

SYLLABUS

1.1 DISTRIBUTION OF TEACHING

Lectures / Seminars (1hour) Tutorials (2hours) Practicals (2 hours)

4.1.1 General Pathology	34	04	13
4.1.2 Haematology	18	07	10
4.1.3 Systemic Pathology	46	09	11
4.1.4 Clinical Pathology	04	03	04
4.1.5 Autopsy	02	02	02

1.2 COURSE CONTENTS

The broad area of study shall be

1.2.1 General Pathology including general neoplasia

1.2.2 Systemic Pathology including specific neoplasia

1.2.3 Haematology including essential of transfusion medicine.

1.2.4 Clinical Pathology

1.3 LECTURE AND SEMINAR TOPICS (Desirable to Know x)

1.3.1 CELL INJURY

- (1) Introduction to Pathology History -Evolution of pathology,important definitions, common aetiological factors causingdisease with examples
- (2) General response to injury at cellular level including roleof free radicals.
- (3) Reversible cell injury – intracellular accumulations – hydropic and fatty change - I
- (4) Reversible cell injury - Pigment and other substances - II
- (5) Irreversible injury - Types of necrosis, gangrene andpathological calcification.
- (6) Apoptosis – Mechanisms and its relevance in disease andneoplasia
- (7) Amyloidosis – Pathogenesis and diagnosis.

1.3.2 INFLAMMATION AND REPAIR

- (1) Acute inflammation – Definition, vascular and cellularresponse.
- (2) Acute inflammation – Chemical mediators – their role.

- (3) Acute inflammation – Chemical mediators - control mechanisms.
- (4) Chronic and granulomatous inflammation.
- (5) Repair and regeneration – Wound healing and factors influencing.
- (6) Repair in specialised tissues, bone, muscle, nerve, parenchymal organs.

1.3.3 IMMUNOPATHOLOGY

- (1) Immunity – General and cells involved in immune mechanisms.
- (2) Hypersensitivity – Mechanism and types.
- (3) Autoimmune diseases – Pathogenesis and Mechanisms.
- (4) Autoimmune disorders – SLE, Rheumatoid arthritis.
- (5) Mechanism and effects of transplant rejection and graft versus host reaction.

1.3.4 INFECTIOUS DISEASES

- (1) Mycobacterial diseases – tuberculosis.
- (2) Mycobacterial diseases – Leprosy.
- (3) Bacterial infections – Typhoid, Dysentery, syphilis.
- (4) Viral – AIDS, Transmission pathogenesis, pathology and diagnosis.
- (5) Fungal infections; Superficial and deep – Pathology.
- (6) Parasitic diseases

1.3.5 CIRCULATORY DISTURBANCES

- (1) Oedema – Pathogenesis and Pathology in important organs.
- (2) Hyperaemia – Chronic Venous Congestion – Lung, Liver, Spleen.
- (3) Thrombosis – Mechanisms and Morphology.
- (4) Embolism and infarction.
- (5) Hypertension – Pathogenesis and its effects on various systems and organs.

(6) Haemorrhage and shock.

1.3.6 GROWTH DISTURBANCES & GENERAL NEOPLASIA

- (1) Alterations and adaptations in cells and tissues due to environmental influences – Definitions and illustrative examples.
- (2) Neoplasia – Definitions and characters of benign and malignant neoplasms, metastasis.
- (3) Neoplasia – Nomenclature, grading, staging, predispositions.
- (4) Carcinogenesis – Chemical carcinogens, radiation, microbial agents.
- (5) Molecular basis of cancer.,
- (6) Tumour and host interactions – Effect of tumour on host, Para-neoplastic x Syndromes, Tumour immunity. Laboratory diagnosis of cancer, Cytology, biopsy, tumour markers.

1.3.7 MISCELLANEOUS DISORDERS

- (1) Important genetic disorders with examples.
- (2) Protein Energy malnutrition and obesity.
- (3) Vitamin deficiency disorders,
- (4) Effects of radiation.

1.3.8 HAEMATOLOGY AND TRANSFUSION MEDICINE

- (1) Anaemias – Etiological classification. Normal parameters and morphological classification.
- (2) Nutritional anaemias – Iron deficiency, vitamin B12 and folic acid.
- (3) Haemolytic anaemias – Classification and investigations.
- (4) Hereditary haemolytic anaemias – Thalassemia, Sick cell anaemia, x hereditary spherocytosis and G6PD deficiency.
- (5) Immuno-haemolytic anaemias and acquired haemolytic anaemias.
- (6) Haemorrhagic disorders – Platelet, vascular disorders

- (7) Haemorrhagic disorders – Coagulation disorders.
- (8) Investigation in haemorrhagic disorders.
- (9) Leucocytosis, leukopenia, leukaemoid reactions.
- (10) Classification and criteria for diagnosis of acuteleukaemias.
- (11) Chronic leukaemias.
- (12)** Myelo-dysplastic syndrome. ,
- (13)** Myelo-proliferative disorders. ,
- (14) Plasma cell dyscrasias and dys-proteinemias.
- (15) Blood transfusion – Important blood groups, antigen and antibodies. Grouping and cross matching.
- (16) Blood collection, storage, blood components.
- (17) Transfusion reactions and their investigations

1.3.9 CARDIOVASCULAR SYSTEM

- (1) Rheumatic Heart Disease – Pathogenesis, pathology, sequelae
- (2) Infective endocarditis Pathogenesis, pathology, effects
- (3)** Atherosclerosis – Etiological factors, morphology and complications *
- (4) Ischaemic Heart Disease - Effects of coronary artery disease
- (5)** Congenital heart diseases, aneurysms,
- (6) Pericarditis, cardiomyopathy
- (7) Other diseases of blood vessels - Vasculitis, tumours

1.3.10 RESPIRATORY TRACT

- (1) Inflammation of bronchi – Bronchitis, asthma, bronchiectasis
- (2) Pneumonia – Lobar, bronchopneumonia and interstitial
- (3) Lung abscess, empyema, emphysema
- (4) Nasopharyngeal and laryngeal tumours

- (5) Tumours of the Lung – Important benign and malignant tumours Morphology and behaviour.
- (6) Occupational Lung Disease – Anthracosis, silicosis, asbestosis, effects,
- (7) Atelectasis and hyaline membrane disease.

1.3.11 GASTROINTESTINAL TRACT

- (1) Lesions of oral cavity and salivary glands
- (2) Gastritis and peptic ulcer – Pathogenesis pathology and sequelae
- (3) Tumours of upper GIT – Oesophagus and stomach
- (4) Tumours of intestines – Polypi, benign and malignant tumours
- (5) Idiopathic inflammatory bowel disease
- (6) Pancreatitis, tumours of the pancreas

1.3.12 HEPATOBILIARY SYSTEM

- (1) Pathogenesis and pathology of acute and chronic hepatitis
- (2) Alcoholic liver disease Pathology and complications
- (3) Cirrhosis of liver – Classification and morphology
- (4) Tumours of liver and gall bladder x

1.3.13 KIDNEY AND URINARY TRACT

- (1) Etio-pathogenesis, pathology and effects of nephritic syndrome
- (2) Etio-pathogenesis, pathology and effects of nephrotic syndrome
- (3) Acute renal failure – clinic-pathological correlations
- (4) End stage renal disease and chronic renal failure-sequelae*
- (5) Important tumours of the kidneys and urinary tract,
- (6) Nephrolithiasis and obstructive uro-pathy

1.3.14 LYMPHORETICULAR SYSTEM

- (1) Benign lesions, granulomas of lymph nodes; Spleen in important diseases
- (2) Hodgkin's Lymphoma and general features of lymphoma

- (3) Non- Hodgkin's Lymphoma

1.3.15 REPRODUCTIVE SYSTEM

- (1) Carcinoma cervix, tumours of the uterine corpus
- (2) Trophoblastic diseases – Hydatidiform mole, chorio-carcinoma
- (3) Tumours of the ovary
- (4) Tumours of the testis
- (5) Hyperplasia and carcinoma of prostate and penis
- (6) Benign lesions of the breast
- (7) Malignant tumours of the breast

1.3.16 BONE AND SOFT TISSUE

- (1) Osteomyelitis and metabolic diseases of the bone
- (2) Tumours of the bone – Osteosarcoma, giant cell tumour, Ewing's sarcoma, Chondro-sarcoma
- (3) Arthritis – Rheumatoid arthritis and others
- (4) Tumours and tumour like lesions of soft tissue – fibroustissue Fibro-histolytic
- (5) Tumours and tumour like lesions of soft tissue – Adiposetissue, muscle, peripheral nerves

1.3.17 ENDOCRINE ORGANS

- (1) Diabetes Mellitus, pathogenesis, pathology, complications*
- (2) Benign thyroid swellings
- (3) Tumours of the thyroid
- (4) Adrenal hyperplasia, atrophy, tumours

1.3.18 CENTRAL NERVOUS SYSTEM

- (1) Inflammatory disorders of meninges and brain
- (2) CNS tumours – Glioma, meningioma, metastatic tumours

1.3.19 SKIN

- (1) Tumours – Squamous cell carcinoma, basal cell carcinoma, nevi and melanoma.

1.3.20 CLINICAL PATHOLOGY

- (1) Differential diagnosis of jaundice, investigations and interpretation
- (2) Investigations in renal disease with special emphasis on urine

Examination:

- (3) Investigation in Diabetes Mellitus
- (4) Examination of body fluids – CSF, Exudate, Transudate, Semen

1.3.21 AUTOPSY

- (1) Importance, indication and procedures for medical autopsies x

1.3.22 RESEARCH METHODOLOGY (10 sessions in IIMBBS)

1.3.23 COMMUNICATION SKILLS (5 sessions in II MBBS)

1.3.24 LANGUAGE SESSIONS (5 sessions in II MBBS)

2. TOPICS FOR TUTORIALS, GROUP DISCUSSIONS, DEMONSTRATIONS

1. Cell injury
2. Inflammation
3. Circulatory disturbances
4. Tuberculosis
5. Neoplasia
6. Collection of blood and other specimens, anticoagulants, smears, needles
7. Anaemia, haemoglobin and haematological parameters
8. Peripheral blood smear examination
9. Leucocyte disorders
10. Haemorrhagic disorders
11. Urine examination
12. Clinical charts – Interpretation and differential diagnosis
13. Cardiovascular system I
14. Cardiovascular system II
15. Respiratory system
16. Genito- Urinary system

17. Liver and Spleen
18. Diseases of Lymph nodes
19. Tumours and tumour like lesions of bone
20. Tumours and tumour like lesions of soft tissues
21. Lesions of the breast
22. Diabetes Mellitus
23. Haematology transparencies
24. Systemic and general pathology transparencies
25. Discussion of museum specimens 1
26. Discussion of museum specimens 2
27. Discussion of typical clinical pathology and haematology charts
28. Orientation to theory examination
29. Orientation to practical examination

6. TOPICS FOR INTEGRATED TEACHING, SEMINARS, SYMPOSIA

1. Rheumatic heart disease
2. Hypertension
3. Diabetes Mellitus
4. Nephritic and Nephrotic syndrome
5. Acute and chronic renal failure
6. Jaundice
7. Malaria
8. Ischaemic Heart Disease
9. Salivary gland lesions

*** INTEGRATED TEACHING FOR II MBBS –**

Sr. No.	Broad topic	Department	Lecture topics	Duration
1	PYELONEPHRITIS	Pathology	Pathology of Pyelonephritis	1 Hour
		Microbiology	Bacteriology of Pyelonephritis	1 Hour
		Medicine	Clinical features	1 Hour
		Pharmacology	Treatment	1 Hour
2	PNEUMONIA	Microbiology	Lab diagnosis of Pneumonia	1 Hour
		Pathology	Pathology of Pneumonia	1 Hour

		Medicine	Clinical features and Radiology	1 Hour
		Pharmacology	Treatment	1 Hour
		Community Medicine	Epidemiology and prevention	1 Hour
		F.M.T	Medico Legal Aspect of Pneumonia	1 Hour
3	TUBERCULOSIS	Microbiology	Lab diagnosis of TB	1 Hour
		Pathology	Pathology of Pulmonary TB	1 Hour
			Pathology of Extra Pulmonary TB	1 Hour
		Medicine	Clinical features and Radiology	1 Hour
		Pharmacology	Treatment-1	1 Hour
			Treatment-2	1 Hour
		Community Medicine	Epidemiology Prevention, RNTCP	1 Hour
		Pulmonary Medicine	Management	1 Hour
4	HIV	Microbiology	Virology of HIV	1 Hour
			Diagnosis of HIV	1 Hour
		Pathology	Pathogenesis of HIV Infection	1 Hour
		Medicine	Clinical features and Opportunistic infections in HIV	1 Hour
		Pharmacology	Treatment of HIV	1 Hour

Sr. No.	Broad topic	Department	Lecture topics	Duration
		Community Medicine	Epidemiology of HIV	1 Hour
			Prevention of HIV	1 Hour
			NACO activities	1 Hour
		F.M.T.	Medico legal aspect of HIV	1 Hour
5	ENTERIC FEVER	Microbiology	Bacteriology and of enteric fever	1 Hour
		Pathology	Pathology of enteric fever	1 Hour
		Medicine	Clinical features	1 Hour
		Pharmacology	Treatment	1 Hour
		Community Medicine	Epidemiology and prevention	1 Hour

7. BIO-ETHICS IN UNDERGRADUATE MEDICAL CURRICULUM(4 + 10)

Sr. No.	Theory Topic	Department	Hours
1	Autonomy & individual responsibility	Pathology	One Hour
2	Respect of the individual and dignity	Pathology	One Hour
3	Ethics in Stem cell and genetic research	Pathology	One Hour
4	Equality, Justice and equity	Pathology	One Hour

The practical aspects of topics in bioethics will be discussed as an interactive session during regular practicals

8. Following modifications in certain topics in the syllabus of II MBBS Pathology Theory Classes

Sr. No.	Existing Theory Topic	Proposed Theory Topics
1	Oedema — Pathogenesis and Pathology in important organs.	Oedema — Pathogenesis and Pathology in important organs.

2	Hyperemia — Chronic Venous Congestion Lung, Liver, Spleen	Hyperemia — Chronic Venous Congestion Lung, Liver, Spleen
3	Thrombosis — Mechanisms and Morphology.	Thrombosis—Mechanisms and Morphology.
4	Embolism and infarction	Embolism and infarction
5	Hypertension — Pathogenesis and its effects on various systems	Hypertension — Pathogenesis and its effects on various systems
Sr. No.	Existing Theory Topic	Proposed Theory Topics
6	Haemorrhage and shock	Haemorrhage and shock
7	Alterations and adaptations in cells and tissues due to environmental Influences Definitions and illustrative examples.	Alterations and adaptations in cells and tissues due to environmental Influences — definitions and illustrative examples.
8	Neoplasia Definitions and characters of benign and malignant neoplasms, metastasis.	Neoplasia Definitions and characters of benign and malignant neoplasm's, metastasis.
9	Neoplasia - Nomenclature, grading, staging predispositions	Neoplasia — Nomenclature, grading, staging predispositions
10	Carcinogenesis Chemical carcinogens, Radiation, microbial agents.	Carcinogenesis — Chemical carcinogens Radiation, microbial agents.
11	Molecular basis of cancer.	Molecular basis of cancer.
12	Tumour and host interactions — Effect of tumour on host, Para- neoplastic Syndromes, Tumour immunity (desirable to know)	Tumour and host interactions — Effect of tumour on host, Para- neoplastic Syndromes, Tumour immunity (Must know)
13	Laboratory diagnosis of cancer, Cytology, biopsy, tumour markers.	Laboratory diagnosis of cancer, Cytology, biopsy, tumour markers.

7. PRACTICALS AND DEMONSTRATIONS:

1. Tissue processing and microscopy
2. Identification of cells
3. Reversible cell injury. Degenerations
4. Acute inflammation
5. Chronic inflammation

6. Necrosis, gangrene and infarction
7. Hyperaemia, Oedema, Thrombosis and Embolism
8. Pigments, Calcification, Amyloid
9. Leprosy, Syphilis
10. Tuberculosis
11. Neoplasia I – Benign Tumours
12. Neoplasia II – Non- pigmented skin tumours, Adenocarcinoma
13. Neoplasia III – Pigmented skin tumours, Sarcoma
14. Collection of blood, Bulbs and needles
15. Haemopoiesis
16. Haemoglobin estimation
17. Total WBC count
18. Differential leucocyte count
19. Peripheral blood smears examination
20. Investigation of anaemia
21. Leukaemia
22. Blood groups and blood transfusion
23. Investigations of haemorrhagic disorders , charts
24. Cardiovascular system I
25. Cardiovascular system II
26. Respiratory system
27. Kidney
28. Urine examination
29. Gastrointestinal tract
30. Liver diseases
31. CNS lesions / CSF examination
32. Diseases of lymph node
33. Diseases of bone and joint
34. Male / Female genital tract
35. Breast, Endocrine system
36. Diabetes /GTT
37. Pregnancy test / Semen examination
38. Cytological preparations ID
39. Autopsy
40. Autopsy

8. DRAWING OF SLIDES

These are grouped under two headings as slides the students

a) Must see (M) b) Desirable to see (D)

8.1 HISTOPATHOLOGY SLIDES

8.2 HAEMATOLOGY SLIDES

8.3 LIST OF SPECIMENS

8.1 HISTOPATHOLOGY SLIDES

- Fatty change liver (M)
- Uterus – Leiomyoma with hyaline change (M)
- Kidney amyloid (D)
- Lymph node – Caseous necrosis (M)
- Kidney infarct (M)
- Acute ulcerative appendicitis (M)
- Pyogenic meningitis (D)
- Tuberculoid leprosy – skin (M)
- Actino-mycosis (D)
- Granulation tissue (M)
- Tuberculous lymphadenitis (M)
- Lung Chronic passive congestion (M)
- Liver Chronic passive congestion (M)
- Artery – recent/organized thrombus
- Pulmonary oedema (D)
- Skin – Papilloma (M)
- Thyroid – Follicular adenoma (D)
- Uterus – Leiomyoma (M)
- Lipoma (M)
- Skin – Squamous cell carcinoma (M)
- Skin Basal cell carcinoma (M)
- Skin – Nevus and Malignant melanoma (M)
- Malignant soft tissue tumour (D)
- Salivary gland – Pleomorphic adenoma (D)
- Adenocarcinoma colon (M)
- Heart – healed infarct (M)
- Skin – Capillary hemangioma (M)
- Cavernous hemangioma (D)
- Heart – rheumatic myocarditis (D)
- Aorta – atherosclerosis (D)
- Lung – Lobar and bronchopneumonia (M)
- Lung fibro-caseous tuberculosis (M)
- Kidney – Chronic Pyelonephritis (M)
- Kidney – Crescentic Glomerulonephritis (D)
- Kidney – Renal cell carcinoma (D)
- Ileum – typhoid ulcer (D)

- Stomach – Chronic peptic ulcer (M)
- Liver – Cirrhosis (M)
- Liver – massive necrosis (D)
- Brain – Meningioma (D)
- Neuro-lemmoma (D)
- Lymph node – Hodgkin’s lymphoma (M)
- Lymph node – Non Hodgkin’s lymphoma (D)
- Lymph node – Metastasis (M)
- Bone – Osteogenic sarcoma (M)
- Bone – Giant cell tumour (M)
- Bone – Chondroma (D)
- Bone – Ewing’s sarcoma (D)
- Benign Prostatic hyperplasia (M)
- Mature cystic teratoma (M)
- Testis – Seminoma (M)
- Products of conception (D)
- Breast – Fibro-adenoma (M)
- Breast – Infiltrating duct carcinoma (M)
- Hashimoto’s thyroiditis (D)
- Thyroid – Multi nodular goiter (D)

8.2 HAEMATOLOGY SLIDES

- Eosinophilia (M)
- Poly-Morphonuclear Leucocytosis (M)
- Iron deficiency anaemia (M)
- Hemolytic anaemia (M)
- Macrocytic anaemia (M)
- Chronic myeloid leukaemia (M)
- Acute leukaemia (D)
- Bone Marrow-Plasma cells, Mega-karyocytes, Megalo-blast(M)
- Malarial Parasite (M)

8.3 LIST OF SPECIMENS

- Liver – Fatty change (M)
- Kidney – Cloudy change (D)
- Atheroma with calcification (D)
- Kidney – Infarct (M)
- Spleen – Infarct (M)
- Intestine – Gangrene (M)
- Foot – Gangrene (D)
- Lymph node – Caseation (M)
- Lobar pneumonia (M)
- Kidney – Abscess (D)
- Liver – Abscess (M)
- Acute appendicitis (M)

- Acute pyogenic meningitis (M)
- Fibrinous pericarditis (M)
- Syphilitic aortitis (D)
- Lymph node – TB (M)
- Lung – Miliary TB (M)
- Fibro-caseous TB (M)
- Kidney - Amyloidosis (D)
- Spleen – Amyloidosis (D)
- Liver and spleen – Malaria (M)
- Liver and spleen – Prussian blue reaction
- Liver – Chronic passive congestion (M)
- Lung – Chronic passive congestion (M)
- Intestine – gangrene (M)
- Infarction – Kidney, spleen (M)
- Infarction – Lung, testis (D)
- Heart – Left ventricular hypertrophy (M)
- Heart – Brown atrophy (M)
- Kidney – Hydro-Nephrosis (M)
- Skin – Papilloma (M)
- Adenomatous polyp (M)
- Fibro-adenoma breast (M)
- Squamous cell carcinoma – skin (M)
- Basal cell carcinoma – skin (M)
- Adenocarcinoma – colon (M)
- Metastasis – lung, liver (M)
- Leiomyoma uterus (M)
- Soft tissue – Lipoma (M)
- Soft tissue sarcoma (D)
- Melanoma Metastasis in LN, liver (M)
- Rheumatic mitral stenosis (M)
- Healed myocardial infarct (M)
- Atheroma with complications (M)
- Aortic aneurysm (D)
- Bacterial endocarditis (D)
- Lung – Lobar/bronchopneumonia (M)
- Lung abscess (D)
- Bronchogenic carcinoma (M)
- Fibro-caseous TB (M)
- Lung – emphysema, bronchiectasis (D)
- Flea bitten kidney (M)
- Large white kidney (D)
- Contracted granular kidney (M)
- Renal cell carcinoma (M)
- Bladder – transitional carcinoma (D)
- Stomach – Chronic peptic ulcer (M)

- Stomach carcinoma (M)
- Intestine TB (M)
- Colon – amoebic colitis, carcinoma colon (M)
- Liver – Amoebic abscess (M)
- Liver – Cirrhosis (M)
- Liver – Hepatocellular carcinoma (D)
- Liver – Metastasis (M)
- Brain – Meningitis (M)
- Brain – Glioma (M)
- Brain – hemorrhage (CVA) (D)
- Lymph Node TB (M)
- Lymph Node Lymphoma (D)
- Spleen – Infarct, splenomegaly (D)
- Bone – giant cell tumour (M)
- Bone – Osteogenic sarcoma (M)
- Seminoma –Testis (M)
- Teratoma _ Testis (M)
- Uterus – Leiomyoma (M)
- Ovary – Dermoid cyst (M)
- Breast – Fibro-adenoma (M)
- Breast – carcinoma (M)
- Thyroid – Multi-nodular goiter (M)
- Thyroid adenoma (M)

9. TEACHING / LEARNING METHODS

- Lectures
- Structured interactive sessions
- Small group discussions
- Seminar and symposia , integrated teaching sessions
- Problem based learning with different clinical situations and written case scenario
- Self -learning tools and resources selection
- Interactive learning
- e – modules

10. BOOKS RECOMMENDED FOR READING

1. Robbins Basic Pathology – Kumar Cotran Robbins
2. de Gruchy's Clinical Haematology in Medical Practice
3. Pathology – Muir
4. Clinical Pathology
 - Essential Lab Medicine – V. H. Talib,
 - Medical Lab Technology by Kanai Mukherjee Vol. I,II,III
 - Clinical Pathology by Sanyal
5. IAPM textbook of Pathology
6. Y.M. Bhendes General Pathology – S. G. Deodhar

7. Textbook of Pathology – Harsh Mohan
8. Atlas and textbook of haematology – Dr. Tejinder Singh

11. REFERENCE BOOKS

1. Robbins and Cotran's Pathologic basis of disease – Kumar & Abbas
2. Pathology Rubin , Farber
3. Anderson's Pathology- Vol. I & II
4. Pathology Illustrated – Govan , Callander
5. Concise Pathology – Chandrasoma
6. Internet resources

12. EVALUATION METHODS

Internal assessment examination and comprehensive final examination at the end of 1½ years of learning in Theory, Orals and Practicals

12.1 INTERNAL ASSESSMENT

Evaluation shall be done at the end of 3rd, 4th and 5th term as per the following pattern

12.1.1 MODE OF EXAMINATION TIME OF EXAMINATION

THEORY	Total Marks
3 rd Term ending	50
4 th Term ending	50
5 th Term ending	80
(Preliminary exam)	
Total Theory (to be reduced to 15)	180

PRACTICALS	Total Marks
3 rd Term ending	40
4 th Term ending	40
5 th Term ending	40
(Preliminary exam)	
Total Theory (to be reduced to 15)	120

JOURNAL (5th Term Ending) 03

Thus total marks for consideration of internal assessment is 30

12.1.2

Preliminary Examination shall be in the pattern of the final University Examination (Theory, Oral And Practicals) and will

be conducted at least 4 weeks before the date of the final university examination.

12.1.3

The term ending examination will have the following pattern

THEORY 150 MINUTES

MCQ (1/2 mark each) 20	= 10 marks
SAQ (3 marks each) 8/9	= 24 marks
LAQ (8 marks each) 2/2	= 16 marks
Total	= 50 Marks

PRACTICALS 90 MINUTES

Bench work	20 marks
Viva	20 marks
Total	40 Marks

12.2 FINAL UNIVERSITY EXAMINATION

UNIVERSITY PATTERN OF EXAMINATION- (Theory -Examination)

Time Allowed: - 2.00 Hours For Each Paper

				Marks	Tot al
Paper I	Section A	Question 1	One Sentence Answer Questions (8 Out of 10)	8X1=08	22
		Question 2	Long Answer Questions (2 Out of 3)	7X 2=14	
	Section B	Question 3	Short Answer Questions (6 Out of 8)	6X3=18	18
				Total =	40
	Section A	Question 1	One Sentence Answer Questions(8 Out of 10)	8X1=08	22

		Question 2	Long Answer Questions (2 Out of 3)	7X2=14	
Paper II	Section B	Question 3	Short Answer Questions (6 Out of 8)	6X3=18	18
				Total =	40

THEORY EXAMINATION TOPICS IN

PATHOLOGY PATHOLOGY PAPER - I

General Pathology including general neoplasia, Hematology and transfusion medicine

PATHOLOGY PAPER - II

Systemic Pathology and Clinical pathology.

12.2.2

PRACTICALS TOTAL MARKS = 40

Practical examination will be conducted as per the following schedule

- A) Exercise (Total Marks =26 Marks)**
 10 spots, 90 seconds each
 4 specimens, 1 instrument } Identification ½ mark
 3 histopathology slides } Specific short
 1 haematology slide and } question ½ mark
 1 chart }
 Total 1 mark for each spot- **10 Marks**
- B) URINE EXAMINATION**
 Complete physical examination and detection - **08 Marks**
 of two abnormal constituents
- C) ONE EXERCISE** to be chosen by lot system from
 (i) Haemoglobin estimation
 (ii) Blood smear staining and study - **08 Marks**
 (iii) Total leucocyte count
 (iv) Blood grouping

12.2.3

ORAL EXAMINATION (VIVA)

Two tables. Each candidate will face 2 examiners for 5 minutes each

Table I General and Systemic Pathology 07 marks

Table II Clinical Pathology and Haematology 07 marks
Total 14 marks

These marks will be added to theory marks

Note: Number of candidates for practicals should not exceed 30/day

**MAPPING OF PROGRAMME OUTCOMES [POs] AND
COURSE OUTCOMES [COs] OF- II - MBBS
PROGRAMMES**

PROGRAMME OUTCOMES :

Programme Name: MBBS	
Subject Code: 01010201	
Sr. No.	By the end of the programme, the MBBS Graduate will have /be:
PO 1	Knowledge and Skills
PO 2	Planning and problem-solving abilities
PO 3	Communication
PO 4	Research Aptitude
PO 5	Professionalism and Ethics
PO 6	Leadership
PO 7	Societal Responsibilities
PO 8	Environment and Sustainability
PO 9	Lifelong Learner

Year II	
Course Code	Course Title
01010201	Pathology
01010203	Pharmacology and Therapeutics
01010202	Microbiology
01010304	Forensic Medicine and Toxicology

Pathology : (01010201)		
CO No.	At the end of the course, the learner should be able to:	Mapped Programme Outcomes
CO 1	Enumerate and understand common definitions and terms used in pathology	PO1, PO2, PO3, PO4, PO9
CO 2	Understand etiopathogenesis of various cellular and tissue lesions. Interpret effects on gross and microscopy	PO1, PO2, PO3, PO4, PO5, PO9
CO 3	Comprehend, classify, identify and interpret characteristics of benign and malignant tumors on gross and microscopy. Acquire knowledge of spread of tumors along with molecular basis of neoplasia	PO1, PO2, PO3, PO4, PO5, PO9
CO 4	Define and classify anaemia and other RBC disorders. Comprehend Etiology, characteristics and investigations in various types of anaemia. Prepare and interpret PBS and BM aspiration and biopsy.	PO1, PO2, PO3, PO4, PO5, PO7, PO9
CO 5	Enumerate, comprehend and interpret leucocyte disorders. Etiopathogenesis and classification of acute and chronic leukemias and lymphomas.	PO1, PO2, PO3, PO4, PO5, PO7, PO9
CO 6	Understand normal hemostasis. Comprehend and diagnosis congenital and acquired disorders of hemostasis	PO1, PO2, PO3, PO4, PO9
CO 7	Classify, describe, identify and interpret various blood group disorders. Understand and describe compatibility testing and principles of blood component therapy. Must know various transfusion reactions with their investigations along with provisioning of safe blood and autologous transfusion.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9
CO 8	Know the process, to collect and interpret various clinical, cytological and histopathological specimens.	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9
CO 9	Comprehend Etiopathogenesis, classification, gross and microscopy, genetics, grading, staging, prognostic and complication along with diagnostic and screening methods in various systemic disorders and tumors.	PO1, PO2, PO3, PO4, PO5, PO9

