POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

POSTGRADUATE DIPLOMA IN TRANSFUSION MEDICINE
EXAMINATION – FEBRUARY 2020

Date: 17th February 2020   **Time:** 1.00 p.m. – 4.00 p.m.

PAPER I

Answer all eight (08) questions.
Answer each question in a separate book.

1. A complaint was received from a clinician of the hospital that the platelet increment is very low after platelet transfusions to the patients and that it is due to poor quality platelets.

    1.1. What factors will affect the quality of platelets prepared from blood packs donated at a mobile blood donation site?   (30 marks)

    1.2. Describe how you would ensure the quality of platelet concentrate during preparation at the Component Laboratory.   (30 marks)

    1.3. What are the parameters you should check to assess the quality of platelet concentrate ?   (10 marks)

    1.4. A 55-year old anaemic female patient, with three previous pregnancies, was transfused one unit of red cell concentrate prior to a planned surgery. Her platelet count dropped to $5,000 \times 10^9/l$ few days after the transfusion. Explain the most likely cause for this platelet drop.   (30 marks)

2.

    2.1. List reasons for discarding blood and blood components.   (20 marks)

    2.2. Enumerate strategies to minimize blood discard.   (30 marks)

    2.3. List the standard biosafety precautions for laboratory workers.   (25 marks)

    2.4. State the recommended methods for discarding blood products in a Blood Service.   (25 marks)

3. A 60 years old male is awaiting a knee joint replacement surgery. The patient was transfused with two units of Red Cell Concentrates as his heamoglobin was 7g/dl the day prior to surgery. The patient developed shortness of breath following the second unit.

    3.1. What are the differential diagnoses? (20 marks)

    3.2. How would you investigate this reaction to arrive at a conclusion?
        (40 marks)

    3.3. If you are looking after this patient, how could you have avoided this situation. (40 marks)

4.

    4.1. List three main categories of patients referred to blood bank for venesection. (10 marks)

    4.2. Write venesection targets for these three (03) categories of patients. (15 marks)

    4.3. A 46-year old heavy vehicle driver with a body weight of 80 kg. presented at the annual donor care programme with the following full blood count results.

Hb	19 g/dL
Hematocrit	59%
WBC	14 x10^9/L
Platelet count	300 x10^9/L

He has donated blood annually for last five years.

What are the important clinical findings you would elaborate in the history and examination. (30 marks)

    4.4. List the initial investigations you would arrange before referring this donor to a General Physician. (15 marks)

    4.5. If the above donor is referred to the blood bank for venesection, write how would you prepare and perform the procedure.
        (30 marks)

5.

5.1. Define the following terms

    5.1.1. Transfusion transmitted infection   (05 marks)

    5.1.2. Seroconversion   (05 marks)

    5.1.3. Cross reactivity   (10 marks)

    5.1.4. Sensitivity of an assay   (10 marks)

    5.1.5. Specificity of an assay   (10 marks)

5.2. A Thalassemic patient with a history of repeated blood transfusion was referred to you with a positive HCV RNA report.
How would you carry out the trace back study for this patient?

                                                            (60 marks)

6.

6.1. You are planning to do inspection visits during mobile blood donation campaigns to improve the quality and the productivity of mobile system. Enumerate the criteria that should be included into the inspection check list.   (50 marks)

6.2. Write the specific eligibility criteria for the selection of apheresis platelet donors.   (20 marks)

6.3. Describe the adverse effects encountered in platelet apheresis donors and their management.   (30 marks)

7.

7.1. A severe dengue epidemic is prevailing in many parts of the country including your area. The regular blood donations are reported to be less than usual.

What steps would you take, as the cluster MOIC to maintain the stocks?
                                                        (50 marks)

7.2. A 36-year old female (P_2C_0) is in her 14th week of pregnancy. Her haemoglobin is 13g/dl and has no comorbidities. Her first pregnancy ended in an abortion at 22 weeks of gestation. Her first pregnancy records are not available. On her first clinic visit her blood group is found to be Bombay O RhD positive.

How would you manage this patient's transfusion requirements?
                                                         (50 marks)

8.

8.1. What are the indications for washed red cell transfusions?

(15 marks)

8.2. Give labelling requirement for washed red cells? (10 marks)

8.3. List out the main components of a Standard Operating Procedure (SOP).

(20 marks)

8.4. Describe the procedure for preparation of washed red cells.

(30 marks)

8.5. Define "storage lesion" in stored Red Blood Cells. (10 marks)

8.6. List the changes that can be seen in storage lesion of RBC.

(15 marks)