THE OPEN UNIVERSITY OF SRI LANKA

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF MEDICAL LABORATORY SCIENCES

ACADEMIC YEAR 2023/2024 – SEMESTER I

BACHELOR OF MEDICAL LABORATORY SCIENCES (BMLS) HONOURS

MDU4501 – HAEMATOLOGY II

FINAL EXAMINATION **DURATION: 03 HOURS**

DATE:19th MARCH 2024 TIME: 9.30 AM – 12.30 PM

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Part B: Structured Essay Questions (40 marks)

Q1. A 25-year-old male, presented to the hematology clinic with a complaint of persistent fatigue, which worsened over time. He described episodes of dark urine, especially in the morning, and occasional abdominal pain over the past few weeks. His medical history revealed no significant illnesses or recent infections.

The Full Blood Count (FBC) findings are as follows.

Haemoglobin: 9.5 g/dL

RBC Count: 3.2 x 10^6/μL

Platelet Count: 220 x 10^3/μL

White Blood Cell Count: 8.6 x 10^3/μL

1.1. State the potential hematological disorder. (2 marks)

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1.2. What is the reason for the presence of dark coloured urine in the context of this case? (2 marks)

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1.3. Briefly describe the pathophysiology behind the condition mentioned in 1.1. (4 marks)

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1.4. Name two (02) specific laboratory tests that help differentiate the above condition from other haemolytic disorders. (2 marks)

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(Total 10 marks)

Q2. Febrile Non- Haemolytic Transfusion Reaction (FNHTR) is defined as the occurrence in the increase of temperature by 1^0C over 37^0C during or after the transfusion of blood components.

2.1. Briefly describe the two (02) main pathways lead to FNHTR. (4 marks)

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2.2. Name two (02) risk factors of FNHTR. (2 marks)

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2.3. What is the procedure performed on collected blood to prevent the occurrence of FNHTR. (1 mark)

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2.4. Name three (03) techniques available for the procedure mentioned in above 2.3. (3 marks)

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(Total 10 marks)

Q3. After blood collection, whole blood should undergo centrifugation for component preparation.

3.1 State the storage temperature and the shelf life of the following blood components.

(3 marks)

Component	Storage Temperature	Shelf Life
Cryoprecipitate		
Platelet concentrate (Apheresis)		
Saline washed frozen red cells		

3.2 Briefly describe the process of the preparation of Fresh Frozen Plasma (FFP). (2 marks)

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3.3 List three (03) indications of the use of Fresh Frozen Plasma (FFP). (3 marks)

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List two (02) advantages of transfusing blood components/ products compared to whole blood transfusion. (2 marks)

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(Total 10 marks)

Q4. Thrombocytopenia is a condition characterized by abnormally low platelet counts in the blood. The main causes of thrombocytopenia can be listed as failure of platelet production, increased consumption or destruction of platelets, abnormal distribution of platelets and dilutional loss.

4.1 Name three (03) underline disorders/ causes that are associated with "thrombocytopenia as a part of general bone marrow failure". (3 marks)

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4.2 What is the pathological basis of Autoimmune (Idiopathic) Thrombocytopenic Purpura (ITP)? (2 marks)

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4.3 What is the major risk of Acute Idiopathic Thrombocytopenic Purpura.? (1 mark)

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4.4 Discuss the laboratory findings of Chronic Idiopathic Thrombocytopenic Purpura. (4 marks)

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(Total 10 marks)

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Part C: Short Essay Question. (30 marks)

Answer the question in the booklet provided.

Q1. Write short notes on, (Total 15 marks)

i. Sources and types of bacterial contamination in blood components and the prevention of bacterial contamination. (08 marks)

ii. Pathological basis of Anti-D related Haemolytic Disease of Newborn (HDN). (07 marks)

Q2. Discuss the donor rejection criteria in transfusion medicine. (Total 15 marks)

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