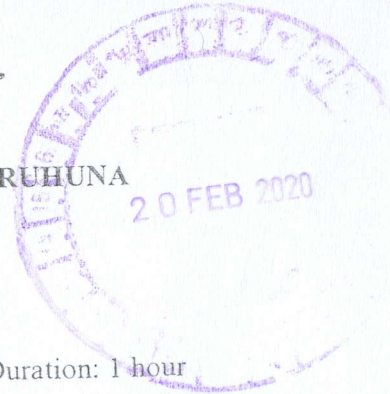**FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA**
Department of Medical Laboratory Science
Year End Examination – Year 2 - 9th Batch
Haematology (MLS 2103) – SEQ

Date: 10th December 2019   Time: 10.15 a.m. - 11.15 a.m.   Duration: 1 hour

Index Number: ....

Answer only two questions

(60)

1. An 8 year-old boy was admitted to paediatrics unit with high fever. Examination revealed pallor, few purpuric patches and generalized lymphadenopathy. Clinicians suspected the possibility of acute lymphoblastic leukemia (ALL).
    1.1. Describe the appearance of a lymphoblast and laboratory methods which can be used to differentiate it from myeloblasts.   (20 marks)
    1.2. His FBC showed total white cell count of 54,000/μL. State the expected differential count giving reasons.   (10 marks)
    1.3. Haematologist planned a bone marrow aspiration. List the different tests which can be performed using bone marrow aspirate and their uses.   (20 marks)
    1.4. State the most likely reason for purpura in this patient.   (10 marks)
    1.5. Briefly outline how ALL differs from lymphoma.   (20 marks)
   1.6. Outline the basis for leukaemogenesis.   (20 marks)

2. A patient with severe sepsis was admitted to ICU. As the MLT working in haematology laboratory you notice the following test results in this patient.

Test	Results at 9.00 a.m.	Results at 5.00 p.m.
PT	12 seconds	24 seconds
APTT	34 seconds	60 seconds

    2.1. Interpret the findings and give your observations.   (10 marks)
    2.2. Describe the qualities of the sample which should be received for PT/APTT.   (15 marks)
    2.3. State the properties of the sample you would use for the PT/APTT testing   (15 marks)
    2.4. Draw the coagulation cascade indicating the pathways which are assessed by PT & APTT.   (20 marks)
    2.5. Clinician requests you to verify that this is not due to a laboratory error. Outline how you would exclude laboratory errors which lead to prolonged PT and APTT.   (20 marks)
    2.6. Describe how you would exclude the heparin effect or presence of inhibitors for the prolonged APTT.   (20marks)

3. Haemglobinopathies are common inherited hemolytic anemias in the world.
    3.1. Define the term haemglobinopathy.   (10 marks)
    3.2. Discuss the inheritance of haemoglobinopathies.   (30 marks)
    3.3. Discuss the procedure of preparing haemolysate for the purpose of diagnosing haemoglobinopathies.   (30 marks)
    3.4. State the expected findings of the conformity tests in two haemoglobinopathies.   (30 marks)
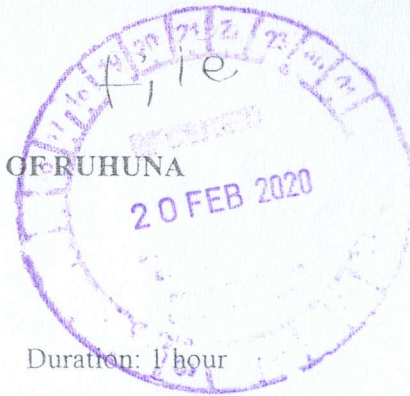
Date: 10th December 2019   Time: 11.30 a.m. - 12.30 p.m.   Duration: 1 hour

Answer only two questions   Index Number: ....

(59)

1. Iron metabolism plays a major role in hematopoiesis.

   1.1. Discuss iron absorption in the gut (including inhibition & facilitation etc...)   *(30 marks)*

   1.2. Discuss how iron overload occurs in a patient.   *(30 marks)*

   1.3. State the classical serum iron study findings for iron deficiency anemia.   *(20 marks)*

   1.4. State the classical full blood count findings in iron deficiency anemia.   *(20 marks)*

2. Write short notes on

   2.1. platelet function assays   *(30 marks)*

   2.2. flowcytometry (principles, uses and QC)   *(40 marks)*

   2.3. radio nucleotide studies in Haematology   *(30 marks)*

3. A 50 year-old man presents with tiredness and a sore mouth. He is found to have the following blood profile:

WBC	3.2×10^9/L
Hb	52 g/L
MCV	118fL
Platelets	65×10^9/L
Blood film	Oval macrocytes with some hyper-segmented neutrophils.

   3.1. What is the most likely diagnosis?   *(10 marks)*
   3.2. List possible causes for the above diagnosis.   *(30 marks)*
   3.3. Discuss investigations that support and confirm the above diagnosis.   *(60 marks)*