

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

[MD 0723]

**JULY 2023
(MAY 2023 EXAM SESSION)**

Sub. Code: 3011

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER I – BASIC APPLIED ASPECTS RELATED TO TRANSFUSION MEDICINE

Q.P. Code: 203011

Time: Three Hours

Maximum: 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. Describe various stages of Erythroid differentiation and enumerate the following at each stage of differentiation:
 - a) Transcription factors
 - b) Receptors for Hemopoietic growth factors
 - c) Expression of specific proteins related to erythrocyte structure and function.
2. Normal Thromboelastograph [TEG], its basic principle, interpretation of abnormal values in diagnosis, appropriate transfusion support and other treatment options available.

II. Short notes:

(10 x 7 = 70)

1. Glycolytic pathway with the pentose and 2, 3-DPG shunts of red cell metabolism.
2. Draw and explain the structure of red cell membrane-cytoskeleton system. Add a note on scanning electron microscopic appearance of red blood cells following prolonged storage.
3. Iron deficiency after blood donation and various mitigation strategies.
4. What is reticulated platelet? Methods of identification of reticulated platelets. Its importance in transfusion medicine.
5. Regarding stem cells:
 - a) What is a Niche?
 - b) What are the types?
 - c) How are they regulated?
 - d) How are they mobilized?
 - e) What are the approved uses?
6. Inhibitors of blood coagulation and their main functions.
7. Pathophysiology of haemorrhagic shock.
8. Explain iron-induced oxidative damage to tissues by free radicals.
9. Occult Hepatitis B Virus Infection.
10. Validation of red blood cell quality and in vivo recovery.
