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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (IMMUNOHEMATOLOGY AND BLOOD TRANSFUSION) DEGREE
EXAMINATION – DECEMBER 2023

PAPER I

Monday, December 04, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer all the questions.

✍ Long Essays:

1. Explain in detail about RBC structure & its function. Add a note on factors influencing red cell hemolysis during processing and storage.

(15 marks)

2. Discuss the basic elements of laboratory safety program in transfusion medicine

(15 marks)

3. **Write short notes on:**

3A. Immunotolerance and its applications in transfusion medicine

3B. Biosafety management in blood bank

3C. Informed consent in Blood transfusion service

3D. Von willebrand factor and its role in hemostasis

3E. Basophil activation test and its applications

3F. Platelet function testing

3G. Structure of Hepatitis C Virus and its applied aspects

3H. Blood bank Accreditation

3I. Albumin and its applications in transfusion medicine

3J. Documents and Records

(7 marks × 10 = 70 marks)



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PAPER II

Tuesday, December 05, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer all the questions.

✍ Long Essays:

1. How do you approach to a case with positive direct Antiglobulin test result?
(15 marks)

2. Enumerate the steps of pre-transfusion testing and write a note on electronic cross-matching
(15 marks)

3. Write short notes on:

- 3A. Monocyte monolayer assay
- 3B. Biological effects mediated by complements
- 3C. Inheritance patterns of blood group antigens with example
- 3D. International society of blood transfusion working party terminology for blood group antigens
- 3E. McLeod syndrome
- 3F. T polyagglutination
- 3G. HLA antigen typing methods
- 3H. Test for determination of fetomaternal haemorrhage
- 3I. Bombay phenotype
- 3J. Duffy blood group system

(7 marks × 10 = 70 marks)



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PAPER III

Wednesday, December 06, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer all the questions.**

✍ **Long Questions:**

1. A 16 yr old male patient of Acute Myeloid Leukemia has received a course of induction chemotherapy. Later, he presented with high fever and diagnosed with neutropenic sepsis, not responding to high end antibiotics. Discuss about treatment option available for management of this patient under the following headings:

- 1A. Granulocyte collection procedure and processing
- 1B. Indications and quality criteria of the product

(10+5 = 15 marks)

2. A 28yr old, full term antenatal mother was taken up for emergency LSCS in view of fetal distress. Intra-operatively, the surgeon noted excessive blood loss and drop in blood pressure. Hence, transfusion medicine consultation was sought immediately for further management of blood loss.

- 2A. Define massive transfusion and enumerate your approach towards investigations and management of massive blood loss.
- 2B. What are the complications associated with massive transfusion.

(10+5 = 15 marks)

3. **Write Short Note on:**

- 3A. Guidelines on establishing a blood storage center
- 3B. National Donor vigilance program
- 3C. Process flow of equipment management
- 3D. Universal Red Blood Cells
- 3E. Factors affecting quality of cryoprecipitate product concentrate
- 3F. Therapeutic phlebotomy and indications
- 3G. Transfusion support in patient with sickle cell crisis
- 3H. Intrauterine transfusion; Indications and the procedure
- 3I. Clinical applications of Thromboelastography
- 3J. Pre-operative patient blood management

(7 marks × 10 = 70 marks)



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PAPER IV

Thursday, December 07, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

Answer all the questions.

Long questions:

1. Discuss the role of Proteomics in Transfusion Medicine under following:

1A. Definition and its principle

1B. Types & Technology Used

1C. Applications & limitations of proteomics in Transfusion Medicine

(15 marks)

2. Applications of flow-cytometry in transfusion medicine

(15 marks)

3. **Write Short Notes on:**

3A. Human platelet lysate

3B. Non-invasive fetal blood grouping

3C. Desirable Features of Blood cell Radiolabels

3D. Nano-filtration

3E. Induced pluripotent stem cell

3F. Use of Bar Codes in Transfusion Medicine

3G. Factors affecting hematopoietic stem cell mobilization and apheresis in allogenic donors

3H. Pathogen inactivation of plasma components

3I. Role of thromboelastography in managing massively bleeding patients

3J. Donor Hemovigilance program of India

(7 marks × 10 = 70 marks)

