April-2001

[KD 116] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION.

Branch III — Pathology

(Revised Regulations)

Paper IV — IMMUNO PATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATION OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Time : Three hours Maximum : 100 marks

1. Discuss the scope of peripheral smear examination in Haematology. (25)

2. Discuss the scope of automation in Haematology. (25)

Write briefly on : (5 × 10 = 50)

(a) Fluid cytology.

(b) Plasma cell discrasias

(c) Hypersplenism.

(d) Paraxysmal Nocturnal Haemoglobinuria

(e) Hb–F

November-2001

[KE 116] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATION OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Discuss in detail about the causes, differential diagnosis and investigations of patients with pancytopenia. (25)

2. Discuss pathogenesis, pathology and laboratory tests in haemolytic anaemias. (25)

3. Write briefly on : (5 × 10 = 50)

   (a) Porphyrias.

   (b) Monoclonal Gammapathies.

   (c) Abnormalities of immune function in AIDS.

   (d) Hyperviscosity Syndrome.

   (e) Von Willebrand's disease.

March-2002

[KG 116] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION

(Revised Regulations)

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Time : Three hours , Maximum 100 marks

Answer ALL questions.

1. Discuss the laboratory diagnosis of haemoglobinopathies (25)

2. Describe the preparations and uses of blood components in a modern blood bank. (25)

3 Write briefly on : (5 × 10 = 50)

(a) p 53 gene.

(b) Chorionic villus sampling

(c) Hybridoma.

(d) Selectins and integrins.

(e) F.A.B classifications.

[KH 116] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Discuss the pathogenesis, classification, cytogenetics and morphology of Myelodysplastic syndromes. (25)

2. Discuss the various laboratory procedures in the investigation of Hemolytic anemia. (25)

3. Write briefly on : (5 × 10 = 50)

(a) Bone marrow transplantation

(b) Glucose–6–phosphatedehydrogenase deficiency

(c) Hemoglobin electrophoresis

(d) Polymerase chain reaction

(e) Auto transfusion.

April-2003

[KI 116] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Time : Three hours Maximum : 100 marks

1. What are prions? Discuss the molecular pathogenesis of prion diseases and human prion diseases. (25)

2. Discuss the role of electron microscopy in the diagnosis of tumours with suitable examples. (25)

3. Write briefly on : (5 × 10 = 50)

   (a) Classification of acute leukemia

   (b) Plasma cell dyscrasias

   (c) Insitu Hybridization

   (d) The Bethesda system

   (e) Coombs test.

[KJ 116] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

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

M.C.Q. must be answered **SEPARATELY** on the answer sheet provided as per the instructions on the first page of the M.C.Q. Booklet.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

1. Define and classify myelodysplastic syndrome. Discuss pathogenesis, laboratory diagnosis and cytogenetics of myelodysplastic syndrome. (15)

2. Define and classify bleeding disorder. Discuss the role of platelet and its abnormalities in hemostasis. (15)

3. Write short notes on : (10 × 5 = 50)

(a) Cytomorphometry in diagnosis of cancer.

(b) Acquired qualitative disorders of lymphocytes.

(c) Cytogenic abnormalities in myeloproliferative disorders other than C.M.L.

(d) Diagnostic pitfalls of F N A C.

(e) Analysis and importance of analysis of urinary calculi.

(f) Instrumentation in urine analysis and its principle.

(g) Levey – Jenning's chart.

(h) P C R in early detection of tumour.

(i) Glycosylated haemoglobin and its role in the management of diabetes mellitus.

(j) Principles involved in enzyme activity determination.

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August-2004

[KL 116] Sub. Code : 2014

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

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 : (2 × 15 = 30)

(1) Mention the different plasma cell dyscracias and discuss the laboratory diagnosis of multiple myeloma.

(2) Discuss Polymerase Chain Reaction (PCR) and its application in diagnostic pathology.

II. Write short notes on : (10 × 5 = 50)

(a) Haemoglobinurias.

(b) Pathogenesis of Disseminated Intravascular Coagulation (DIC).

(c) Hormonal cytology and its clinical utility.

(d) Sideroblastic anaemia.

(e) Hairy cell leukaemia.

(f) Structure of platelet.

(g) Newer techniques in cytopathology.

(h) Cytochemical stains in Acute Leukaemia.

(i) Cryostat.

(j) Von Willebrand's disease.

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February-2005

[KM 116] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

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 : (2 × 15 = 30)

(1) A male patient of sixty years admitted with severe anaemia and mild icterus. Tongue is beefy red. Discuss the probable diagnosis, etiophthogenesis, pathology and laboratory diagnosis.

(2) A child of 3 years old attended hospital with history of fever, jaundice and splenomegaly. Discuss differential diagnosis and various laboratory investigations to clinch the diagnosis.

II. Write short notes on : (10 × 5 = 50)

(a) Micro satellite instability

(b) Enzymes in tumor diagnosis

(c) WHO classification of AML

(d) Sideroblastic Anaemia

(e) Flow Cytometry in Diagnosis

(f) Fnac of Salivary gland lesions

(g) Mucosal Biopsies in large intestine

(h) Immunity in Leprosy

(i) CT Guided Aspirations in Abdominal lumps of a child

(j) Bone marrow trephine biopsy.

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[KO 116] **Sub. Code : 2013**

M.D. DEGREE EXAMINATION.

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES.

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.

Draw suitable diagrams wherever necessary.

I. Essay questions : (2 × 15 = 30)

(1) Discuss the etiopathogenesis, classification and laboratory diagnosis of myelodysplastic syndromes.

(2) Discuss the laboratory diagnosis of bleeding disorders.

II. Write short notes on : (10 × 5 = 50)

(a) Bone marrow transplant

(b) Blood component therapy.

(c) Recent advances in lab diagnosis of Malaria

(d) Cytobrush

(e) Sediments in urine

(f) Immunotherapy

(g) Semen Analysis

(h) Proteolytic pretreatment of tissue sections

(i) Harry cell Leukemia

(j) Processing of Bone Marrow trephine biopsy.

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[KP 116] **Sub. Code : 2013**

M.D. DEGREE EXAMINATION.

Branch III — Pathology

Paper IV — IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS OF TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

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.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(1) Discuss diagnositic interpretation and clinical signifiance of serum enzymes and isoenzymes in disease. (20)

(2) What is the method of preparation of blood components and discuss its importance in blood transfusion? (15)

(3) Write in detail the role of immuno histochemistry in histological diagnosis. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Disseminated intravascular coagulation.

(b) Silver impregnation techniques in histopathology.

(c) Cell block preparation and diagnostic use.

(d) Broncho alveolar lavage in detection of occupational lung disease.

(e) Human leucocyte antigen (HLA), detection and its application.

(f) Usefulness of Karyotyping in the diagnosis and management of leukaemia.

[KQ 114] **Sub. Code : 2013**

M.D. DEGREE EXAMINATION.

Branch III — Pathology

IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Common to — Paper IV — (Old/New/Revised Regulations) (Candidates admitted from 1988–89 onwards) and Paper V — (For candidates admitted from 2004–2005 onwards)

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.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(1) Classify haemorrhagic disorders and discuss the laboratory diagnosis of Von Willebrands disease. (20)

(2) Give an account of F.A.B. classification of leukemias and discuss childhood leukemias. (15)

(3) Describe the pathology and pathogenesis of acquired immunodeficiency. (15)

II. Write short notes : (6 × 5 = 30)

(a) Role of colposcopy in gynecological pathology.

(b) Glycosylated haemoglobin.

(c) Autologus blood transfusion.

(d) Liquid base cytology.

(e) Advantages of diagnostic molecular pathology.

(f) Clinical application of flow cytometry.

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[KR 116] **Sub. Code : 2013**

M.D. DEGREE EXAMINATION.

Branch III — Pathology

IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Common to – Paper IV — (Old/New/Revised Regulations)

(Candidates admitted upto 2003–04) and

Paper IV — (For candidates admitted from 2004 – 2005 onwards)

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.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(1) Discuss the role of Bone Marrow biopsy in the diagnosis of Myeloproliferative disorders. (20)

(2) Discuss the techniques in cytological preparation and diagnostic value of body fluids. (15)

(3) Discuss the screening and specific tests used in the diagnosis of bleeding disorders. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Cytokeratin expression in various neoplasms.

(b) Hormone receptor status in Breast Carcinoma.

(c) Stem cell diseases.

(d) Tissue arrays – application.

(e) Leucoerythroblastic blood picture.

(f) Applications of cytocentrifuge.

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MARCH 2008

[KS 116] **Sub. Code : 2013**

M.D. DEGREE EXAMINATION.

Branch III — Pathology

IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

(Common to all candidates)

Q.P. Code : 202013

Time : Three hours Maximum : 100 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Long Essay : ($2 \times 20 = 40$)

1. Discuss the laboratory diagnosis of haemolytic anemias.
2. Discuss the blood transfusion reactions.

II. Write Short notes on : ($10 \times 6 = 60$)

1. Cytospin.
2. Aplastic anemia.
3. Immunethrombo cytopenic purpuras.
4. Natural killer cells.
5. Multiple myeloma.
6. Flow cytometry.
7. Nucleolar organizing regions.
8. Pure red cell aplasia.
9. Urinary sediments.
10. Automatted cell counters.

September 2008

[KT 116] **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

Branch III – Pathology

Paper IV – IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

(Common to all candidates)

Q.P. Code : 202013

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.
Answer ALL questions.

I. Essay questions : **(2 X 20 = 40)**

1. Classify anemias. Discuss the etiopathogenesis, morphology and lab diagnosis of pernicious anemia.

2. Discuss the available immune markers in diagnostic pathology. Mention the recent advances in identification of tumors by immuno-histochemistry.

II. Write short notes on : **(10 X 6 = 60)**

1. Utility and accuracy of zeta sedimentation.
2. Tropical sprue.
3. Recent advances in stem cell therapy.
4. Discuss pulmonary cytopathology -- routine and ancillary treatment.
5. Diseases of red cell membrane.
6. Complications of plasmacytoma.
7. Automation in urine analysis.
8. Von-willebrand's disease.
9. Recent advances in organ transplantation protocols.
10. Antibody – dependent cell mediated cytotoxicity (ADCC).

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March 2009

[KU 116] **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

Branch III – PATHOLOGY

(Common to all candidates)

Paper IV – IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : **(2 x 20 = 40)**

1. Define disseminated intravascular coagulation. Describe the etiopathogenesis and laboratory diagnosis.

2. Discuss prognostic indices of breast carcinoma.

II. Write short notes on : **(10 x 6 = 60)**

1. Describe the role of serum lipids in health and disease.
2. Discuss molecular basis and diagnosis of thalassemia.
3. Discuss role of automation in clinical pathology.
4. Recent concepts in papillary carcinoma of thyroid.
5. Micro satellite instability.
6. Congenital dyserythropoitic anemias.
7. Laboratory diagnosis of acute leukemias.
8. Describe principles and applications of flow cytometry.
9. Role of immunity in Hodgkins disease.
10. FNAC of thyroid lesions.

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September 2009

[KU 116] **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

Branch III – PATHOLOGY

(Common to all candidates)

Paper IV – IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : **(2 x 20 = 40)**

1. Classify haemolytic anaemias. Discuss the etiopathogenesis, clinical features and laboratory findings in immune haemolytic anaemia.

2. Discuss the role of immunohistochemistry and molecular biology in the classification of lymphomas and leukemia.

II. Write short notes on : **(10 x 6 = 60)**

1. Atypical chronic myeloid leukemia
2. Aggregometer
3. Automation in ESR
4. Liquid based cytology preparation
5. Thrombasthenia
6. Tests for Bence Jones protein
7. Fanconi's anaemia
8. LAP test
9. Downy cell
10. Pleocytosis

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March 2010

[KW 116] **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

Branch III – PATHOLOGY

(Common to all candidates)

Paper IV – IMMUNOPATHOLOGY, HAEMATOLOGY PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.

Answer ALL questions.

I. Essay questions : **(2 x 20 = 40)**

1. How do you investigate myelodysplastic syndrome?

2. Lymphoma – update.

II. Write short notes on : **(10 x 6 = 60)**

1. Banking of haematopoetic stem cell.
2. Stromal reactions of bone marrow.
3. Platelet therapy and apheresis.
4. Minimal residual disease in leukemia.
5. Discuss organization and legal concerns of blood banking.
6. Haemoglobinopathies in India.
7. β – Thalassemia – molecular biology and laboratory diagnosis.
8. Acute prolymphocytic leukemia.
9. Stains used in vaginal cytology.
10. Discuss creatinine clearance tests.

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September 2010

[KX 116] **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

Branch III – Pathology

Paper IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

(Common to all candidates)

Q.P. Code : 202013

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.
Answer ALL questions.

I. Essay questions : **(2 X 20 = 40)**

1. What are blood components? Describe the preparation, storage and uses of blood components.

2. Classify anemias. Discuss the etiopathogenesis, clinical features and laboratory findings in Aplastic anemia.

II. Write short notes on : **(10 X 6 = 60)**

1. Glycosylated Haemoglobin.
2. Electrophoresis.
3. Interpretation of synovial biopsies.
4. Importance of calibration verification in clinical laboratory.
5. Myeloproliferative diseases.
6. Refractory anemias.
7. Idiopathic thrombocytopenia.
8. DIVC.
9. Paps smear.
10. Atypical chronic myeloid leukemia.

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MAY 2011

[KY 116] **Sub. Code: 2013**

M.D. DEGREE EXAMINATION
BRANCH III – PATHOLOGY
IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES
Q.P. Code : 202013

Time : 3 hours **Maximum : 100 marks**
(180 Min)

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Discuss the pathogenesis, morphology and complications of sickle cell disease.	6	15	10
2. Digital photography in histopathology.	6	15	10
II. Short Questions:			
1. S 100.	3	8	5
2. Latest classification of myeloid neoplasms.	3	8	5
3. Pathology of bonenarrow failure.	3	8	5
4. Von Willibrand disease.	3	8	5
5. Molecular markers of early cervical neoplasia.	3	8	5
6. Mantle cell lymphoma.	3	8	5
7. Hairy cell leukemia.	3	8	5
8. Tissue array.	3	8	5
III. Reasoning Out:			
1. 62/F presented with mild weakness. On examination she had cervical and supraclavicular lymphadenopathy. Total count was 185000/µL, Peripheral smear was done. Describe the molecular pathogenesis, morphology and prognosis for this case.	4	10	5
2. 36/F presented with fatigue and weakness. Peripheral smear was taken. Discuss the morphology and etiology of the case.	4	10	5
3. 40/F presented with fever with rigor and mild hepatosplenomegaly. Peripheral smear was done for diagnosis. Discuss in detail the Peripheral smear picture.	4	10	5
4. 42/F admitted with fever, night sweat, weight loss, painless cervical lymphadenopathy. Lymph node biopsy was done. CD15 and CD30 positive. Describe the morphology and molecular genetics of this disease.	4	10	5
IV. Very Short Ansers :			
1. Dorfman Chanarin syndrome.	1	4	2
2. P blood group.	1	4	2
3. B cell associate antigens detected by monoclonal antibodies.	1	4	2
4. Letterer-Siwe disease.	1	4	2
5. Pure red cell aplasia.	1	4	2
6. Secondary polycythemia.	1	4	2
7. Absolute eosinopil count.	1	4	2
8. Clot retraction.	1	4	2
9. Bleeding time.	1	4	2
10. Dutcher bodies.	1	4	2

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APRIL 2012

[LA 116] **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time : 3 hours **Maximum : 100 marks**

(180 Min)

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Define Myelodysplastic syndrome. Classify the syndrome. Discuss the etiopathogenesis, and describe morphology of the peripheral blood & bone marrow in MDS.	9	15	10
2. What is amyloid? Describe physical and chemical nature of amyloid. Discuss pathogenesis and classification of amyloidosis.	9	15	10
II. Short Questions:			
1. What is immunological tolerance? Discuss mechanisms of tolerance with suitable examples.	3	8	5
2. Discuss Bethesda system of reporting Cervical Smears.	3	8	5
3. What are Toll like receptors? Enumerate laboratory methods to identify them.	3	8	5
4. Out line principle and methodology of FISH. Discuss its usefulness in diagnosis.	3	8	5
5. Discuss briefly immunology of Leprosy.	3	8	5
6. What is a reticulocyte? How is it counted? Discuss the significance of its presence in the peripheral blood.	3	8	5
7. Outline principle and methodology of automated cell counters.	3	8	5
8. Define Exchange Transfusion. Discuss its principle and applications.	3	8	5
III. Reasoning Out:			
1. A 22 male patient was hospitalized with blood oozing from his nose and mouth. He also had petechiae and ecchymoses all over his body. There was generalized lymphadenopathy and hepatosplenomegaly Lab studies showed normocytic anemia, thrombocytopenia and a Total WBC count of 32000/cu.mm The PT and PTT were prolonged. The Peripheral smear showed hypergranular promyelocytes filled with Auer rods. The patient is most likely to have which chromosome translocation?			
a) t (8: 14)	5	10	5
b) t (9: 22)			
c) t (14: 18)			
d) t (15: 17)			

(PTO)

2. Splenectomy is the treatment for this anemia and its complications. Name the anemia and discuss rationale for the treatment. 5 10 5

3. The cord blood of a Rh positive foetus is evaluated for Rh incompatibility. Which of the following tests would be diagnostic for a hemolytic reaction?

a) Hemoglobin estimation
b) Reticulocyte count
c) Total Bilirubin estimation
d) Direct Coombs Test 5 10 5

4. A 45 year old woman presented with a sore tongue, and instability while walking. UGIE shows chronic atrophic gastritis of the fundus and body. Laboratory studies showed a severe macrocytic anemia with pancytopenia and hyper segmented neutrophils. Which of the following laboratory test findings most likely be reported?

a) Decreased serum folate
b) Decreased serum Gastrin
c) Decreased urine methyl malonic acid
d) Increased Vitamin B 12 absorption after addition of intrinisic factory 5 10 5

IV. Very Short Answers :

1. What are the characteristic features of an unsatisfactory Thyroid FNAC Smear? 1 4 2
2. Name CD 117 Positive Tumours. 1 4 2
3. Enumerate the Hypo proliferative anemias. 1 4 2
4. Enumerate patterns of infiltration of the bone marrow by neoplastic Lymphoid cells. 1 4 2
5. What are the factors that can cause increased destruction of circulating Platelets? 1 4 2
6. What are a. knock out mice b. knock in mice? 1 4 2
7. List causes of pancytopenia. 1 4 2
8. What is the Peripheral smear appearance in Megaloblastic anemia. 1 4 2
9. What are the differences between intravascular and extra vascular Hemolysis? 1 4 2
10. What is Pelger Huet anomaly? 1 4 2

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[LB 116] **OCTOBER 2012** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time : 3 hours **Maximum : 100 marks**

(180 Min)

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. What are high density tissue microarrays? Discuss mechanics & design of TMA. Enumerate applications of TMA.	9	15	10
2. Define hemolytic anemias. Classify them. How will you investigate a patient with hemolysis to arrive at a definitive diagnosis	9	15	10
II. Short Questions:			
1. Outline principle and methodology of Polymerase Chain Reaction.	3	8	5
2. Discuss briefly transfusion reactions.	3	8	5
3. Discuss briefly newer concepts about the adult stem cell.	3	8	5
4. Discuss briefly the applications of exfoliate cytology in early detection of cancer.	3	8	5
5. What are the methods used for detection of mutations?	3	8	5
6. Discuss briefly mechanisms of autoimmunity.	3	8	5
7. Discuss mechanisms of rejection of kidney allograft.	3	8	5
8. Give a brief outline of advances in the technique of microscopy	3	8	5
III. Reasoning Out:			
1. A 48 year old man has fever, weight loss, sweating and a dragging sensation in the abdomen. Physical examination showed massive hepatosplenomegaly. Laboratory studies revealed normocytic anemia and thrombocytopenia and a WBC count of 110,000/cu mm, Bone marrow aspirate was hypercellular with neutrophils in all Stages of development. < 2 % of the WBCs were myelobalsts. Which of the following laboratory findings would most likely to be positive? a) Leukocytes for Alkaline Phosphatase b) Leukocytes for CD 10 antigen c) Leukocytes for Philadelphia chromosome d) Leukocytes for TRAP	5	10	5
2. A 45 year old man had a sudden onset pain in his right great toe. O/E the area was red and swollen. The TC was 18000 / cu mm, with neutrophilia and 10 % band forms. Synovial fluid microscopy would show the following crystals: a) Calcium pyrophosphate b) Cholesterol c) Negative birefringent crystals d) Postive birefringent crystals`	5	10	5
3. A 55 year old woman had developed multiple pigmented, pedunculated tumours and flat oval, coffee coloured skin patches in the last 3 years. She has			

also had during this period episodic attacks of headache, palpitations and profuse perspiration. Her pulse rate is 160 / min and her blood pressure 180/120 mm Hg. Which of the following tests would be most useful in finding the cause of her Hypertension?

a) Complete urinalysis
b) Serum Electrolytes
c) Urine for free cortisol, 24 hours
d) Urine for metanephrine, 24 hours . 5 10 5

4. A 4 years old boy had history of frequent respiratory infections and greasy Stools. The child is below the normal percentile for weight & height for age. Physical examination shows nasal polyps and coarse inspiratory rales in both lung fields that clear with coughing. Which of the following laboratory tests is the next step in determining a diagnosis?

a) Chromosome study
b) Nasal smear for eosinophils
c) Stool culture
d) Sweat chloride test 5 10 5

IV. Very Short Answers :

1.	What is the differential diagnosis of hypochromic microcytic anemia?	1	4	2
2	Represent diagrammatically the molecular basis of platelet adhesion & aggregation.	1	4	2
3.	What is the origin and nature of stromal cells of the bone marrow?	1	4	2
4.	Name causes of unconjugated hyperbilirubinemia.	1	4	2
5.	What are the battery of stains performed on frozen and fixed muscle biopsy?	1	4	2
6.	Brief note on Heinz body preparation and its application in Hematology.	1	4	2
7.	Enumerate storage options available in digital photography of pathology images.	1	4	2
8.	Give a diagrammatic representation of the Cross section of RBC Membrane in Hereditary Spherocytosis.	1	4	2
9.	What is marrow stainable Iron? How is it estimated?	1	4	2
10.	What are the tests done using the cord blood in a setting of Rh Incompatibility?	1	4	2

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(LC 116) APRIL 2013 Sub. Code: 2013

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time: Three Hours **Maximum: 100 marks**

I. Essay: **(2X10=20)**

1. Recent advances in molecular diagnosis of Paediatric soft tissue sarcoma.
2. Liquid based cytology for cervical screening.

II. Short Questions: **(8X5=40)**

1. Vimentin
2. α Thalassemia
3. Thrombotic microangiopathies
4. Hemophilia A
5. Myelodysplastic syndrome
6. Morphological variants of thymoma
7. Electrophoresis
8. Reticulocyte count

III. Reasoning Out: **(4X5=20)**

1. 42/M presented with weakness, weight loss and massive splenomegaly, Peripheral smear was done. Describe the molecular pathogenesis, morphology, and natural history of this case.
2. 26/M presented with weakness, shoulder pain and non-healing leg ulcer. Peripheral smear done followed by another confirmatory test. Discuss the pathogenesis and morphology.
3. 40/F presented with fever with rigor, and mild hepatosplenomegaly. Peripheral smear was done for diagnosis. Discuss in detail the peripheral smear picture.
4. 42/F admitted with fever, night sweat weight loss, painless cervical lymphadenopathy. Lymphnode biopsy was done. CD15 and CD30 positive. Describe the morphology and molecular genetics of this disease.

IV. Very Short Answers: **(10X2=20)**

1. Cold acting antibodies
2. Ruston bodies
3. T cell associated antigens detected by monoclonal antibodies
4. Chediak-Higashi syndrome
5. Protein S
6. Cytocentrifuge
7. Absolute eosinophil count
8. Inflammatory pseudotumor of lymphnode
9. Heavy chain disease
10. Kimura’s disease

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[LD 116] **OCTOBER 2013** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time: Three Hours **Maximum: 100 marks**

I. Essay: **(2 x 10 = 20)**

1. Discuss the pathogenesis and pathology of systemic lupus erythematosus.

2. Describe the subtypes of acute myeloid leukemia defined by the WHO classification. What are the features that have an impact on prognosis.

II. Short Questions: **(8 x 5 = 40)**

1.B lymphocytes.
2. Differentiation of haemopoietic cells.
3. Cytogenetic and molecular genetic changes in chronic myeloid leukemia.
4. Pathophysiology of disseminated intravascular coagulation.
5. Paroxysmal nocturnal haemoglobinuria.
6. Follicular lymphoma.
7. Liquid-based cervical cytology.
8. Kaposi sarcoma.

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

1. A 14-year-old boy with sickle cell anemia was admitted with pain and tenderness of the right hip and thigh. A radiograph reveals irregular bony destruction of the femoral head. Which of the following infectious agents is most likely responsible for his findings?
   a) Pneumococus
   b) Streptococcus
   c) Salmonella
   d) Borrelia

2. A young healthy man has seasonal episodes of nasal congestion, sneezing and watery eyes. There is no cough or fever but there is swelling of his nasal passages. Chemical mediators from which of the following cell types are responsible for these features?
   a) Macrophage
   b) NK cell
   c) Basophil
   d) Mast cell

(PTO)

3. Which of the following findings is most likely to be observed following splenectomy for blunt trauma?
   a) Tear-drop cells
   b) Punctate basophilia
   c) Red cell inclusions
   d) Elliptocytes

4. A male infant has failure to thrive and has recurrent episodes of bacterial pneumonia with both *Hemophilus influenzae* and *Streptococcus pneumoniae*. Which of the following diseases is he most likely to have?
   a) Di George syndrome
   b) X-linked agammaglobulinaemia
   c) IgA deficiency
   d) Complement inactivation syndrome

IV. Very Short Answers: **(10 x 2 = 20)**

1. Partial thromboplastin time.
2. Cold agglutinin haemolytic anemia.
3. Kleihauer test.
4. Principle of fluorescence in situ hybridisation
5. Skin changes in acute graft versus host disease.
6. Histopathology of delayed hypersensitivity reactions.
7. Peripheral blood findings in myelodysplastic syndrome.
8. JAK2 mutation.
9. Differences in presentation between Hodgkin and non-Hodgkin lymphomas.
10. Bence-Jones proteins.

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[LE 116] **APRIL 2014** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION
BRANCH III – PATHOLOGY
IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES
Q.P. Code :202013

Time : Three Hours **Maximum : 100 marks**

I. Essay: **(2X10=20)**

1. What is the pathogenesis of autoimmunity? Discuss the etiopathogenesis, morphology and complication of SLE.

2. What are the technical advances in bone marrow pathology? Discuss the implication of WHO classification in the marrow diagnosis of myeloid neoplasia.

II. Write short notes on: **(8X5=40)**

1. Clinicopathologic perspective of palpable thyroid nodules.
2. Role of IHC in diagnosing tubal metaplasia vs endometriosis.
3. Morphological abnormalities in Neutrophils.
4. Discuss effect of EBV in AIDS.
5. What are the conditions leading to myelofibrosis?
6. Immune mediated haemolytic anaemias.
7. Give the WHO classification of myelodysplastic syndrome.
8. What is microsatellite instability? What is its relation to neoplasia?

III. Reasoning Out: **(4X5=20)**

1. 2 years old child had severe anaemia with massive spleen. Peripheral smear showed numerous target cells and microcytes with nucleated RBCs.

    a. What is the probable diagnosis?
    b. What is the confirmatory lab test?

2. 50 years old male presented with generalized lymphadenopathy and hepatosplenomegaly. Peripheral smear showed rouleaux formation and spherocytes.

a. Give your differential diagnosis.
b. What is the role of Coombs test in the diagnosis?

3. 7 years old child presented with generalized lymphadenopathy, hepatosplenomegaly and medisatinal mass. Peripheral smear showed increased WBC count (1,20,000 cells/cu.mm) with blasts forming 80%.

    a. What will be the type of blast?
    b. What is the probable immunophenotype?

4. Peripheral smear of a child with progressive ataxia showed numerous acanthocytes and few nucleated RBCs.
    a. What is your diagnosis?
    b. What should be the percentage of acanthocytes?

IV. Very Short Answers: (10X2=20)

1. What are HIFs?
2. Name the IHC marker used to differentiate reactive condition is from neoplasm.
3. What is external quality assurance?
4. Name stains for Melanin.
5. Name new technologies in PAP cytology.
6. What do you understand by gene expression profile?
7. Cytochemistry of megakaryocytic leukemia.
8. Types of nerve biopsy preparations.
9. Carnoy's fixative.
10. What is haemolytic uremic syndrome?

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[LF 116] **OCTOBER 2014** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV - IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code :202013

Time : Three Hours **Maximum : 100 marks**

I. Essay: **(2 x 10 = 20)**

1. What are high density tissue microarray? Discuss the mechanics and design of microarray and its applications.

2. What are myeloproliferative disorders? What are the various mutations in myeloproliferative disorders? Discuss in detail about primary myelofibrosis.

II. Write short notes on: **(8 x 5 = 40)**

1. Imported infectious diseases.
2. Cytopathology of metastatic neoplasia in the lung.
3. Advances in endometrial pathology.
4. Recent advances in bone marrow pathology.
5. Mantle cell lymphoma.
6. FNAC of bone tumors.
7. Myelophthisic anemia.
8. Immunohemolytic anemia.

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

1. 25 year old male with H/ O chloramphenicol intake presented with WBC count of 800 cells/ cu mm

   A. What is your diagnosis?
   B. What is the pathogenesis and morphology of this condition?
   C. What are the other causes?
   D. What is LGL leukemia?

2. 60 year old asmptomatic male was incidentally found to have serum M protein of 2.5 gm / dl

   A. What is your diagnosis?
   B. Enumerate the other conditions in this group.
   C. What is the clinical course?

3. 45 year old male had dragging sensation in left upper quadrant and discomfort after eating. Blood examination revealed anemia, leukopenia and thrombocytopenia.

   A. What is your diagnosis?
   B. Enumerate the differential diagnosis.
   C. What is the morphology of the diseased organ?

4. 20 year old female presented with epistaxis and menorrhagia. Examination revealed normal platelet count, prolonged bleeding time, prolonged PTT and reduced Ristocetin cofactor activity.
   A. What is your diagnosis?
   B. What is the pathogenesis of this condition?
   C. What are the other tests done for confirmation?

IV. Very Short Answers: **(10 x 2 = 20)**

1. Reticular hyperplasia.
2. Lymphotropic viruses.
3. Four favourable prognostic factors in ALL.
4. Smoldering myeloma.
5. Mutations in Thalassemia.
6. Hematogones.
7. Critical alert values.
8. Vacutainers.
9. Lap score.
10. Protein-S.

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[LG 116] **APRIL 2015** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time: Three Hours **Maximum: 100 marks**

Answer ALL questions in the same order.

I. Essay: **(2 x 10 = 20)**

1. Discuss in detail about quality control in the pathology laboratory.

2. Classify non neoplastic lesions of leukocytes. Discuss in detail the granulocytic non neoplastic lesions.

II. Write Short notes on: **(8 x 5 = 40)**

1. Idiopathic myelofibrosis.
2. Splenic marginal zone lymphoma.
3. Langerhan cell histiocytosis.
4. FNAC of soft tissue lesions.
5. Liquid based cytology.
6. Immunology of malaria.
7. Digital photography in histopathology.
8. Urinary sediments.

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

1. 25 year old female presents with recent h/o allergic rhinitis, urticaria and infection with WBC count of 50 x 10^9 cells/ cu mm. Usg abdomen shows no organomegaly

   A. What is your diagnosis?

   B. What are the associated conditions?

   C. What are the other causes?

2. 70 year old male was found to have generalised lymphadenopathy and Leukocytosis - count 70 x 10^9 cells / mm^3

   A. What is your diagnosis?

   B. What is the immunophenotype of this condition?

   C. What is the clinical course?

3. 45 year old female had menorrhagia, difficulty in swallowing and pitting nails. Her blood examination revealed anemia.

   A. What is your diagnosis?

   B. Enumerate the differential diagnosis?

   C. What are the morphologic changes in the bone marrow?

   D. What is the cause of dysphagia?

4. 30 year female presented with fever, anemia, thrombocytopenia, renal failure and neurological deficits

   A. What is your diagnosis?

   B. What is the pathogenesis of this condition?

   C. What are the other tests done for confirmation?

IV. Very Short Answers: **(10 x 2 = 20)**

1. Thrombopoietin.
2. Latest tests for malaria.
3. Test for microalbuminuria.
4. DD for normocytic anemias.
5. Transient erythroblastopenia of childhood.
6. Bombay blood group.
7. 5 q- syndrome.
8. Sickling test.
9. Mastocytosis.
10. Protein-C.

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[LH 116] **OCTOBER 2015** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code : 202013

Time: Three Hours **Maximum: 100 marks**

Answer ALL questions

I. Essay: **(2 x 10 = 20)**

1. What are the molecular diagnostic methods used in the pathology lab? Discuss the principles and applications of flow cytometry.
2. Recent classification of lymphomas. Discuss in detail about T cell and NK cell neoplasms.

II. Short Questions: **(8 x 5 = 40)**

1. FNAC of salivary gland tumors.
2. Immunology of leprosy.
3. Diagnosis of primary and secondary lymphomatous effusions.
4. Telepathology.
5. Polycythemia.
6. WHO protocol for semen analysis.
7. Hb electrophoresis.
8. Cytospin.

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

1. 25 year old male with recent H/O infection with WBC count of 80000 cells/cu mm. USG abdomen – no organomegaly.

   A What is your diagnosis?

   B. What are the differential diagnosis?

   C. How will you confirm your diagnosis?

   D. What are the other causes?

(PTO)

2. 60 year old male was found to have serum ‘M’ protein of 3.5 gm / dl and lytic lesion in vertebra.

   A. What is your diagnosis?

   B. Enumerate the other conditions in this group.

   C. What is the clinical course?

3. 45 year old female had pins and needles of extremities, abdominal pain, lemon yellow appearance of skin and glossitis. Gastric mucosal biopsy revealed atrophic gastritis. Blood examination revealed anemia.

   A. What is your diagnosis?

   B. Enumerate the differential diagnosis.

   C. What are the morphologic changes in bone marrow?

4. 30 / M presented with hemarthrosis following trivial injury and epistaxis. Examination revealed normal platelet count, prolonged clotting time, prolonged APTT.

   A. What is your diagnosis?

   B. What is the pathogenesis of this condition?

   C. What are the other tests done for confirmation?

IV. Very Short Answers: **(10 x 2 = 20)**

1. Ham test.
2. Pseudo pelger huet cells.
3. Hand schuller christian triad.
4. Features of non classic variant of hodgkin’s lymphoma.
5. Sezary syndrome.
6. Red cell distribution width.
7. EQAS.
8. RBC inclusions.
9. International normalized ratio.
10. Molecular phenotype of follicular lymphoma.

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[LI 116] APRIL 2016 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code :202013

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

I. Essay: **(2 x 10 = 20)**

1. Role of FNAC in evaluation of soft tissue neoplasms.

2. Discuss the recent concepts in diagnosis, classification and pathology of Hodgkin's Disease.

II. Write Short Notes on: **(8 x 5 = 40)**

1. Bethesda system of reporting for FNAC thyroid.
2. FISH.
3. Internal quality control.
4. Hereditary spherocytosis.
5. Burkitt's lymphoma.
6. Recent advances in investigation of malaria.
7. Platelet function tests.
8. Dry tap on BM aspiration.

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

1. A 45 year old male presented with anaemia, weakness and dragging sensation in the abdomen. He had massive splenomegaly. His total count is 1,50,000. What is the probable diagnosis? Discuss the pathology and prognostic factors in this condition.

2. 50 year old female admitted with menorrhagia and anaemia. Discuss the peripheral smear and bone marrow findings. Add a note on other investigations for assessment of anaemia in this patient.

3. A 20 year old male patient has a history of episodic haemolysis following intake of anti malarial drugs. What is the probable diagnosis?

4. An elderly lady came with complaints of generalised weakness and fatigue. Her total WBC count was 80,000 cells/ cumm with 89% lymphocytes. What is the probable diagnosis?

IV. Very Short Answers: **(10 x 2 = 20)**

1. JAK mutation.
2. HbF.
3. Decalcifying agents in histopathology.
4. Coomb's test.
5. Reticulocyte count.
6. Phase contrast microscopy.
7. Sickle cell trait.
8. Agranulocytosis.
9. Prognostic factors in AML.
10. PCV.

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[LJ 116] OCTOBER 2016 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code :202013

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

I. Essay: **(2 x 10 = 20)**

1. Discuss current concepts in classification of Myelodysplastic syndrome with a note on cytogenetic abnormalities.

2. 50 year old male presented with jaundice. Discuss the investigations for diagnosis.

II. Write Short Notes on: **(8 x 5 = 40)**

1. Thalassemia.
2. Sample rejection criteria.
3. Haemolytic uremic syndrome.
4. Cryoprecipitate.
5. Chronic lymphocytic leukemia.
6. External quality assurance.
7. Promyelocytic leukemia.
8. Bone marrow transplant.

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

1. A 10 year old boy presented with osteolytic lesion in the skull, skin nodules. FNAC of the skin nodule showed plenty of eosinophils and histiocytes. What is the probable diagnosis? Discuss the classification and syndromes associated.

2. A 55 year old lady with complaints of low back pain, was found to have multiple osteolytic lesions, anaemia. Bone marrow aspiration was done. Serum electrophoresis was advised. What is the probable diagnosis? Discuss the diagnostic criteria and prognostic factors.

3. A 50 year old male presented with oral ulcers and bullous lesions in the face and scalp. Skin biopsy was done. It revealed suprabasal bulla. What is the probable diagnosis? What is the role of IF in the diagnosis of these lesions?

4. A 40 year old female presented with thyroid nodule and cervical lymph nodal enlargement. Serum calcitonin was raised. What is the finding in FNAC of the thyroid nodule?

IV. Very Short Answers: **(10 x 2 = 20)**

1. Pure red cell aplasia.
2. Telescoped urinary sediment.
3. Pelger – Huet anamoly.
4. CSF examination in meningitis.
5. Civatte bodies.
6. PT – INR.
7. Infections identified by PAP smear.
8. Paroxysmal nocturnal haemoglobinuria.
9. Markers for anaplastic large cell lymphoma.
10. Von Willebrand factor.

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[LK 116] MAY 2017 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATIONS TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code :202013

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

I. Essay: **(2 x 10 = 20)**

1. Discuss about plasma cell dyscrasias.
2. Discuss Automation in Histopathology.

II. Write Short Notes on: **(8 x 5 = 40)**

1. Photography of gross specimens.
2. LJ chart.
3. Urinary sediments.
4. ESR.
5. Primary myelofibrosis.
6. Cutaneous lymphoma.
7. Sideroblasticanaemia.
8. Recent advances in classification of AML.

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

1. A 15 year old boy came with complaints of haemarthrosis. His father had similar episodes. What is your probable diagnosis? Discuss the pathophysiology, clinical features and management of the disorder.

2. A 19 year old girl presented with anaemia, repeated leg ulcers and auto splenectomy. What is your diagnosis? Discuss the etiopathogenesis, pathophysiology, diagnosis of the disease.

3. A 23 year old female presented with solitary nodule thyroid in the left lobe with cervical lymphadenopathy. FNAC of thyroid was done. Discuss the differential diagnosis in cytology.

4. A 50 year old lady presented with anaemia, paraesthesia of lower limbs. She had beefy tongue. Her serum LDH was mildly elevated. What are the investigations you recommend for arriving at a diagnosis?

IV. Very Short Answers: **(10 x 2 = 20)**

1. RS cell.
2. Ph' chromosome.
3. HbA1C.
4. Autologous blood transfusion.
5. Glanzmann's thrombasthenia.
6. Prognostic factors in ALL.
7. Congenital anaemias.
8. Storage of platelets in blood bank.
9. Osmotic fragility test.
10. Enumerate uses of silver stains in Histopathology.

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[LL 116] OCTOBER 2017 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code :202013

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

I. Essay: **(2 x 10 = 20)**

1. Functional Classification of Hemoglobin variants and describe about Hb E.
2. Laboratory Evaluation of Hemostasis.

II. Write Short Notes on: **(8 x 5 = 40)**

1. Quality control in hematology laboratory.
2. Write about platelet STR receptors and ligand interaction.
3. RBC abnormalities and diseases associated with it.
4. Enumerate hemolytic anemia's associated with RBC membrane defect and describe pathophysiology and laboratory findings of spherocytosis.
5. Laboratory detection and types of von Willebrand disease.
6. Notch signal pathway.
7. Write briefly about Congenital Coagulopathies.
8. Write about Pathogenesis, sub types and differential diagnosis of Diffuse Large B cell lymphoma.

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

1. A 76 year old male had difficulty in walking and his children suspected stroke and brought to physician. Physician diagnosed it as peripheral neuropathy. Routine hematological investigations showed, WBC's $3.2x10^9$, RBC's 2.22 million, HB 8.5 gms%, HCT 27%, MCV 121.6fL, MCH 38.3 pg, MCHC 31.5g/dl, RDW 18%, Platelets $115x10^9$, Reticulocytes 1.8%. Discuss about possible diagnosis, which CBC findings help the physician to get diagnosis, what are the other tests can be done?

2. A 28 year old woman presented with history of 2 days fever, chills, sweating and malaise. Patient had visited Ghana of Africa 3 weeks back with family and CBC showed, WBC $11x10^9$, HCT 25%, MCV 92fL, Platelets $176x10^9$, Peripheral blood smear showed, inclusions. Write possible diagnosis, discuss the type of anemia.

3. A 25 year woman born out of consanguineous marriage, presented with ulcer, discoloration, itching of lower leg. On examination she had splenomegaly with features of anemia. What's the diagnosis? What are the changes you expect in RBC's and other tests to confirm the diagnosis?

4. A 2-year-old child presented with platelet count of 15,000/L and had history of viral fever. What's the diagnosis? Write briefly about differential diagnosis and possible investigations required to substantiate your diagnosis.

IV. Very Short Answers: **(10 x 2 = 20)**

1. G Proteins in platelet and their functions.
2. WHO Classification for Acute myeloid leukemia with Genetic Abnormality.
3. Morphological features of sub types of Hodgkin's Lymphoma.
4. Procoagulant properties of Intima.
5. Proteins of Fibrinolytic pathway.
6. Dohle Bodies.
7. Essential Thrombocythemia.
8. Usage of Cryostat in pathology.
9. Semen Analysis.
10. Via Villi and PAP techniques in diagnosis of carcinoma cervix.

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[LM 116] MAY 2018 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Discuss in detail Allogenic Haematopoietic Stem cell transplantation, its Indications, Sources of stem cells, Donor requirement, Conditioning procedure, Early and late complications.

2. Discuss in detail Automation in Hematology. Describe the Principles of working, Parameters measured, Advantages, disadvantages and Causes of erroneous results with Hematology Analyser.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Paroxysmal Nocturnal Haemoglobinuria.
2. Reticulocyte Production Index.
3. Minimal Residual Disease.
4. Monoclonal Gammapathy.
5. Microarray Analysis.
6. Fibrin degradation products.
7. Myelofibrosis.
8. Hb Electrophoresis.
9. Cytocentrifuge.
10. FanconiAnaemia.

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

1. 45 year old male presented with massive splenomegaly. His total count was 4 lakhs per cumm. What is the probable diagnosis? Describe the molecular pathogenesis and morphology of the disease.

2. 40 year old male presented with fever, weakness, dizziness, ataxia, siezures and purpura. Peripheral smear examination showed polychromasia, nucleated rbcs, fragmented red blood cells and thrombocytopenia. Biochemical examination revealed increased unconjugated bilirubin, lactate dehydrogenase, urea and serum creatinine levels. He had oliguria, haemoglobinuria and proteinuria. What would be the diagnosis and describe its pathogenesis?

3. 3 year old child presented with multiple erosive bony masses, diabetes insipidus and exophthalmos. FNAC of the bony lesion showed histiocytes mixed with eosinophils. What could be the diagnosis? Describe the characteristic electron microscopic picture and immunophenotype of the lesion.

4. A 30 year old male presented with fever, chills and moderate splenomegaly. He also complained of black coloured urine and bleeding gums. What is the probable diagnosis? Name all the diagnostic tools for diagnosis.

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[LN 116] OCTOBER 2018 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. What is amyloid? Describe physical and chemical nature of amyloid. Discuss the classification, pathogenesis and morphology of amyloid with a note on special stains.

2. Write in detail about blood components. Describe the preparation, storage and uses of Blood components in a modern blood bank.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Thalassemia.
2. Mantle cell lymphoma.
3. Microsatellite instability.
4. Morphological abnormalities in neutrophils.
5. Myelodysplastic syndrome.
6. Graft versus host disease.
7. Partial thromboplastin time.
8. Haemolytic uremic syndrome.
9. Decalcifying agents in histopathology.
10. Langerhans cell histiocytosis.

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

1. A 45 year old male presented with anaemia, weakness and dragging sensation in the abdomen. He had massive splenomegaly. His total count was 1,50,000/cmm. What is the probable diagnosis? Discuss the pathology and prognostic factors in this condition.

2. 42 year old female had menorrhagia, koilonychia and alopecia. Her blood examination revealed anaemia. What is your diagnosis? Enumerate the differential diagnosis. What are the morphologic changes in the bone marrow?

3. A 30 year old male presented with fever, chills and moderate splenomegaly. He also complained of black coloured urine and bleeding gums. What is the probable diagnosis? What are the other diagnostic tools for this condition?

4. A 50 year old male presented with oral ulcers and bullous lesions in the face and scalp. Skin biopsy revealed supra basal acantholytic bullae. Discuss the pathogenesis of this condition.

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[LO 116] MAY 2019 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Define and classify Myelodysplastic syndrome. Discuss the etiopathogenesis. Describe peripheral blood and bone marrow findings.

2. Discuss in detail the mechanism of Immunologically mediated diseases. Write about Immune complex mediated hypersensitivity. Describe transplant rejection.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Stains used in cytology.
2. Cryoprecipitate.
3. Polymerase chain reaction.
4. Bethesda system of reporting for FNAC thyroid.
5. Burkitt lymphoma.
6. Sezary syndrome.
7. Cytospin.
8. Telepathology.
9. Immunology of leprosy.
10. Myelofibrosis.

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

1. A 50 year old male presented with moderate splenomegaly, fever and hailing from North – East India. What is the probable peripheral smear and Bone marrow finding? What is your diagnosis?

2. A 58 year old lady with complaints of low back pain, was found to have multiple osteolytic lesions and anaemia. Bone marrow aspiration was done. Serum electrophoresis was advised. Discuss the diagnostic criteria and prognostic factors of this condition.

3. 2 years old child had severe anaemia with massive spleen. Peripheral smear showed numerous target cells and microcytes with nucleated RBCs. Discuss the etiopathogenesis of this condition.

4. A 10 year old boy presented with osteolytic lesion in the skull and skin nodules. FNAC of the skin nodule showed plenty of eosinophils and histiocytes. What is the probable diagnosis? Discuss the classification and syndromes associated.

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[LO 116]

[LP 116] OCTOBER 2019 **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Discuss briefly Molecular profiling of Osteoarticular Neoplasms. Discuss the Clinicopathological features of Osteoclast rich Bone tumours.

2. What is Liquid based cytology? Describe the two common systems used for Liquid based cytology. Enumerate the advantages of Liquid based cytology when compared to conventional cytology?

II. Write Short Notes on: **(10 x 5 = 50)**

1. Congenital Dyserythropoietic Anaemia.
2. Monoclonal Gammapathy.
3. Haematogones.
4. Autologous blood transfusion.
5. Natural inhibitors of coagulation.
6. Disorders of JAK2 mutation.
7. Automation in urine analysis.
8. Comparative Genomic Hybridisation.
9. Significance of blood indices in clinical hematology.
10. Waldenstrom Macroglobulinemia.

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

1. 5 year old male child with a history of bloody diarrhea presented with anaemia, jaundice, oliguria, haemoglobinuria, proteinuria and purpura. Peripheral smear examination showed polychromasia, nucleated RBCs, fragmented red blood cells and thrombocytopenia. Biochemical examination revealed increased unconjugated bilirubin, lactate dehydrogenase, urea and serum creatinine levels. What would be the diagnosis and describe its pathogenesis?

2. 30 year male presented with headache, dizziness and intense pruritis. On examination he appeared plethoric and cyanotic. His haemoglobin was 20 gm/dl, haematocrit 60%, WBC count 20,000 cells / cumm and platelets 5 lakhs per cumm. What would be the diagnosis and describe its pathogenesis.

3. 50 year male presented with generalized lymphadenopathy, hepatosplenomegaly and polyp like lesions of colon. Histopathological examination of the enlarged lymphnodes showed homogenous population of lymphocytes with Immunophenotype CD 19+, CD 20 +, CD 5 + and CD 23 negative. What is the diagnosis? Describe its pathogenesis.

4. 25 year female presented with epistaxis and menorrhagia. Investigations revealed normal platelet count, prolonged bleeding time, prolonged Partial Thromboplastin Time and reduced Ristocetin cofactor activity. What would be the diagnosis? Describe its pathogenesis and prognosis.

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[LQ 116] AUGUST 2020 **Sub. Code: 2013**

(MAY 2020 SESSION)

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Discuss in detail about the genetic and molecular classification of Acute myeloid leukemia and their prognostic significance.

2. Discuss about quality control in Hematology lab.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Stellate scar in pathology
2. Gene therapy
3. TRAP test
4. Use of Elastin stains in HPE.
5. Squash cytology – CNS
6. Minimal residual disease in leukemia
7. LJ chart
8. Telescoped urinary segments
9. Photography of grossing
10. JAK – 2 mutations

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

1. A 40 year old male presented with painless cervical and axillary lymphadenopathy. Lymph nodes are Rubbery in consistency. He had fever and weight loss of more than 6 kg. No peripheral lymphadenopathy present.
   a) What is the most probable diagnosis?
   b) How do you classify based on morphological and immunophenotype?
   c) How do you stage the disease?
   d) Which is the type associated with HIV and EBV respectively?
   e) What are the therapy related malignancies associated with?

2. A 50 year old female came with complaints of swelling in left breast. The lump occupies all quadrants and engorged veins are seen in the overlying skin of the tumour. Tumour measures 15cm in diameter. FNAC discloses spindle cell proliferation with scant duct epithelial cells.
   a) What is your probable diagnosis?
   b) What is your differential diagnosis?
   c) What is the significance of proliferative marker?
   d) How will you grade based on Bethesda system?
3. A 40 year old male with anterior mediastinal mass, presented with Myasthenia gravis.
   a) What is your probable diagnosis?
   b) What are the Hematological diseases associated with this tumour?
   c) What is the thyroid disease associated with this tumour?
   d) How do you classify this tumour?

4. A 40 year old female presented with pin point hemorrhages in thighs and lower limbs with a previous episode of nasal bleeding and dysfunctional uterine bleeding. Peripheral smear revealed thrombocytopenia with giant platelets. Bone marrow discloses increased megakaryocytes. PT and APTT were normal. Discuss the pathogenesis involved?

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[LS 116] **NOVEMBER 2020** Sub. Code: 2013

(OCTOBER 2020 SESSION)

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Discuss systemic amyloidosis and its clinical scenario. Approach to diagnosis of fat pad excision biopsy and its interpretation and grading.

2. Discuss etiopathogenesis and pathology of endometrial tumors. Describe current endometrial intraepithelial neoplasm.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Acute leukemias
2. Primary glomerulonephritis
3. Hematological scoring system in sepsis
4. Immunohistochemistry in effusion cytology and small biopsy
5. Angiomyolipoma
6. Cytospin
7. Lymphnode pathology in aids
8. Adrenalitis
9. Carcinosarcoma
10. Monoclonal gammapathy of undetermined significance

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

1. 62 year old male presented with erythematous maculopapular eruption over the trunk and extremities associated with fever. Patient received chemotherapy for all. Skin eruption was associated with slight increase in WBC followed by bone marrow recovery within next weeks. Skin biopsy showed dermal perivascular infiltrate with strong CD 30 expression. Discuss the pathology.

2. 64 year old male with a history of autoimmue thyroiditis presents with skin lesion and generalised lymphadenopathy. CBC 25 000/dl with 80 percent lymphocytes and 16 percent neutrophils. Blood smear showed many small to medium sized lymphocytes with a single distinct nucleolus and occasional cytoplasmic protrusion. BMA and biopsy showed leukemic cells accounting for 25 percent marrow cellularity. TCL 1 positive. Discuss the pathology.

3. 55 year old female complaints of lowback ache. She was found to have multiple osteolytic lesions and anemia. BMA was done. Serum electrophoresis was advised. Discuss the diagnostic criteria and risk stratification.

4. 24 year old male patient complaints of progressive localised pain in foot. CT revealed multifocal well circumscribed mixed lytic and sclerotic osseous lesions involving talus, calcaneus and phalange. HPE showed spindle cell lesion with no giant cells. Discuss.

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[LS 116]

[MD 0721] JULY 2021 **Sub. Code: 2013**

(MAY 2021 SESSION)

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Discuss etiopathogenesis pathology of acute pancreatitis. Write about clinicopathological features and outcome.

2. Discuss etiopathogenesis and pathology of endometrial tumors. Brief on current endometrial intraepithelial neoplasm.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Lymphoma.
2. Immunology of malaria.
3. Hemophagocytic syndrome.
4. Henoch schonlein purpura.
5. Stromal tumors of undetermined significance.
6. WBC histogram.
7. Mesothelial tumors.
8. Autoimmune hepatitis.
9. Hematological changes in dengue.
10. Chordoma.

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

1. 10 year old male child presented with osteolytic lesion in the skull skin nodule probable diagnosis discuss pathology.

2. 41 year old female presented with fever myalgia dyspnea cough and skin rash she had a history of gastric bypass surgery subsequentely developed short gut syndrome and was put on long term total parenteral nutrition she was admited for sepsis ct showed evidence of pneumonia blood culture grew candida albicans she was found to have 16. 5 percent circulating plasma cells white blood cell count 20000 mm3 absolute plasma cell count 34000 mm3 normocytic anemia serum electrphoresis showed m protein patient did not have bone pain pathological fractures kidney function compromise or hypercalcemia follow up smear no plasma cells discuss the pathology.

3. 20 year old male patient has a history of episodic hemolysis folowing intake of antimalarial drugs what is the probable diagnosis.

4. 45 year old male presented with fatiguability anemia weakness dragging sensation abdomen had massive splenomegaly total count 150000 what is the probable diagnosis discuss pathology and prognosis.

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[MD 0721]

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

[MD 1121] NOVEMBER 2021 **Sub. Code: 2013**

(OCTOBER 2021 SESSION)

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. What are plasma cell dyscrasias? Discuss investigation for diagnosis of multiple myeloma.

2. What is the method of preparation of blood components and discuss the importance of blood transfusion?

II. Write Short Notes on: **(10 x 5 = 50)**

1. Quantitative buffy coat.
2. Activated partial thromboplastin time.
3. Paroxysmal nocturnal haemoglobinuria.
4. Plasmapheresis.
5. Discuss disposal of biomedical waste.
6. Principle and application of flow cytometry.
7. Prognostic indicators of Hodgkins disease.
8. Rosai – Dorfman disease.
9. Kikuchi disease.
10. Preparation and used of cell block technique.

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

1. A 4 year old male child is suffering from growth retardation and anorexia. O/E: Pallor++, depressed nasal bridge, malar prominence, hepatosplenomegaly seen
    a) What is your provisional diagnosis?
    b) How will you confirm your diagnosis?

2. A 16 year old boy is admitted with chills and rigors for more than 3 months. O/E: Pallor+ with moderate hepatosplenomegaly
    a) What are the possible causes?
    b) How will you confirm the case?

3. A 58 year old male with renal failure was admitted for continuous haemorroidal bleeding with anaemia. His Hb was 4 gms/dl. Packed RBC was started to stop the bleeding. Patient became dyspneic. Physical examination revealed pulmonary rales
    a) What is the probable diagnosis?
    b) How to investigate this case? Discuss.

4. A 20 year old tall male presented with gynaecomastia and pubic hair. O/E: testis was small and firm
    a) What is the provisional diagnosis?
    b) What are the diagnostic prenatal and postnatal test for the above condition?

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[MD 1121]

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

[MD 0522] **MAY 2022** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Write the WHO classification, molecular markers and recent advances of non Hodgkin's lymphoma.

2. Enumerate and classify causes of pancytopenia. Discuss pathogenesis and lab diagnosis.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Rh factor.
2. Problems in pediatric blood transfusion.
3. Protein C deficiency.
4. Hypersplenism.
5. Platelet function test.
6. Hemolytic uremic syndrome.
7. Von willebrand's disease.
8. Hemoglobin electrophoresis.
9. Glycosylated hemoglobin.
10. Cytology of medullary carcinoma thyroid.

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

1. A 45 year old male treated with chloroamphenicol for enteric fever 3 weeks back presented with severe pallor, sterna tenderness, nasal bleeding and high fever.
    a) What is your diagnosis?
    b) Describe your expected peripheral smear and bone marrow findings in this case.
    c) What other causes can give rise to similar peripheral smear findings?

2. A 5 year old boy presents with multiple petechial spots over skin and mucosa 7 days after an attack of febrile illness.
    a) What is your provisional diagnosis?
    b) Describe the peripheral smear and bone marrow findings.
    c) Write the differential diagnosis.

3. A 50 year old male kidney transplant recipient on chronic immune suppressive therapy was admitted for anemia. He received packed RBC from his sister. 3 days later he developed low grade fever, skin bullae, diarrhea, abdominal cramps and mild jaundice.
    a) What is your diagnosis?
    b) Discuss the pathology.

4. A 43 year old male presents with recurrent epidoses of dark smoky urine for the past 1 year. O/E: Mild pallor and hepatomegaly was seen.
    a) What is the provisional diagnosis?
    b) What are the other possibilities?
    c) How can you confirm the diagnosis?

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[MD 0522]

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

[MD 1022] **OCTOBER 2022** **Sub. Code: 2013**

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Functional Classification of Hemoglobin variants and describe about Hb S.
2. Immunodeficiency syndrome associated with systemic diseases.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Reticulocyte Production Index.
2. Safety in Hematology Laboratory.
3. Cytochemical stains in leukemia and interpretations.
4. Write about platelet receptors and ligand interaction.
5. Laboratory detection and types of Von Willebrand disease.
6. Immunology of leprosy.
7. Write briefly about Congenital Coagulopathies.
8. Myelophthisic anemia.
9. Classify acute leukemia of Ambiguous lineage and describe briefly about them.
10. Automation in urine analysis.

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

1. A 76 year old male had difficulty in walking and his children suspected stroke and brought to physician. Physician diagnosed it as peripheral neuropathy. Routine hematological investigations showed, WBC's $3.2x10^9$, RBC's 2.22 million, HB 8.5 gms%, HCT 27%, MCV 121.6fL, MCH 38.3 pg, MCHC 31.5g/dl, RDW 18%, Platelets $115x10^9$, Reticulocytes 1.8%.
    a. Discuss about possible diagnosis.
    b. Which CBC findings help the physician to get diagnosis?
    c. What are the other tests can be done?

2. A 68 year old man presented with back pain, weakness, anemia and features of renal failure. He had history of fracture of big toe 2months back due to slip.
    a. Write possible diagnosis.
    b. Discuss about the features associated with this condition
    c. What are the other investigations to be done?
    d. Enumerate Blood and BM picture.

3. A 25 year woman born out of consanguineous marriage, presented with ulcer, discoloration, itching of lower leg. On examination she had splenomegaly with features of anemia.
    a. What's the diagnosis?
    b. Pathogenesis and Morphological Changes.
    c. What are the changes you expect in RBC's?
    d. What are the other tests to confirm the diagnosis?

4. A 25-year-old male presented with multiple nodes in neck. H/O fever with night sweats present.
    a. What's the diagnosis?
    b. Detail about types and morphology.
    c. Write briefly about differential diagnosis.
    d. Possible investigations required to substantiate your diagnosis.

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

[MD 0723] **JULY 2023** **Sub. Code: 2013**

(MAY 2023 EXAM SESSION)

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Enlist Plasma Cell Disorders. Write briefly on Multiple Myeloma.
2. Discuss the role of Intraoperative cytology in the diagnosis of Breast lesions.

II. Write Short Notes on: **(10 x 5 = 50)**

1. Discuss hemoglobinopathy detection by Electrophoresis and HPLC.
2. Describe Milans scoring system for reporting of Salivary Gland Cytopathology.
3. Peripheral T cell lymphoma.
4. Autoimmune hepatitis.
5. IgG 4 related disease.
6. Polycythemia vera.
7. Anaplastic large cell lymphomas
8. Immunohistochemistry of Lymphomas.
9. Describe Next generation sequencing and its application
10. Immunohemolytic anaemias

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

1. A 5-year-old girl is brought to emergency with severe epistaxis for one day. O/E there are presence of multiple petechial spots over trunks and extremities without any hepatosplenomegaly or lymphadenopathy. History reveals an attack of common cold two weeks before.

   a) What is your provisional diagnosis?
   b) How can you confirm your diagnosis?

2. A 58-year-old male is complaining of weakness, anorexia, weight loss and dyspnoea for last 2 months. He also complains of irregular bowel habit for last 6 months. O/E, Pallor, Liver Palpable 3 cm below costal margin with tender hard nodular surface and an abdominal lump palpable over right iliac fossa.

   a) What is your provisional diagnosis?
   b) What type of anaemia is expected in this set up?
   c) Describe haematological investigations for confirmation of type of anaemia?

3. A 4-year-old girl has received regular blood transfusions since infancy. Routine blood examination shows: Hb – 3.8 gm.%; Total RBC – 3.1 million/cumm; Total platelet count: – 1,96,000/cumm; Differential Count – N36, E03, B00, L59, M02. RBC series: Microcytic hypochromic anaemia with target cells and polychromasia; Normoblast: 20/100.

   a) What is your provisional diagnosis?
   b) How can you confirm your diagnosis?

4. A 27-year female, during postoperative period after partial thoracotomy of left lung, suddenly develops bleeding from multiple sites, fluctuating consciousness and rapid fall of urinary output.

   a) What is the most likely diagnosis?
   b) How can you confirm your diagnosis?

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[MD 0723]

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

[MD 1223] **DECEMBER 2023** **Sub. Code: 2013**

(OCTOBER 2023 EXAM SESSION)

M.D. DEGREE EXAMINATION

BRANCH III – PATHOLOGY

PAPER IV – IMMUNOPATHOLOGY, HAEMATOLOGY, PRINCIPLES AND APPLICATION TO TECHNOLOGICAL ADVANCES IN LABORATORY SERVICES

Q.P. Code: 202013

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

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

1. Classify Coagulation disorders. What is the role of Lab in the diagnosis of Coagulation disorders? Add a note on Quality Control aspect of Coagulation testing.

2. Classify Mediastinal lesions. What is the role of Fine Needle Aspiration Cytology in Mediastinal lesions? What are the ancillary tests which can be done to assist diagnosis in FNAC?

II. Write Short Notes on: **(10 x 5 = 50)**

1. Immune Hemolytic anaemia.
2. Interventional cytology.
3. Semen analysis.
4. Minor Blood Group Systems.
5. Biphenotypic leukemia.
6. Minimal Residual disease.
7. Dyserythopoiesis.
8. Pre analytical errors in Histopathology.
9. Differential diagnosis of Plasma Cell Neoplasms.
10. Autopsy findings in COVID vaccine related death.

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

1. 40 / M presented with fever with chills every second day, he was coming from an Endemic area, his Urine was black in colour.
   a) What is your diagnosis?
   b) What are the tests done for confirmation?
   c) What are the clinical manifestations?
   d) What are the complications?

2. 55 / M presented with digital infarcts, Splenomegaly and Hemogram revealed HB 13 G / dL and platelet count of 680,000 / CU MM.
   a) What is your diagnosis?
   b) What is the molecular pathogenesis of this condition?
   c) What are the complications?
   d) What is the prognosis?

3. 30 / M presented with sore throat, fever, cervical lymphadenopathy. Blood count revealed Lymphocytosis and reactive lymphocytes in smear, serologic investigations were done for confirmation.
   a) What is the clinical Scenario given?
   b) What is the pathogenesis?
   c) How will you confirm diagnosis?

4. 40 / F presented with swelling in the neck submandibular region, FNAC of the swelling revealed predominantly oncocytic cells.
   a) What are your differential diagnosis?
   b) How will you classify Salivary Gland Lesions according to Milan classification?
   c) Name four recently described Entities in Salivary Gland Neoplasms.

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