

Reg. No.

# MANIPAL UNIVERSITY

## MD (IMMUNOHEMATOLOGY AND BLOOD TRANSFUSION) DEGREE EXAMINATION – APRIL 2017

SUBJECT: PAPER I: BASIC APPLIED ASPECTS RELATED TO TRANSFUSION MEDICINE

Monday, April 03, 2017

Max. Marks: 100

Time: 14:00 – 17:00 Hrs.

✍ Answer ALL the questions.

✍ Long Essay:

1. Discuss the various strategies for the prevention of bacterial contamination of blood components. (15 marks)

2. Discuss the ethical issues related to transfusion medicine. (15 marks)

3. Write short note on:

3A. Blood cold chain

3B. Advantages and disadvantages of different methods of hemoglobin estimation

3C. Blood storage center

3D. ISBT 128

3E. How do you establish MSBOS (Maximum Surgical Blood Ordering schedule) at your hospital setting?

3F. Red Cell Additive Solutions

3G. Technetium 99m and its applications in transfusion medicine

3H. Hemoglobin electrophoresis

3I. DEHP (Di-(2Ethoxy) Phthalate)

3J. Catabolic pathway of hemoglobin

(7 marks × 10 = 70 marks)



|          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Reg. No. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

**MANIPAL UNIVERSITY**  
**MD (IMMUNOHEMATOLOGY AND BLOOD TRANSFUSION)**  
**DEGREE EXAMINATION – APRIL 2017**

**SUBJECT: PAPER II: IMMUNOHAEMATOLOGY, IMMUNOGENETICS  
AND APPLIED SEROLOGY**

Tuesday, April 04, 2017

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Describe platelet refractoriness under following headings:

- 1A. Determination of response to platelet transfusion
- 1B. Mechanism of refractoriness and factors involved in it
- 1C. Approach to a patient with platelet refractoriness

(5 marks × 3 = 15 marks)

2. Explain the immune-hematological workup for cold agglutinin disease. How do you determine the specificity of cold reactive auto-agglutinins?

(15 marks)

3. **Write short notes on:**

- 3A. Drug dependent antibodies reacting by “Immune complex” mechanism
- 3B. Inhibition tests in immunohematology
- 3C. Minor red cell antigen typing
- 3D. G antigen of Rh blood group system and cross-reactions
- 3E. Possible causes of ABO typing discrepancies
- 3F. Restriction fragment length polymorphism (RFLP) and its applications in transfusion medicine
- 3G. Lewis blood group system
- 3H. Platelet antigen system
- 3I. Hemolysin test
- 3J. Newer methods of producing blood grouping reagents

(7 marks × 10 = 70 marks)



|          |  |  |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|--|
| Reg. No. |  |  |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|--|

## MANIPAL UNIVERSITY

### MD (IMMUNOHEMATOLOGY AND BLOOD TRANSFUSION) DEGREE EXAMINATION – APRIL 2017

SUBJECT: PAPER III: BLOOD DONOR ORGANIZATION, TECHNOLOGY OF  
COMPONENTS, CLINICAL HEMOTHERAPY

Wednesday, April 05, 2017

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Discuss in detail about the transfusion support in a patient with road traffic accident with shock. What complications would you expect and what measures would you adopt to prevent them.

(15 marks)

2. Discuss the pathophysiology, diagnosis and management in Heparin Induced Thrombocytopenia.

(15 marks)

3. **Write short note on:**

3A. Laboratory diagnosis of von Willebrand disease

3B. Cold Chain Maintenance

3C. Draft a plan for an outdoor blood donation camp of 500 donors

3D. Guidelines for neonatal red blood cell transfusion

3E. Kleihauer Betke test and clinical relevance

3F. Source plasma and recovered plasma

3G. Mechanism of hypocalcemia during plateletpheresis and strategies for prevention of this adverse event

3H. Classify platelet gel. Compare and contrast the different types

3I. Topical hemostatic agents

3J. Management of Immune thrombocytopenia

(7 marks × 10 = 70 marks)



|          |  |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|
| Reg. No. |  |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|

**MANIPAL UNIVERSITY**  
**MD (IMMUNOHEMATOLOGY AND BLOOD TRANSFUSION)**  
**DEGREE EXAMINATION – APRIL 2017**

**SUBJECT: PAPER IV: RECENT ADVANCES AND TECHNOLOGY**

Thursday, April 06, 2017

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Describe the methodology of gene therapy and its application in hematology. (15 marks)

2. Describe the role of platelet derivatives in regenerative medicine. (15 marks)

3. **Write short notes on:**

3A. Outcome of recent randomized trial on fresh versus old blood transfusion

3B. Mesenchymal stem cells

3C. Point of care testing

3D. Rh D genotyping and its applications

3E. Hemostatic Complications of Extracorporeal Membrane Oxygenation (ECMO)

3F. Flow-cytometry in immunohematology

3G. Photopheresis

3H. Role of biological response modifiers in transfusion medicine

3I. Pathogen reduction techniques for platelet components

3J. Role of transfusion medicine specialist in managing a case of ABO incompatible renal transplantation.

(7 marks × 10 = 70 marks)

