UNIVERSITY OF JAFFNA

BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES

SECOND YEAR SECOND SEMESTER EXAMINATION – MARCH 2019

MLSHE 2235 HAEMATOLOGY II

PAPER II

Time: 2 Hours

Date: 15.03.2018

ANSWER ALL EIGHT QUESTIONS.

1.

1.1. List five (05) major components of normal haemostasis. (20 Marks)

1.2. Briefly explain the steps involved in normal haemostasis after a vascular injury. (40 Marks)

1.3. Vitamin K is essential for the activation of certain coagulation factors;

1.3.1. List four (04) vitamin K dependent coagulation factors. (10 Marks)

1.3.2. Name the laboratory parameter used to monitor warfarin therapy. (10 Marks)

1.3.3. Write the basic principle of the test used in the parameter mentioned in **1.3.2.** (20 Marks)

2. A two years old boy presented with bleeding into right knee joint following mild trauma. The family history of this patient shows, his mother's brother also had the similar manifestations. The following investigations were done on the above child and the results are given below.

i.	Platelet count	-	280×10^9/L
ii.	Prothrombin Time	-	12 s
iii.	Activated Partial Thromboplastin Time (APTT)	-	92 s

2.1. Identify the abnormality on the above mentioned report. (10 Marks)

2.2. List three (3) causes for the abnormality you mentioned in **2.1(not confined to this patient)**. (15 Marks)

2.3. 50:50 mixing study based on APTT test has done on the sample of the above Mentioned child and the results are given below.

APTT control	-	32 s
APTT of 50:50 mixing (patient:control)	-	61 s

2.3.1. Write the principle of 50:50 mixing study. (20 Marks)

2.3.2. Interpret the test results mentioned in **2.3** and identify the possible cause. (15 Marks)

2.3.3. Name one laboratory test which would be performed to confirm the diagnosis. (10 Marks)

2.4. State the quality control measures you would take during coagulation testing using manual method. (30 Marks)

3. Write short notes on,

3.1. Preparation of Pooled Normal Plasma (60 Marks)

3.2. Inhibitor screening test. (40 Marks)

4.

4.1. Name the technique used to measure the concentration of fibrinogen based on thrombin clotting time. (10 Marks)

4.2. Write the principle of the test you mentioned in **4.1**. (40 Marks)

4.3. Fibrinogen assay was done on a patient's sample using the technique you mentioned in **4.1.**and the results are given below.

Dilutions of plasma	**Clotting time for Standard (s)**	**Clotting time for Patient (s)**
1/5	10	-
1/10	18	40
1/20	32.5	-
1/40	59	-

4.3.1. Plot the standard curve using the above findings. (Graph paper is provided to you, Standard concentration of fibrinogen = **3.04 g/L**, assume 1 in 10 dilution consist of 100% of fibrinogen concentration) (20 Marks)

4.3.2. Calculate the plasma fibrinogen concentration of the patient from the standard graph. (20 Marks)

4.3.3. Comment the results obtained in **4.3.2.** (10 Marks)

5.

5.1. List two (02) causes for platelet dysfunction. (10 Marks)

5.2. Mention one preliminary test used to screen a patient with suspected platelet dysfunction (with normal platelet count) in under resourced laboratory. (05 marks)

5.3. Write the principle of platelet aggregation test. (30 Marks)

5.4.Briefly explain how you would prepare the sample for platelet aggregation test. (30 Marks)

5.5.Mention the technical factors which may influence on platelet aggregation test. (25 Marks)

6.

6.1.List four (04) indications for performing bone marrow examination. (20 Marks)

6.2.Name the stain used to assess the bone marrow iron store. (05 Marks)

6.3.Write the principle of the stain you mentioned in **6.2.** (30 Marks)

6.4.State the quality control measures you would follow during the staining method mentioned in **6.2**. (20 Marks)

6.5.Mention the uses of cytochemistry in the diagnosis of haematological malignancies. (25 Marks)

7. A patient presents with suspected haemolytic anaemia. On examination, patient had pallor and jaundice. Clinician requests Full Blood Count, Blood Picture (BP), Reticulocyte count, Serum Lactate Dehydrogenase (LDH), Serum bilirubin and Urine Full Report (UFR) for the initial screening.

7.1.List expected findings/results of the tests requested by the clinician in haemolytic anaemia. (30 Marks)

7.2.Describe the basis for the results you mentioned for Serum LDH and UFR in haemolytic anaemia. (50 Marks)

7.3.Outline how you would perform reticulocyte count. (20 Marks)

8. A 58 year old patient presents total white blood cell count of 84,000/μL and with hepatosplenomegaly. Chornic Myeloid Leukemia (CML) was suspected.

8.1.Describe characteristic laboratory findings in Full Blood Count and Blood Picture (BP) in CML. (40 Marks)

8.2.State the diagnostic test for CML. (10 Marks)

8.3.Outline briefly the pathogenesis of CML. (30 Marks)

8.4.Few months after treatment followup, patient develops anaemia and purpura. Cliniciansuspects "blast transformation". Describe the morphology of myeloblast. (20 Marks)