

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MD 1224]

**DECEMBER 2024
(OCTOBER 2024 EXAM SESSION)**

Sub. Code: 4064

M.D. DEGREE EXAMINATION

IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES & TECHNOLOGY

Q.P. Code: 204064

Time: Three Hours

Maximum: 100 Marks

I. Essay Questions:

(1 x 20 = 20)

1. Elaborate on Regenerative Medicine and role of Transfusion Medicine specialist in cellular and biomaterial therapies.

II. Short notes:

(8 x 10 = 80)

1. Describe the possible role of Machine learning and Artificial Intelligence in Transfusion Medicine.
2. CAR -T cell Therapy.
3. Platelet derived biological products.
4. Human mesenchymal stem cells (hMSCs).
5. Rationale and advantage of Multicomponent collection.
6. Gene editing and its potential for therapeutics.
7. Luminex platform and its applications.
8. A 10-year-old male child with a history of bleeding into joints and deep haematomas since early childhood is evaluated. He is the first Child of a first-degree consanguineous marriage. His blood tests show: Hb=7.0 g/dL, TWBC=14,200/cu mm; Plt count 2,32,000/cu mm. aPTT=122 secs (Ref interval 36-42 secs) PT=12.4 secs (Ref interval=11-15 secs), TT=13 secs (Ref interval 12-14 secs).
 - a) Discuss the clinical diagnosis, Lab tests to be performed for confirmation.
 - b) Treatment modalities for the same.

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[MD 0525]

MAY 2025

Sub. Code: 4064

M.D. DEGREE EXAMINATION

IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES & TECHNOLOGY

Q.P. Code: 204064

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(1 x 20 = 20)

1. Various methods of bacterial detection and pathogen inactivation in blood components.

II. Short notes:

(8 x 10 = 80)

1. Digital Drug Licencing.
2. Rare blood donor registry.
3. What is Microarray Technology? Discuss its application in Transfusion Medicine.
4. Enumerate the salient features of recent Guidelines for National External Quality Assessment Programme for Blood Centres in India.
5. FcRn receptor blockers.
6. Importance of RIFD in blood center.
7. A 9-month-old girl with B-cell precursor acute lymphoblastic leukemia (pre-B ALL) has completed her final chemotherapy regimen. Due to her risk for relapse, the hematology/oncology service has requested a peripheral blood chimeric antigen receptor (CAR) T-cell collection for possible salvage therapy and bridge to hematopoietic stem cell transplant (HSCT).
 - a) What is CART-cell Therapy?
 - b) What are the Indications, collection requirements and risk of CART-cell Therapy?
8. Define Patient Blood Management (PBM)? Discuss the Three core principles of (PBM).

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[MD 1025]

OCTOBER 2025

Sub. Code: 4064

M.D. DEGREE EXAMINATION

IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES & TECHNOLOGY

Q.P. Code: 204064

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(1 x 20 = 20)

1. Emerging pathogens and the challenges posted in Screening.

II. Short notes:

(8 x 10 = 80)

1. Artificial Intelligence in blood banking.
2. RFID.
3. PRP and Bone marrow concentrate in clinical practice.
4. Micro array platforms.
5. Lean.
6. Tissue Banking.
7. Artificial blood.
8. CRIB – blood group.
