UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES
SECOND YEAR FIRST SEMESTER EXAMINATION – OCTOBER 2019
MLSHE 2125 HAEMATOLOGY I
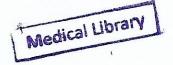### PAPER II

Date: 28.10.2019   **Time: 2 Hours**

ANSWER ALL EIGHT QUESTIONS

1. Use of anticoagulants is mandatory for almost all the haematology tests.

    1.1. Name two anticoagulants used for haematological tests.   (10 Marks)

    1.2. Mention the recommended concentrations of each mentioned in 1.1.   (15 Marks)

    1.3. Name two (2) haematological tests done for each anticoagulant stated. Indicating
        ratio of anticoagulant to blood required.   (20 Marks)

    1.4. Write the mode of action of each anticoagulant   (20 Marks)

    1.5. Briefly describe the effects of excess anticoagulant on haematological tests. (35 Marks)

2.

    2.1. Define the term "haemopoiesis".   (10 Marks)

    2.2. Mention the sites where haemopoiesis occur during fetal life and changes
        of haemopoiesis expected after birth.   (30 Marks)

    2.3. Write the schematic diagram of granulopoiesis.   (20 Marks)

    2.4. Describe the typical Morphology of Monocyte and Eosinophil   (20 Marks)

    2.5. List two (2) causes for increase of each white blood cell type.   (20 marks)

3. Automated haematology analyzers are widely used in haematology laboratories.

    3.1. Name two (2) techniques used for cell count in automated haematology analyzer.

                                                                                 (10 Marks)

    3.2. Write the principles of each technique mentioned in 3.1.   (30 Marks)

    3.3. List four (4) advantages of using automated haematology analyzer.   (10 Marks)

    3.4. Outline how you would troubleshoot abnormal full blood count results in
        automated machine   (30 Marks)

    3.5. Describe calibration requirements of automated FBC analyzers   (20 Marks)

4.

    4.1. List two (2) stains used for reticulocyte count.   (10 Marks)

    4.2. List two (2) causes for reticulocytosis.   (10 Marks)

    4.3. State the principle of reticulocyte count.   (20 Marks)

    4.4. State how you would assure quality of reticulocyte stain and count.   (30 Marks)

    4.5. Briefly describe how you would do a correction on total WBC count for

        Nucleated RBC.   (30 Marks)

5. Write short notes on

    5.1. Factors affecting Erythrocyte Sedimentation Rate.   (30 Marks)

    5.2. Erythrocyte inclusions.   (30 Marks)

    5.3. Key safety issues in haematology laboratory   (40 Marks)

6. A blood sample of a female patient with suspected case of anaemia has the following finding in her Full Blood Count.

    Total WBC- 8.3×10^9/L, RBC- 3.9×10^{12}/L, Hb- 90g/L, Haematocrit- 0.36, MCV -75 fl MCH- 25pg, RDW (CV) - 27.8%

    6.1. Describe the morphological classification of anaemias.   (25 Marks)

    6.2. Mention the most appropriate morphological type of anaemia in this patient.   (10 Marks)

    6.3. List (3) possible causes for the type you mentioned in 6.2.   (15 Marks)

    6.4. State the red cell morphology you would expect on blood film of the above patient.

      (20 Marks)

    6.5. State the laboratory tests which will help in the diagnosis and identifying

        probable cause for this anaemia.   (30 Marks)

7.

    7.1. List two (2) indications for blood film examination.   (10 marks)

    7.2. Name two (2) Romonowsky stains.   (10 Marks)

    7.3. Write the principle of Romonowsky stain.   (30 Marks)

    7.4. State the causes for poor quality blood picture.   (20 Marks)

    7.5. Tabulate morphological criteria for the identification of *Plasmodium vivax*

        on thin film.   (30 Marks)

8.

    8.1. Define the term factitious thrombocytopenia indicating possible causes.   (20 Marks)

    8.2. Discuss how you would troubleshoot factitious thrombocytopenia   (30 Marks)

    8.3. Discuss different methods available for haemoglobin estimation.   (30 Marks)

    8.4. Outline how you would assure quality of results in manual Haemoglobin estimation method.   (20 Marks)