UNIVERSITY OF JAFFNA, SRI LANKA

BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION- JULY 2013

MLSIH 4102 IMMUNOHAEMATOLOGY

PAPER II

DATE: 05.08.2013 **TIME: 2½ Hours**

ANSWER ALL EIGHT QUESTIONS

1. ABO antibodies appear during the first few months after birth as naturally occurring antibodies.

1.1. Mention one clinical utility of ABO antibodies in the blood bank serology. (30 marks)

1.2. Mention one clinical situation where naturally occurring ABO antibodies can cause dangerous haemolytic transfusion reaction. (20 marks)

1.3. Describe the mechanism of immune destruction of red cells during haemolytic transfusion reaction mentioned in 1.2 (50 marks)

2. Hyper immune anti A and anti B can cause Haemolytic Disease of Newborn (HDN)

2.1. Mention briefly how hyper immune antibodies (anti A and anti B) are formed. (30 marks)

2.2. Describe the mechanism of destruction of red cells by hyper immune anti A and Anti B in an ABO haemolytic disease of the newborn. (50 marks)

2.3. List 4 red cell alloantibodies which can potentially cause haemolytic disease of the newborn. (20 marks)

3. The test systems used for routine pretransfusion testing are of utmost importance because errors can lead to patient morbidity and mortality.

Discuss the quality assurance measures practised within the laboratory to ensure the perfect quality pretransfusion testing. (100 marks)

4.The Antiglobulin test (Coombs test) is one of the important tests in Immunohaematology.

4.1. Describe the principle behind direct and indirect antiglobulin tests. (40 marks)
4.2. List 3 uses of direct antiglobulin test. (15 marks)

4.3. List 3 uses of indirect antiglobulin test. (15 marks)
4.4. Mention the recommended technique for antiglobulin test procedure. (10 marks)
4.5. List 2 alternative technologies for antibody detection by the antiglobulin test. (20 marks)

5. ABO grouping is the single most important serological test performed in compatibility testing. Several causes are implicated for the discrepancies in ABO/D grouping.

5.1. List 5 causes for false positive reactions in ABO/D grouping. (25 marks)
5.2. Mention briefly how you can overcome the problems you mentioned in 5.1. (25 marks)
5.3. List 5 causes for false negative reactions in ABO/D grouping. (25 marks)
5.4. Mention briefly how you can overcome the problems mentioned in 5.3. (25 marks)

6. Antenatal blood bank investigations play an important role in prevention, detection and management of haemolytic disease of the newborn.

6.1. Describe the recommended protocol for antenatal screening and follow up investigations in relation to haemolytic disease of the newborn. (60 marks)
6.2. Briefly describe the principle and the method to determine the volume of fetal red cells in the maternal circulation (fetomaternal haemorrhage) by acid illusion technique. (40 marks)

7. As individual responses to oral anticoagulant treatment are extremely variable treatment must be regularly controlled by laboratory tests. One stage prothrombin time led to great discrepancies in the reported results due to lack of standardisation in the past.

Describe the 3 important steps in standardisation of oral anticoagulant treatment. (100 marks)

8. Heparin is the commonest anticoagulant used by the parenteral route.

8.1. Briefly describe the anticoagulant action of heparin. (30 marks)
8.2. List 5 tests used in the laboratory control of heparin treatment. (20 marks)
8.3. Describe the principle behind one of the test you mentioned in 8.3 (20 marks)
8.4. Briefly discuss the advantages and disadvantages of the test you mentioned in 8.3 in laboratory control of heparin treatment. (30 marks)