(LG 190) **APRIL 2015** **Sub. Code:2099**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES IN IMMUNO-HAEMATOLOGY AND BLOOD TRANSFUSION

Q.P.Code: 202099

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Recent advances in pathogen reduction technology for blood.
2. Laboratory methods of nucleic acid testing and benefits.

II. Write notes on: **(10 x 7 = 70)**

1. Next generation sequencing and its applications in transfusion practice.
2. Principle of Luminex platform and its applications.
3. Single nucleotide polymorphism.
4. Describe the strategy to set up a rare blood donor registry.
5. Impact of leukocytes in red cell units and strategies to reduce it.
6. Anti thrombin III.
7. Effect of transfusion on tumor cells and cancer.
8. Role of microparticles in thrombotic disorders.
9. Technology to improve bedside safety in transfusion.
10. Extra corporeal membrane oxygenation

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(LI 190) APRIL 2016 **Sub. Code:2099**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES IN IMMUNO-HAEMATOLOGY AND BLOOD TRANSFUSION

Q.P.Code: 202099

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the methods for platelet bacteria screening.
2. Emerging Pathogens.

II. Write notes on: **(10 x 7 = 70)**

1. NAT for transfusion transmitted infection.
2. Hepatitis E.
3. Discuss the current methods available for irradiation of blood products and their clinical indications.
4. Passenger lymphocyte syndrome.
5. Highly purified liquid Immunoglobulin G.
6. Red blood cell microvesicles.
7. Blood donation by elderly repeat donors.
8. Methods to detect fetal anaemia.
9. Extended storage of platelets.
10. Ebola virus, transmission risk to laboratory personnel and pre transfusion Testing.

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(LJ 190) OCTOBER 2016 **Sub. Code:2099**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES IN IMMUNO-HAEMATOLOGY AND BLOOD TRANSFUSION

Q.P.Code: 202099

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. The role of HLA in transfusion medicine.
2. Blood substitutes.

II. Write notes on: **(10 x 7 = 70)**

1. Nucleic acid testing in transfusion practice.
2. Quality indicators in transfusion medicine.
3. Pathogen inactivation of plasma products.
4. Platelet derived biological products.
5. Haemovigilance – basic concepts and status in India.
6. Cell salvage technologies.
7. Proteomics in transfusion medicine.
8. Global tests of haemostasis and their role in transfusion practice.
9. Platelet derived biological products.
10. Haemovigilance – basic concepts and status in India.

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(LK 190) MAY 2017 **Sub. Code:2099**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES IN IMMUNO-HAEMATOLOGY AND BLOOD TRANSFUSION

Q.P.Code: 202099

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the methods and role of molecular typing in transfusion medicine.
2. Discuss the newer tests of coagulation that help guide transfusion therapy.

II. Write notes on: **(10 x 7 = 70)**

1. Platelet additive solutions.
2. Fetal DNA in maternal serum – Principle and clinical applications.
3. Microarray – principle and role in transfusion medicine.
4. Describe the results of clinical evaluation of synthetic oxygen-carrying compound.
5. Transfusion associated dyspnoea- diagnosis and management.
6. Radio frequency identification (RFID) in blood banks to improve safety in transfusion practice.
7. Techniques for pathogen reduction of red cells.
8. Panel reactive antibodies and it's impact on transplantation.
9. Transfusion related immunomodulation – current concepts.
10. Donor lymphocyte infusion therapy.

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[LM 190] MAY 2018 **Sub. Code: 2099**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES IN IMMUNO-HAEMATOLOGY AND BLOOD TRANSFUSION

Q.P.Code: 202099

Time: Three Hours **Maximum: 100 Marks**

I. Essay Questions: **(2 x 15 = 30)**

1. Discuss the features of patient blood management program and list the transfusion indications of various blood components as per transfusion guidelines framed by patient blood management committee at your hospital.

2. Discuss about Platelet Additive Solutions and Novel-Platelet-Storage Techniques. Add a note on Modified Platelets, Platelet Substitutes and Thrombopoiesis-stimulating agents.

II. Short notes: **(10 x 5 = 50)**

1. Chimeric antigen receptor (CAR)-modified T Cell Therapy.
2. Next generation sequencing and its applications in transfusion practice.
3. Current standards of practice in Bio-waste management of blood banks.
4. Blood Pharming.
5. Fluorescence assisted cell sorting (FACS).
6. Human mesenchymal stem cells (hMSCs).
7. Matuhasi-ogata phenomenon.
8. Transplantation of Human Organs Act.
9. Biotinylated red blood cells.
10. Passive immune Basophil Activation Test (piBAT).

III. Reasoning Out: **(4 x 5 = 20)**

1. In group O and B adult recepients, for successful liver transplantation, if ABO group identical organ is unavailable, what could be your choice of next optional blood group donor? Explain.

2. A 28-year-old male patient presents to an emergency department complaining of a nosebleed. He is otherwise asymptomatic. The following laboratory results are obtained:HGB = 8.0 h/dL, WBC count = 7500 cells/µL with a normal differential. Platelet count = 7000/ µL. A blood specimen is sent to the blood bank for type and screen determination. A panreactive antibody is identified and the patient is also found to have a positive DAT. What is the most likely diagnosis? Explain.

3. In patients with mutant (single base substitution from G to A which occurs in the second to last codon of the pre-C gene at nucleotide 1896) HBV infection, which one of the viral marker is negative? Explain.

4. A neonate clinically manifests with bleeding from the umbilical cord days after birth. What is the most probable clinical diagnosis? How do you confirm the diagnosis? What are the management options available depending on the severity of bleeding and activity of the deficient factor?

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[LO 190] MAY 2019 **Sub. Code: 2099**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER IV – RECENT ADVANCES IN IMMUNO-HAEMATOLOGY AND BLOOD TRANSFUSION

Q.P. Code: 202099

Time: Three Hours **Maximum: 100 Marks**

I. Essay Questions: **(2 x 15 = 30)**

1. Emerging Transfusion transmissible infections and strategies to combat them in a resource constrained region. Contrast with strategies in other high income countries.

2. Recent advances in the management of Trauma related blood loss.

II. Short notes: **(10 x 5 = 50)**

1. Recombinant erythropoietin in patients with chronic renal failure.
2. Gene editing and its potential for therapeutics.
3. ISBT128 standard in blood banking automation.
4. Factor:VIIa in the management of severe haemorrhage.
5. Platelets for off-label uses.
6. Umbilical cord banking.
7. Restrictive blood transfusion strategy – good or bad.
8. Immunotherapy.
9. Rationale of irradiation in the blood bank, platforms available and quality assurance of irradiated blood components.
10. Stem cells and its application in the blood bank.

III. Reasoning Out: **(4 x 5 = 20)**

1. 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. A maternal uncle had a surgical procedure where unexpectedly, many units of blood had to be transfused. His blood tests show: Hb = 8.0 g/dL, TWBC = 9,200/cu mm; Plt count 2,32,000/cu mm. APTT = 102 secs (Ref interval 36-42 secs) PT = 12.4 secs (Ref interval = 11 – 15 secs), TT = 13 secs (Ref interval 12 – 14 secs).
   a) What is your clinical impression?
   b) What additional tests would you perform to confirm the diagnosis?
   c) What are the risks of transfusion of plasma for this child and how would you overcome it?

2. You have evaluated a young child with suspected Glanzmann thrombasthenia
   a) Which agonists will you recommend for this child?
   b) Draw the platelet aggregometry curves you will see during the evaluation.
   c) What is the confirmatory test?

3. Blood was taken to the bedside for intended transfusion. When it was checked, it was found that was a mismatch of the patient ID between the patient wrist band and on the compatibility report. The doctor has called for advice.
   a) What type of an event is this in Haemovigilance terminology?
   b) What are the possible reasons such a situation has happened and how can this be overcome?
   c) What will you advice the doctor?

4. A 48 year old adult from West Bengal came to blood bank to donate platelets on apheresis. His screening tests showed Hb = 14.8 g/dL, TWBC = 7,600/cu mm; Plt count 1,40,000/cu mm with MPV =12.4fl.
   a) What is your possible clinical impression?
   b) What queries will you ask to confirm?
   c) How will you proceed?

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[LO 190]