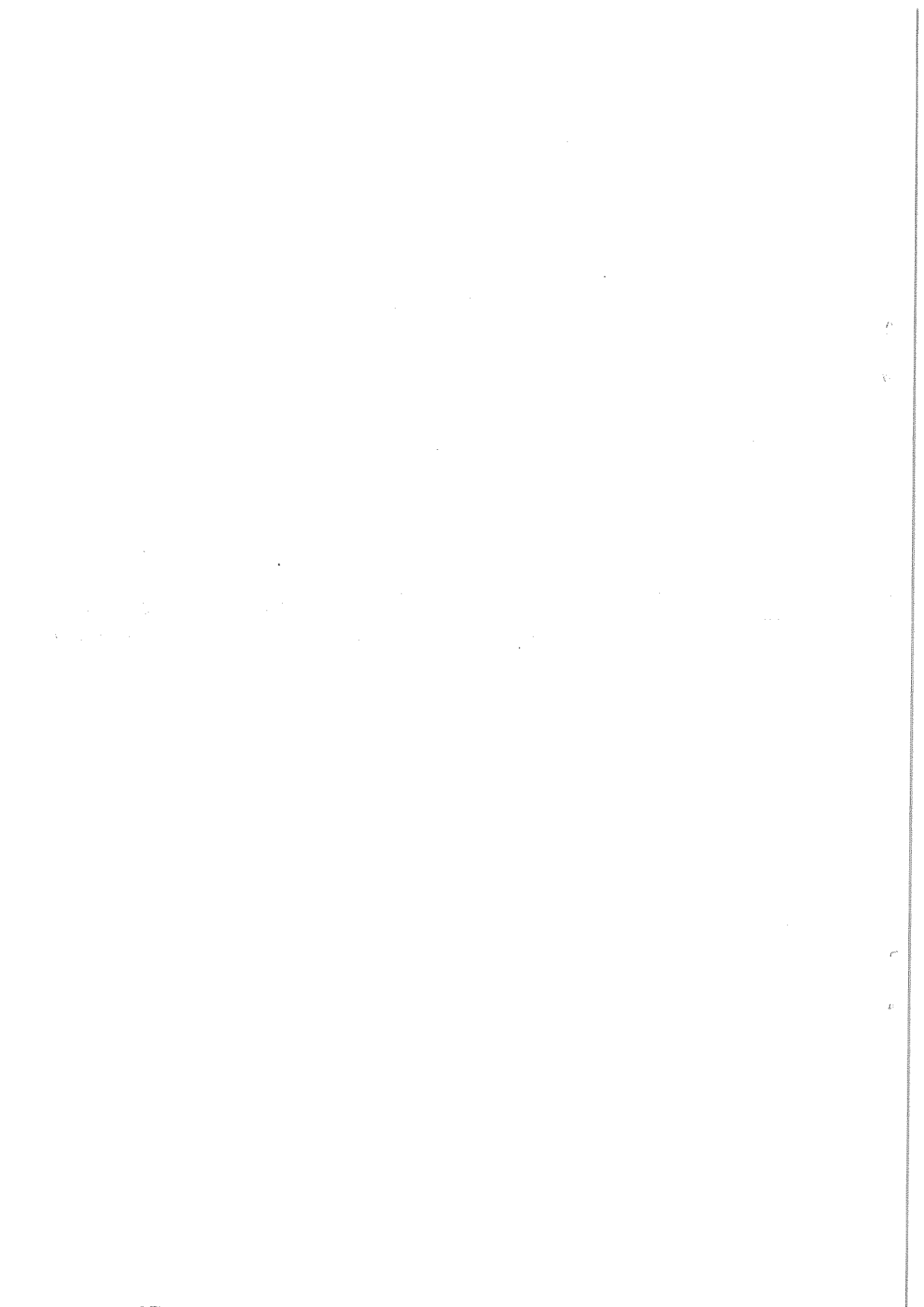
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1.3 An EDTA blood specimen was collected in order to screen for the disease mentioned in 1.2. Fill out the specimen collection guidelines in the table given below. (03 marks)

Time of specimen collection		
Storage conditions	Temperature	
	Time duration	

1.4 Give two (02) morphological forms of red blood cells you would expect to find in the blood film of the above patient. (03 marks)

1.
2.



Question 02

(10 marks)

A 2-year-old boy presented to the hospital with irritability and being difficult to console. The initial laboratory investigations revealed sickle shaped red blood cells in the blood film. A sickling test was performed.

2.1 How long would it take to get a positive sickling test in the following conditions? (02 marks)

Homozygous Sickle cell anaemia	
Sickle cell trait	

2.2

(a) Can the sickling test be carried out on a new born infants? (01 mark)

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(b) Give reasons for your answer in 2.2 (a). (02 marks)

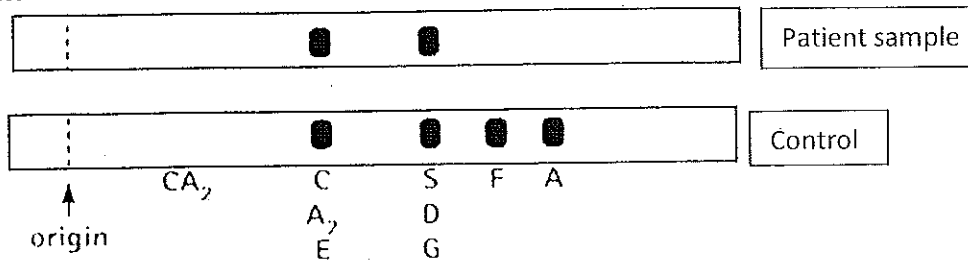
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2.3 If the patient is diagnosed with homozygous sickle cell disease, what findings would you expect in the haemoglobin electrophoresis report. (03 marks)

	Increased/ decreased/ absent
Haemoglobin A	
Haemoglobin F	
Haemoglobin S	

2.4 The haemoglobin electrophoresis gave the following results. What are the most probable disease conditions? (02 marks)



1.

2.

Question 03

(10 marks)

3.1 The Von Willebrand Factor (VWF) is synthesized as multimers and is broken down into monomers or dimers. Name the disease condition caused by the inability to breakdown large VWF multimer into monomers or dimers. (02 marks)

3.2 Write the most significant laboratory finding you would expect in each of the following laboratory investigations. (03 marks)

Laboratory investigation	Laboratory finding
Full Blood Count	
Blood film	
Serum LDH	

3.3 Comment on the life span of a normal platelet and a platelet in Chronic Idiopathic Thrombocytopenic Purpura (CITP). (02 marks)

Normal platelet	
Platelet in CITP	

3.4 Comment on the laboratory findings of the investigations given below in the case of CITP. (03 marks)

Laboratory investigation	Laboratory finding
Platelet count (give a value range)	
Blood film	
Bone marrow biopsy	

Question 04

(10 marks)

A blood grouping was performed and the following results were obtained

Reagent	Anti-A	Anti-B	Anti-D	A1 Cells	B Cells
Results	4+	0	4+	1+	3+

4.1 What is the first step you would take upon getting the above result and why? (02 marks)

Step taken:

Reason:

4.2

(a) Is the discrepancy in the forward reaction or reverse reaction? (01 mark)

.....

(b) How did you come to that conclusion? (01 mark)

.....

4.3 What is the most likely cause for the above result? (02 marks)

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4.4 Write two (02) methods that can be used to confirm the cause you mentioned in 4.3? (04 marks)

1.

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2.

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