(LG 188) **APRIL 2015** **Sub. Code:2082**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER II – IMMUNOHAEMATOLOGY, IMMUNOGENETICS AND APPLIED SEROLOGY

Q.P.Code: 202082

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

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

1. What are the major and minor surface proteins of red blood cells? Explain their relationship to blood group systems and the application of this in transfusion practice.

2. Role of secretor genes in the formation and process of development of Lewis antigens. Add a note on its clinical significance. Explain how Lewis antigens are helpful in assessing secretor status of the individual.

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

1. Paroxysmal nocturnal haemoglobinuria.
2. Anti A1 and its clinical significance.
3. Structure of Weak D antigens.
4. Quantification of Rh antibodies.
5. Chimerism.
6. Platelet refractoriness.
7. Acid elution method for detection of fetal red blood cells.
8. Write a standard operating procedure for Indirect Antiglobulin testing (IAT).
9. Human neutrophil antigen system.
10. Role of external quality assessment in transfusion medicine.

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(LI 188) APRIL 2016 **Sub. Code:2082**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER II – IMMUNOHAEMATOLOGY, IMMUNOGENETICS AND APPLIED SEROLOGY

Q.P.Code: 202082

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

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

1. Detail out the components of electronic cross matching.
2. Transfusion management in major ABO mismatch Allo- BMT recipients.

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

1. Advise patient who insists that she had been typed as A RhD positive before in another hospital but has been typed A RhD negative in your laboratory?
2. Molecular structure of Rh gene.
3. HLA crossmatch.
4. Panagglutination.
5. Laboratory investigations for TRALI (Transfusion Related Acute Lung Injury).
6. HLA – B27.
7. HTLA antibodies.
8. NK cells.
9. ISHAGE (International Society of Hematotherapy and Graft Engineering) protocol.
10. Platelet crossmatch.

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(LJ 188) OCTOBER 2016 **Sub. Code:2082**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER II – IMMUNOHAEMATOLOGY, IMMUNOGENETICS AND APPLIED SEROLOGY

Q.P.Code: 202082

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

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

1. Discuss Transfusion Protocols in the management of Thalassemia.
2. ABO discrepancies and methods to resolve the same.

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

1. Briefly discuss cold autoantibodies.
2. The role of molecular red cell typing.
3. The Coombs reagent.
4. The Mcleod phenotype and clinical significance.
5. Subgroups of A.
6. Quality assurance of serological infectious disease testing in a transfusion setting.
7. The Lewis blood group system.
8. Recombinant factor VII.
9. Investigation of a suspected transfusion reaction.
10. Quality control of reagent antisera for forward grouping.

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(LK 188) MAY 2017 **Sub. Code:2082**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER II – IMMUNOHAEMATOLOGY, IMMUNOGENETICS AND APPLIED SEROLOGY

Q.P.Code: 202082

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

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

1. Methods to detect anti HLA antibodies, and recommended guidelines for potential renal transplant recipients who are sensitized?

2. Describe serological characteristics of antibodies in Autoimmune haemolytic anemia, and elaborate on methods that can help elucidate the presence of coexisting alloantibodies.

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

1. The Miltenberger series of antigens.
2. Type II ABO discrepancies.
3. Monospecific DAT.
4. Cold agglutinin disease.
5. Pros and cons of the electronic crossmatch.
6. H-deficient phenotype.
7. Heparin induced Thrombotic thrombocytopenia.
8. Pathogenesis of Transfusion associated GVHD.
9. The use of lectins in Transfusion medicine.
10. Neonatal alloimmune thrombocytopenia – diagnosis and management.

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[LM 188] MAY 2018 **Sub. Code: 2082**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER II – IMMUNOHAEMATOLOGY, IMMUNOGENETICS AND APPLIED SEROLOGY

Q.P.Code: 202082

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

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

1. Describe the structure and characteristics of immunoglobulin in detail? Discuss their role in transfusion medicine. Add a note on Hybridoma technology.

2. Role of Secretor Genes in the formation and process of development of Lewis antigens. Add a note on its clinical significance. Explain how Lewis antigens are helpful in assessing secretor status of the individual? Also discuss the status of Lewis antigens during pregnancy, new born, infancy and early childhood.

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

1. Hardy-Weinberg principle.
2. RhD variants and its clinical significance
3. High-titer, low-avidity (HTLA) antibodies.
4. DAT negative auto immune hemolytic anemia.
5. Elution procedures and its application.
6. Enzymes in red cell serology.
7. Mcleod phenotype and its clinical significance.
8. Cross matching in the presence of Cold agglutinins.
9. Immunomodulatory effects of blood transfusion.
10. Gene Cloning.

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

1. A–Preterm-neonate, delivered at 32 weeks of gestation requires top-up red cell transfusion. Which is the most suitable packed red cell component to be used and give reasons for the same?

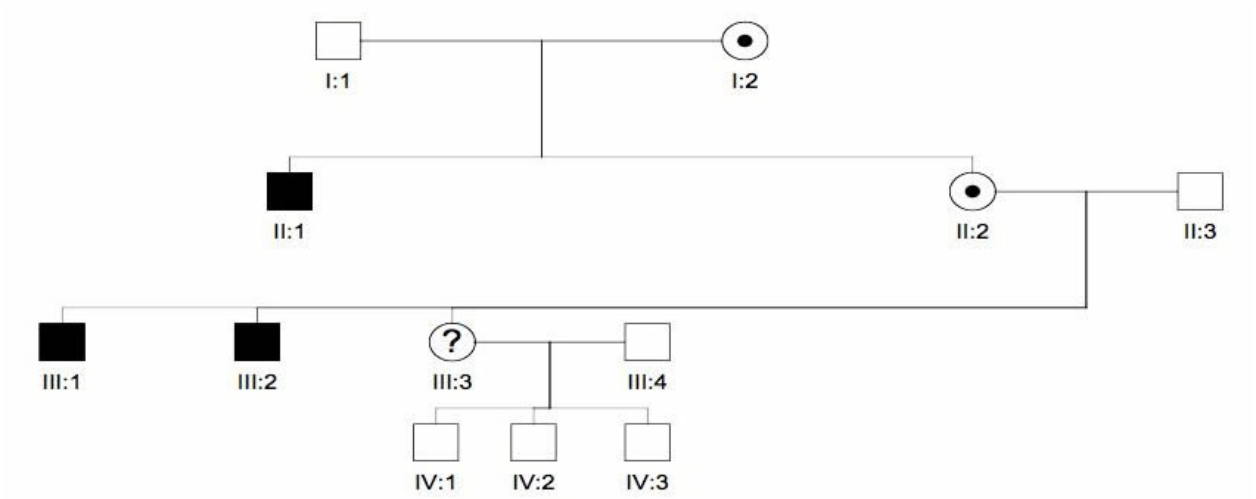
2. A-24 year- old- primi has come for the routine antenatal checkup at 12 weeks of gestation and is found to have anti D titre of 16 (1:16 Dilution).
   i. What is the critical anti-D titre?
   ii. How do you outline the protocol for maternal and fetal monitoring?

3.

Patient	**HLA**	**A1-A2**	**B8-B44**	**DR3-DR7**	**O Neg**
Sibling 1	HLA	A1-Ax	B8-B44	DR3-DR7	O Pos
Sibling 2	HLA	A1-A2	B8-B44	DR3-DR7	A Neg
Sibling 3	HLA	A1-A2	B7-B44	DR15-DR7	O Neg

From the above table answer the following:
   i. Which sibling is the best donor for kidney transplant?
   ii. Which is the best donor for Bone marrow transplant?
   iii. In case of bone marrow transplantation which blood product would you provide in pre, early and late post transplant phase?

4. This is the pedigree of a family with severe Haemophilia A. From the pedigree data shown below, what is the risk that III-3 is or is not a carrier?



When you have derived this risk - if III: 3 decided to have another child, what is the risk that if this a boy he will have severe haemophilia A?

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[LO 188] MAY 2019 **Sub. Code: 2082**

M.D. DEGREE EXAMINATION

BRANCH XXI – IMMUNOHAEMATOLOGY AND BLOOD TRANSFUSION

PAPER II – IMMUNOHAEMATOLOGY, IMMUNOGENETICS AND APPLIED SEROLOGY

Q.P. Code: 202082

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

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

1. Immunogenetics support for evaluation for a patient with Acute myeloid leukemia planned for a haplomatched allogenic bone marrow transplant.

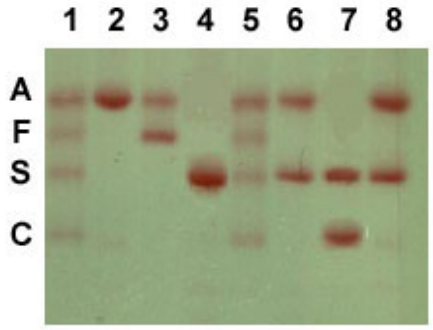
2. Automation in immunohaematology – describe the different analytic modalities for immunohaematology testing with their relative merits and demerits.

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

1. The Duffy blood group system.
2. Improving antigen- antibody reactions.
3. Du and its importance for blood transfusion.
4. Complement system.
5. INRA blood group.
6. Red blood cell filters.
7. Management of a patient with ITP.
8. Principles of estimation of residual risk for a transfusion transmissible infection.
9. Criteria to decide if a disease can be classified as a transfusion transmissible infection with examples.
10. Strategies to improve availability of plasma products in the country.

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

1. A mother and father present to you for pre-conception counseling. The mother is shown in lane 8 and the father in lane 4. The father has a Hgb of 8.5 g/dL and an MCV of 88 fL.



   a) What is the probability for each of their pregnancies that the child will have a form of sickle cell disease?

   b) What is sickle cell crisis and how will you manage this patient?

   c) What would be transfusion strategy for a patient with sickle cell anemia?

2. A Patient is admitted with a Hb of 6 gm/dl 2 weeks after the transfusion of 3 units of Red cells, the initial serological results are as follows Blood Group: A Rh Positive DAT : Positive 2+ During the time interval since the last transfusion, the patient complained of no symptoms except fatigue and shortness of breath on exertion. The physical findings were normal. The patient‘s physician has contacted the blood bank requesting an investigation of this post transfusion episode.

   a) What type of a reaction is this?

   b) Which tests should be done on order to explain this adverse post transfusion reaction?

3. A Patient has the following serologic results

Anti A	Anti B	Anti AB	A cells	B Cells	O Cells
3+	3+	3+	1+	0	0

Auto control: Neg DAT: Neg

a) How do you interpret the blood group?

b) What are all the test you will do and what advise you give to the clinician?

4. A 7 year old patient suffering from congenital sideroblastic anemia is planned for haematopoietic stem cell transplant with mother. HLA Typing performed showed as follows:

Patient					**Donor** (Mother)				
A	B	C	DRB1	DQB1	A	B	C	DRB1	DQB1
11:01	15:25	03:02	12:02	03:01	11:01	15:25	04:03	12:02	03:01
24:02	58:01	04:03	12:02	03:01	24:02	51:01	07:02	15:01	06:02

a) What is the HLA- match between patient and donor?

b) What other investigations are required in pre-transplant workup?

c) Give a brief outline for desensitization protocol in above patient if he is positive for weak Donor Specific Antibodies?

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[LO 188]