

April-2001

[KD 065]

Sub. Code : 1402

D.M. DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

Branch X — Haematology

Paper II — LABORATORY HAEMATOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss methods to detect minimal residual disease in acute leukaemias together with its clinical and biological significance. (20)
2. Discuss laboratory diagnosis of anti-phospholipid antibody syndrome. (20)
3. Discuss laboratory techniques to study functional disorders of platelets – both inherited and acquired. (20)
4. Write short notes on : (4 × 10 = 40)
 - (a) Diagnosis of AML-M7
 - (b) NTBI (Non-transferrin bound iron)
 - (c) Electron microscopy of hairy cell
 - (d) Automated differential WBC count.

[KH 065]

Sub. Code : 1402

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch X — Haematology

Paper II — LABORATORY HAEMATOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions

1. Enumerate the causes of thrombophilia in young adults. Discuss the laboratory tests that enable to define the underlying defect. (20)
 2. Antibody screening in transfusion medicine (20)
 3. Laboratory tests that establish accelerated haemolysis. (20)
 4. Write short notes on : (4 × 10 = 40)
 - (a) Automated reticulocyte counts. What new information does it provide?
 - (b) FISH.
 - (c) Pre-analytical errors in haematology.
 - (d) Flow cytometry.
-

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch X — Clinical Haematology

Paper II — LABORATORY HAEMATOLOGY

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

A. Essays :

(2 × 15 = 30)

(1) Discuss the approaches used in a Diagnostic Haematology laboratory to ensure that the results obtained are accurate and reproducible.

(2) You are asked to set up a comprehensive and prospective audit of blood/blood product usage and transfusion safety in your hospital. Discuss your approach to establishment and management of this program.

B. Short notes :

(10 × 5 = 50)

(1) Automated methodologies for determination of platelet counts, including the advantages and disadvantages of each.

(2) D-Dimer testing for VT/VTE.

(3) The laboratory diagnosis of 'sickle cell' disorders.

(4) Laboratory evaluation of G6PD deficiency.

(5) Haemorrhagic disease of the newborn.

(6) Analysis of chimerism post bone marrow transplant.

(7) The flow cytometric analysis of chronic lymphoproliferative disorders.

(8) Laboratory evaluation of hereditary spherocytosis.

(9) The principles and utility of the anti Xa assay.

(10) Coomb's (direct antiglobulin) test reagents.

[KM 065]

Sub. Code : 1402

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch X — Haematology

Paper II — LABORATORY HAEMATOLOGY

Time : Three hours

Maximum : 100 marks

**Theory : Two hours and
forty minutes**

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Essay questions : (2 × 15 = 30)

(1) Give the principles of flow cytometry and its application in diagnostic haematology.

(2) Discuss the role of automation in blood banking.

II. Short notes : (10 × 5 = 50)

(a) Screening tests for G6PD deficiency

(b) M-FISH

(c) Reticulocyte count

(d) PFA-100

(e) APC-resistance

(f) Tests for detecting iron deficiency

(g) Antiglobulin test

(h) Non-specific esterase

(i) D-Dimer testing

(j) Prenatal diagnosis of thalassemia.

[KO 065]

Sub. Code : 1402

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch X — Haematology

Paper II — LABORATORY HAEMATOLOGY

Time : Three hours

Maximum : 100 marks

**Theory : Two hours and
forty minutes**

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Essay questions : (2 × 15 = 30)

(1) Discuss Laboratory techniques in characterising monoclonal gammopathy.

(2) Role of PET scan in haematological malignancy.

II. Short notes : (10 × 5 = 50)

(a) Role of Bone marrow trephine Biopsy in myelodysplastic syndrome.

(b) Transferrin Receptors.

(c) Laboratory diagnosis of von-willebrands disease.

(d) Laboratory assays for antiphospholipid syndrome.

(e) Immunophenotype of Mantle cell lymphoma.

(f) Electronic cell counter-merits and demerits.

(g) Serum immunofixation electrophoresis.

(h) Laboratory monitoring of anticoagulation.

(i) Detection of minimal residual disease.

(j) Alpha thalassemia trait.

[KP 065]

Sub. Code : 1402

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch X — Clinical Haematology

Paper II — LABORATORY HAEMATOLOGY

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Essay questions :

(1) Principles of working of flow cytometer with its application in diagnosis of haematological disorders.

(20)

(2) Discuss the principles of the techniques used to detect atypical antibodies in a blood bank.

(15)

(3) How will you process a lymph node biopsy specimen to get maximum relevant information from the haematopathologist?

(15)

II. Short notes :

(6 × 5 = 30)

(a) Laboratory criteria to diagnose the aplastic anaemia.

(b) The marrow fibrosis.

(c) Principles of getting a standard karyotype in the laboratory.

(d) Iron status of a patient.

(e) PFA-100

(f) Lupus Inhibitor.

August 2008

[KT 065]

Sub. Code: 1402

D.M. DEGREE EXAMINATION

(Higher Specialities)

Branch X – Clinical Haematology

(Revised Regulations)

Paper II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three hours

Maximum: 100 Marks

Answer ALL questions

Draw suitable diagrams wherever necessary.

I. Essays:

2 x 20 = 40

1. Describe the laboratory approach for the diagrams of haematological causes of central cyanosis.
2. What are the principles of measuring an important analyte by ELISA technique. What are the different types of ELISA used in haematological laboratory.

II. Write short notes on:

10 x 6 = 60

1. Laboratory diagnosis of platelet refractoriness.
2. Laboratory diagnosis of DCT negative immune haemolytic anaemia.
3. Application of lectins in haematology laboratory.
4. JAK 2 mutation in haematological disorder.
5. Separation of cells by density gradient.
6. Principles of staining a standard peripheral smear by Romanowsky based panchromatic stain.
7. Laboratory diagnosis of foeto maternal haemorrhage.
8. Principles of assuring platelet function in the laboratory.
9. FISH in diagnosis of haematological disorders.
10. How do you demonstrate ring sideroblasts? Describe the principles of staining for ring sideroblasts.

August 2009

[KV 065]

Sub. Code: 1402

D.M. DEGREE EXAMINATION

(Higher Specialities)

Branch X – Clinical Haematology

(Revised Regulations)

Paper II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three hours

Maximum: 100 Marks

Answer ALL questions

Draw suitable diagrams wherever necessary.

I. Essays:

2 x 20 = 40

1. Describe investigations for the diagnosis of multiple myeloma; mention in brief their principle, methods and significance.
2. Describe the peripheral blood smear in health and disease.

II. Write short notes on:

10 x 6 = 60

1. Lupus anticoagulant.
2. PFA 100.
3. Automated reticulocyte count.
4. Flowcytometry in the diagnosis of chronic lymphoproliferative disorders.
5. Soluble transferrin receptors (STIR).
6. Vitamin B12 and folate assay.
7. TPMT.
8. Cytogenetic in Fanconi's anemia.
9. MRD detection in acute leukemia.
10. PH Chromosome.

August 2011

[KZ 065]

Sub. Code: 1402

**DOCTORATE OF MEDICINE (D.M.) DEGREE EXAMINATION
(SUPER SPECIALITIES)**

BRANCH X – CLINICAL HAEMATOLOGY

LABORATORY HAEMATOLOGY

Q.P. Code: 161402

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

Pages (Max.)	Time (Max.)	Marks (Max.)
-------------------------	------------------------	-------------------------

- | | | | |
|--|----|----|----|
| 1. Discuss the tests used in the laboratory evaluation of a 28 year old lady with 1 week old femoral venous thrombosis. What precautions would you take in performing these tests in relation to this patient? | 11 | 35 | 15 |
| 2. What measures would you adopt to evaluate and select a cell counter? How will you develop and validate your decision rules for slide review on the cell count samples sent to the lab? | 11 | 35 | 15 |

II. Write notes on :

- | | | | |
|---|---|----|---|
| 1. The flow cytometric analysis of chronic lymphoproliferative disorders. | 4 | 10 | 7 |
| 2. Congenital non-spherocytic haemolytic anemia. | 4 | 10 | 7 |
| 3. Transfusion associated graft versus host disease (TA-GVHD). | 4 | 10 | 7 |
| 4. Laboratory basis of neonatal alloimmune thrombocytopenia. | 4 | 10 | 7 |
| 5. Hb A2 – measurement and interpretation of results. | 4 | 10 | 7 |
| 6. Laboratory diagnosis of malaria. | 4 | 10 | 7 |
| 7. Measurement of ADAMTS-13 and its significance. | 4 | 10 | 7 |
| 8. Laboratory methods to document the bcr-abl translocation. | 4 | 10 | 7 |
| 9. Romanowsky – Giemsa effect. | 4 | 10 | 7 |
| 10. Laboratory diagnosis of heparin induced thrombocytopenia thrombosis. | 4 | 10 | 7 |

[LB 065]

AUGUST 2012

Sub. Code: 1402

D.M – CLINICAL HAEMATOLOGY
Paper – II LABORATORY HAEMATOLOGY
Q.P. Code: 161402

Time: 3 hours

Maximum: 100 marks

(180 Min) Answer ALL questions in the same order.

I. Elaborate on:

Pages Time Marks
(Max.)(Max.)(Max.)

- | | | | |
|---|----|----|----|
| 1. Describe in detail the laboratory evaluation of a patient with suspected von Willebrand disease. | 16 | 35 | 15 |
| 2. A 50 year old man presents with weakness and pancytopenia. There are features of dysplasia in the white cells. Describe in detail the laboratory evaluation of this patient. | 16 | 35 | 15 |

II. Write Notes on:

- | | | | |
|---|---|----|---|
| 1. Etiology and laboratory diagnosis of megaloblastic anemia. | 4 | 10 | 7 |
| 2. Hereditary pyropoikilocytosis. | 4 | 10 | 7 |
| 3. Autohemolysis test. | 4 | 10 | 7 |
| 4. Stress cytogenetics. | 4 | 10 | 7 |
| 5. Chimerism analysis following stem cell transplant. | 4 | 10 | 7 |
| 6. Coomb's test. | 4 | 10 | 7 |
| 7. Romanowsky stains. | 4 | 10 | 7 |
| 8. Cytogenetic abnormalities in multiple myeloma. | 4 | 10 | 7 |
| 9. Detection of minimal residual disease in leukemia. | 4 | 10 | 7 |
| 10. Utility of flow cytometry in platelet disorders. | 4 | 10 | 7 |

D.M. – CLINICAL HAEMATOLOGY
Paper – II LABORATORY HAEMATOLOGY
Q.P.Code: 161402

Time: Three Hours

Maximum: 100 marks

I. Elaborate on:

(2X15=30)

1. Describe the laboratory evaluation of a patient with suspected platelet function disorder.
2. Describe in detail the laboratory evaluation of a patient with aplastic anaemia.

II. Write notes on:

(10X7=70)

1. Methods of HLA typing.
2. Diagnosis of methaemoglobinemias.
3. Diagnosis of heparin induced thrombocytopenia.
4. Flowcytometry in red cell disorders.
5. Molecular markers in AML.
6. Free light chain assay.
7. Sequencing.
8. Perl's stain.
9. Evaluation of platelet refractoriness.
10. Diagnosis of leukocyte adhesion defects.

D.M. – CLINICAL HAEMATOLOGY
Paper – II LABORATORY HAEMATOLOGY
Q.P.Code: 161402

Time: Three Hours

Maximum: 100 marks

I. Elaborate on: **(2X15=30)**

1. Enumerate methods of CD34 quantification, its relevance and the quality control measures used for these assays.
2. Discuss the diagnosis and classification of Von Willebrand disease.

II. Write notes on: **(10X7=70)**

1. Laboratory methods to classify diffuse large B cell lymphoma.
2. T315 I mutation in CML.
3. Diagnostic tests and their limitations in Paroxysmal Nocturnal Haemoglobinuria.
4. Write briefly on methods used, their advantages and disadvantages, in 'Minimal Residual Disease' (MRD) detection of ALL.
5. Write a brief note on tests used in the diagnosis of Thrombotic Thrombocytopenic Purpura.
6. Write a brief note on evaluation of a suspected red cell enzymopathy.
7. Discuss the mutation profile of myeloproliferative neoplasms.
8. Discuss the role of molecular monitoring in the management of chronic myeloid leukemia.
9. Write a short note on laboratory investigations in a suspected case of anemia of chronic disease.
10. Write a short note on FLAER.

D.M. – CLINICAL HAEMATOLOGY
Paper II – LABORATORY HAEMATOLOGY
Q.P.Code: 161402

Time: Three Hours

Maximum: 100 Marks

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

1. Discuss evolution of laboratory tests for HLA typing and discuss its relevance in allogeneic stem cell transplantation.
2. Describe the tests used for evaluation of megaloblastic anemia and discuss the advantages and disadvantages of each of them.

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

1. Sideroblasts.
2. Immature platelet fraction.
3. HbH diagnosis.
4. Diagnosis of CMV re-activation and disease.
5. Evaluation for inhibitors in patients with hemophilia.
6. Diagnosis of Glanzmans thrombasthenia.
7. Genetics of severe combined immune-deficiency
8. Diagnosis of chronic granulomatous disease
9. Antenatal diagnosis and thalassemia
10. Mixed field reaction on Blood Group typing

D.M. – CLINICAL HAEMATOLOGY
Paper II – LABORATORY HAEMATOLOGY
Q.P.Code: 161402

Time: Three Hours

Maximum: 100 Marks

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

1. Discuss laboratory evaluation of young lady with hemolytic anemia.
2. Describe the laboratory tests used in evaluation of a patient with a suspected inherited immunodeficiency disorder.

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

1. Diagnosis of hereditary spherocytosis.
2. Methemoglobinemia.
3. Diagnosis of early T cell precursor ALL.
4. Evaluation of hyper-eosinophilic syndrome.
5. Isoforms of BCR-ABL and its relevance.
6. Hypodiploidy in acute lymphoblastic leukemia.
7. ASXL 1 mutation.
8. Next generation sequencing.
9. Role of immune-histochemistry in diagnosis of Diffuse large B cell lymphoma.
10. Molecular risk factors in diagnosis of myeloma and its relevance.

D.M. – CLINICAL HAEMATOLOGY
Paper II – LABORATORY HAEMATOLOGY
Q.P.Code: 161402

Time: Three Hours

Maximum: 100 Marks

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

1. Describe in detail the laboratory evaluation of a patient with suspected platelet function disorder.
2. A 50 year old man presents with weakness and back pain. He has anemia with high globulins and hypercalcemia. Describe in detail the laboratory evaluation of this patient.

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

1. Diagnosis of hereditary spherocytosis.
2. Diagnosis of Fanconi anemia.
3. Assessment of reticulocyte counts.
4. Principle of clotting factor assay.
5. Current classification of the myelodysplastic syndromes.
6. Reverse transcriptase (RT) PCR.
7. Prognostic markers in chronic lymphocytic leukemia.
8. Mechanisms of drug resistance in leukemias.
9. Monitoring of hydroxyurea therapy in sickle cell disease.
10. Evaluation of red cell alloimmunization.

D.M. – CLINICAL HAEMATOLOGY
Paper II – LABORATORY HAEMATOLOGY

Q.P.Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Diagnosis of Plasma cell dyscrasias.
2. PET scan and its role in hematology.

II. Write notes on:

(10 x 7 = 70)

1. Tests for Lupus Anticoagulant (LA).
2. Diagnosis of Hemophilia Inhibitors.
3. New parameters on cell counters.
4. Minimal Residual Disease (MRD).
5. Prenatal diagnosis in haematological disorders.
6. Point of care testing.
7. Galactomanan testing.
8. Laboratory diagnosis of Thalassemias.
9. Cryoglobulins.
10. Laboratory diagnosis of (Paroxysmal Nocturnal Hemoglobinuria) PNH.

(LK 065)

FEBRUARY 2017

Sub. Code:1402

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P.Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss prenatal diagnosis and its role in hematological disorders.
2. Describe the tests used for evaluation of megaloblastic anemia and discuss the advantages and disadvantages of each of them.

II. Write notes on:

(10 x 7 = 70)

1. Biomarkers for acute graft versus host disease.
2. HbH diagnosis.
3. Diagnosis of CMV re-activation and disease.
4. Evaluation for inhibitors in patients with hemophilia.
5. Thromboelastograph (TEG).
6. Diagnosis of Chronic granulomatous disease.
7. Evaluation of coagulopathy in acute promyelocytic leukemia.
8. Methemoglobinemia.
9. Lymphocyte subset analysis in severe combined immunodeficiency.
10. Tests for evaluation of red cell hemolysis.

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P.Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. A 3 year old child is referred with recurrent bacterial and fungal infections. Discuss the differential diagnosis, strategy for establishing diagnosis and management strategies.
2. Describe the tests used for evaluation of sickle cell anaemia and the various clinical manifestations of the disease.

II. Write notes on:

(10 x 7 = 70)

1. Molecular classification of Diffuse Large B-cell Lymphoma (DLBCL).
2. Procalcitonin.
3. Immune reconstitution after Bone Marrow Transplantation (BMT).
4. Evaluation of hyper-eosinophilic syndrome.
5. Isoforms of PML-RAR α and its relevance.
6. Role of Minimal Residual Disease (MRD) detection in acute lymphoblastic leukemia.
7. Monosomal karyotype AML.
8. Exome sequencing.
9. Role of immune-histochemistry and flow cytometry in diagnosis of hairy cell leukemia.
10. Molecular risk factors in diagnosis of myeloma and its relevance.

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P.Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the laboratory diagnosis of acute promyelocytic leukemia and current prognostication strategy.
2. Describe the principles used in cell counters for enumerating different blood cells in any platform that you are familiar with.

II. Write notes on:

(10 x 7 = 70)

1. Romanowsky stains and the Romanowsky Giemsa effect.
2. Factor VIII inhibitor assay.
3. Anti-globulin test.
4. Assessment of abnormal hemoglobin.
5. Diagnosis of paroxysmal nocturnal hemoglobinuria.
6. Karyotyping and its role in the management of acute leukemias.
7. Quantitation of bcr-abl transcripts.
8. Internal quality control for plasma clotting times.
9. Common techniques to detect globin mutations.
10. Current diagnostic criteria for multiple myeloma.

(LP 065)

AUGUST 2019

Sub. Code: 1402

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

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

1. Mention the structure and functions of platelets. Outline the laboratory evaluation of a patient with suspected platelet function disorder.
2. Discuss the Romanowsky – Giemsa effect and peripheral blood smear examination in health and disease.

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

1. Donor specific antibody testing.
2. Laboratory monitoring of anticoagulants.
3. Thrombin generation tests.
4. Diagnosis of common inherited leukocyte disorders.
5. Coulter principles and Automated differential WBC count.
6. Role of PET CT in haematological malignancy.
7. Chimerism analysis post HSCT.
8. Laboratory evaluation of thrombophilia.
9. Haemoglobin variant analysis and interpretation of results.
10. Investigation and management of acute transfusion reactions.

(LQ 065)

FEBRUARY 2020

Sub. Code: 1402

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Structure and function of T cell receptor (TCR). Discuss utility of TCR modification in medicine.
2. Describe in detail the normal function of hemoglobin. Tabulate the disorders of hemoglobin and how they alter its function?

II. Write notes on:

(10 x 7 = 70)

1. Minimal residual disease in acute myeloid leukemia.
2. Hemoglobinuria.
3. Tests to assess lymphocyte function.
4. Red cell genotyping.
5. Laboratory diagnosis of MPN.
6. Laboratory evaluation of acute hemolytic transfusion reaction.
7. Diagnosis of chronic myelomonocytic leukemia.
8. *BCR-ABL1* like acute lymphoblastic leukemia.
9. Next generation sequencing in coagulation disorders.
10. Automated cell counters.

(LR 065)

**NOVEMBER 2020
(AUGUST 2020 SESSION)**

Sub. Code: 1402

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

**Time: Three Hours
Marks**

Maximum: 100

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

1. Describe the processes involved in a polymerase chain reaction. Describe the utility of using PCR technology in the diagnosis and prognostication of hematological disorders.
2. A 28 – year – old male presents with history of a deep venous thrombosis involving the left leg. He gives a history of having abdominal thrombosis 5 years back. Describe the diagnostic, prognostic and therapeutic management of this patient.

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

1. Cytochrome P 450 enzymes
2. Romanowsky stains
3. Del 5 q in MDS and AML
4. Diagnosis of Mangle cell lymphoma
5. Thromboelastogram
6. Role of PET CT in lymphomas
7. Platelet crossmatching
8. Prognostic markers in CLL
9. Galactomannan antigen testing
10. Disgnosis of Hairy cell leukemia

(DM 0821)

AUGUST 2021

Sub. Code: 1402

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

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

1. Describe the common molecular genetic markers described in acute myeloid leukemia. Describe the prognostic and therapeutic implications of these mutations in clinical practice.
2. Describe the utility of next generation sequencing (NGS) in the study of benign hematological disorders. Describe the utility of NGS in the management of children with aplastic anemia.

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

1. DNA microarray.
2. Minimal residual disease in acute lymphoblastic leukemia.
3. Serum free light chain estimation.
4. Prognostic significance of molecular mutations in myelofibrosis.
5. Kleihauer test.
6. Diagnosis of paroxysmal nocturnal hemoglobinuria.
7. Neonatal allo-immune thrombocytopenia.
8. Chromosomal breakage analysis.
9. Ikaros mutations.
10. Triple negative MPN.

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

[DM 0822]

AUGUST 2022

Sub. Code :1402

D.M. – CLINICAL HAEMATOLOGY

Paper II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

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

1. Discuss the laboratory diagnosis of the acute lymphoblastic leukemias and its relevance to therapy and prognostication.
2. Discuss the laboratory approach to the diagnosis of hereditary bleeding disorders and their limitations.

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

1. Prothrombin time and International Normalized Ratio (INR).
2. Measurement of reticulocytes.
3. Evaluation of lupus anticoagulant.
4. Assessment of osmotic fragility and its significance.
5. Diagnosis of paroxysmal nocturnal haemoglobinuria.
6. Assessment of minimal residual diseases in acute myeloid leukemia.
7. Quality control blood group assessment.
8. Direct Coombs Test.
9. Diagnostic criteria for myelodysplastic syndromes.
10. External quality assessment in laboratory haematology.

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

[DM 0823]

AUGUST 2023

Sub. Code :1402

D.M. – CLINICAL HAEMATOLOGY

PAPER II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

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

1. Discuss the approach to the diagnosis of lymphomas. Mention the molecular subtypes of diffuse large B cell lymphoma and their implications for treatment and prognosis.
2. Discuss the laboratory approach to the diagnosis of hereditary hemolytic anemias.

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

1. Activated Partial Thromboplastin Time.
2. HbH preparation.
3. Assessment of red cell antibodies.
4. Laboratory diagnosis of Fanconi anaemia.
5. CD34 enumeration by flow cytometry.
6. Quantitative measurement of BCR-ABL transcripts.
7. Quality control for cell counters.
8. Factor 8 inhibitor assay.
9. Immunohistochemical staining.
10. Proficiency testing program and its significance for laboratory haematology.

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

[DM 0124]

JANUARY 2024

Sub. Code : 1402

D.M. – CLINICAL HAEMATOLOGY

PAPER II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Laboratory diagnosis of hereditary bleeding disorders and their limitations.
2. Laboratory testing for acute myeloid leukemia and its relevance in diagnosis and prognostication.

II. Write notes on:

(10 x 7 = 70)

1. Quality control for blood grouping.
2. Laboratory approach for Hemolysis.
3. RT-PCR and RQ-PCR.
4. Quality assurance in laboratory haematology.
5. CD34 enumeration – single platform.
6. MRD testing in acute lymphoblastic leukemia.
7. Testing of red cell antibodies.
8. Prothrombin time.
9. Variant analysis – HPLC.
10. Laboratory testing for primary immune deficiencies.

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

[DM 0824]

AUGUST 2024

Sub. Code : 1402

D.M. – CLINICAL HAEMATOLOGY

PAPER II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Laboratory evaluation of anemia.
2. Laboratory testing for chronic myeloid leukemia and its relevance in diagnosis and prognosis

II. Write notes on:

(10 x 7 = 70)

1. Diagnosis of Thalassemia syndromes.
2. Approach to polycythemia.
3. Laboratory diagnosis and prognostic testing in MDS.
4. Germline testing in hematology.
5. Quality assurance.
6. Calibrator and controls.
7. Prenatal diagnostic testing in hematology.
8. Diagnostic and prognostic testing in high grade B cell lymphomas.
9. Next generation sequencing.
10. Approach to blood grouping discrepancies.

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

[DM 0225]

FEBRUARY 2025

Sub. Code :1402

D.M. – CLINICAL HAEMATOLOGY

PAPER II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the molecular basis and laboratory diagnosis of acute promyelocytic leukemia.
2. FISH in diagnosis of haematological disorders.

II. Write notes on:

(10 x 7 = 70)

1. Laboratory diagnosis of foeto maternal haemorrhage.
2. Vitamin B12 and folate assay.
3. Laboratory diagnosis of heparin induced thrombocytopenia.
4. Stress cytogenetics.
5. Role of immune-histochemistry in diagnosis of Diffuse large B cell lymphoma.
6. Assessing MRD in Acute Lymphoblastic Leukemia.
7. Non-Specific esterase.
8. Galactomannan antigen testing.
9. PML-RAR α and its relevance.
10. Diagnosis of Chronic granulomatous disease.

D.M. – CLINICAL HAEMATOLOGY

PAPER II – LABORATORY HAEMATOLOGY

Q.P. Code: 161402

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Describe in detail the lab diagnosis of Paroxysmal nocturnal haemoglobinuria along with relevant pathophysiology. Name three drugs used to treat PNH along with their mechanism of action.
2. Describe the molecular classification of AML and write in detail regarding high risk AML.

II. Write notes on:

(10 x 7 = 70)

1. Antiglobin test.
2. Lab diagnosis of inhibitors in Haemophilia.
3. HPLC.
4. Automated cell counters.
5. TEG/ROTEM.
6. Point of care testing in haematology.
7. Diagnosis of Aspirin resistance.
8. Thrombin time.
9. Lab investigations in the diagnosis of Heparin induced thrombocytopenia.
10. Explain PIFT and MAIGA testing.
