UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES
SECOND YEAR SECOND SEMESTER EXAMINATION IN BSc HONS (MLS)- 2019
MLSHE 2225 HAEMATOLOGY II
PAPER II

Date: 31.01.2022 **Time: 2 hours**

Answer all Eight Questions.

Answer Part A and B in Separate Answer Books.

Part A

1. Haemostasis is a complex process.

   1.1. List the major components of normal haemostasis. **(10 Marks)**

   1.2. Briefly explain the mechanism of platelet activation and aggregation in primary hemostasis. **(40 Marks)**

   1.3. Schematically enumerate the coagulation cascades of normal hemostasis **(50 Marks)**

2.

   2.1. Briefly explain the principles of the following tests

   2.1.1. Prothrombin Time **(20 Marks)**

   2.1.2. Activated Partial Thromboplastin Time **(20 Marks)**

   2.1.3. Thrombin Time **(20 Marks)**

   2.1.4. Fibrinogen assay (Clauss Technique) **(20 Marks)**

   2.2. List five (5) preanalytical errors which cause abnormal results in the above tests. **(20 Marks)**

3.

   3.1. Explain the role of von Willebrand factor in haemostasis **(30 Marks)**

   3.2. Tabulate the classification of von Willebrand disease based on multimer analysis **(30 Marks)**

   3.3. Write a note on PFA-100 system **(40 Mark)**

4.

4.1. Define "Leukemia" **(15 Marks)**

4.2. Explain how Philadelphia chromosome contributes to leukemogenesis **(60 Marks)**

4.3. List five (5) laboratory techniques which can detect Philadelphia chromosome **(25 Marks)**

5.

5.1. List four (4) coagulation inhibitors present in blood **(20 Marks)**

5.2. Briefly explain the mechanism of action of coagulation inhibitors mentioned in 5.1 **(40 Marks)**

5.3. Explain the significance and the mechanism of action of fibrinolytic system. **(40 Marks)**

Part B

6. A patient was admitted to a medical ward with suspected haemolytic anaemia.

6.1. Define haemolytic anaemia. **(10 Marks)**

6.2. List **four** different **blood tests** you would receive at laboratory from the ward which are useful to diagnose haemolytic anaemia and indicate expected findings in each test in haemolytic anaemia. **(30 Marks)**

6.3. Outline how you would classify haemolytic anaemia based on site of red cell destruction and how you would differentiate each. **(30 Marks)**

6.4. Outline the pathological basis for increased urobilinogen in urine in haemolytic anaemia. **(30 Marks)**

7. Defects of haemoglobins cause anaemia.

   7.1. State the confirmatory test of beta thalassaemia major, its principle, quality control, and sample collected. **(35 Marks)**

   7.2. State the inheritance of beta thalassaemia and expected findings of the test mentioned in question 7.1, in parents of a beta thalassaemia major baby. **(15 Marks)**

   7.3. Compare and contrast alpha thalassaemia and beta thalassaemia. **(35 Marks)**

   7.4. State the principle of sickling test and how you would ensure quality of sickling test **(15 Marks)**

8. You are appointed as a member of the team assigned to design a haematology laboratory in a small private hospital in a major city. The management insist optimal quality and at the same time cost saving as well. After initial workload survey, it is estimated to receive approximately 25-50 FBC, 20 ESR, 4 Retic counts, and one (1) PT/INR daily and 1-2 APTT per week.

   8.1. Outline the key equipment/items you would suggest to run this laboratory giving reasons. **(25 Marks)**

   8.2. Outline basic safety requirements needed in a haematology laboratory. **(25 Marks)**

   8.3. Discuss what specifications are needed when selecting equipment required for FBC testing. **(25 Marks)**

   8.4. Discuss quality management processes you would implement in this laboratory for FBC testing. **(25 Marks)**