

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 dyscrasias
 - (c) Hypersplenism.
 - (d) Paroxysmal 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 Gammopathies.
 - (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.
-

[KI 116]

April-2003

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 Theory : 80 marks
forty minutes

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) Cytogenetic 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 – Jennings'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.

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 : (3 × 15 = 30)

(1) Mention the different plasma cell dyscrasias 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) Haemoglobinuria.

(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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II. Write short notes on :

(10 × 5 = 50)

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 Theory : 80 marks
forty minutes

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, etio-pathogenesis, 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.

(a) Micro satellite instability

(b) Enzymes in tumor diagnosis

(c) WHO classification of AML

(d) Sideroblastic Anaemia

(e) Flow Cytometry in Diagnosis

(f) Fnae of Salivary gland lesions

(g) Mucosal Biopsies in large intestine

(h) Insanity in Leprosy

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

(j) Bone marrow trephine biopsy.

[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 Theory : 80 marks
forty minutes**

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.**

[KP 116]

Sub. Code : 2013

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

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 Theory : 80 marks
forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(1) Discuss diagnostic interpretation and clinical significance 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)

- (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) Autologous blood transfusion.

(d) Liquid base cytology.

(e) Advantages of diagnostic molecular pathology.

(f) Clinical application of flow cytometry.

[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 Theory : 80 marks
forty minutes

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.

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 × 20 = 40)
1. Discuss the laboratory diagnosis of haemolytic anemias.
 2. Discuss the blood transfusion reactions.
- II. Write Short notes on : (10 × 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).
-

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 dyserythropoietic 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.

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

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 haematopoietic 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.

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.

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
(180 Min)

Maximum : 100 marks

Answer ALL questions in the same order.

	Pages	Time	Marks
	(Max.)	(Max.)	(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/ μ L, 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

[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
(180 Min)

Maximum : 100 marks

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

(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

[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) Pneumococcus
 - 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?
- Tear-drop cells
 - Punctate basophilia
 - Red cell inclusions
 - 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?
- Di George syndrome
 - X-linked agammaglobulinaemia
 - IgA deficiency
 - Complement inactivation syndrome

IV. Very Short Answers:

(10 x 2 = 20)

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

[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 mediastinal 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?

[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. Immuno-hemolytic 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 asymptomatic 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.
