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1. Introduction:

Department of Pathology of BSMMU was established in 1968 under the Institute of Post Graduate Medicine and Research (IPGMR). It originally offered two year long M.Phil. Course in Pathology under the Dhaka University. In 1995 five year duration MD course was adopted intake for which continued from 1997 till 2006 after conversion of IPGMR to Bangabandhu Sheikh Mujib Medical University BSMMU. With extensive reviewing of the previous course and curriculum, the Faculty of Basic and Para Clinical Medical Sciences along with other departments, decided to start a more practical teaching and training oriented residency program. The Pathology residency is a four year long course focusing surgical pathology based training with small modules in allied specialties.

2. Goal:

The goal of this residency program is to train a medical graduate to achieve the highest degree of proficiency in pathology to work in future as a teacher, clinical consultant and independent researcher.

3. Objectives:

- After completion of residency in pathology the student is expected to be competent to practice at consultant level in the field of Histopathology and cytopathology (surgical pathology). With further training he/she will also be able to work in the sub specialties.
- He/she will have a clear understanding of human disease processes so to work as teacher in medical institutes.
- He/She will have clear conception on biomedical research, and will be able to undertake him/herself and supervise such research. He/she will understand scientific communications, able to communicate with scientific community and disseminate knowledge amongst his/her peers and students.
- He/she shall be able to perform full medical autopsy and will be able to ascertain cause of death and changes in tissue.

4. Course summary:**Duration:** 4 years (48 months)**Session commences:** March of each calendar year**Number of candidates enrolled in each session:**

Local: 6 (3 government + 3 private).

Foreign: 2 (Foreign students apply separately).

Medium of instruction: English**Admission eligibility:** MBBS or equivalent, BMDC registration, one year internship training.**Selection:** Through open admission test in November of each year.**5. Course overview:**

The MD course is a full time four years long continuous program. The student gets extensive exposure to general pathology during the 1st year. Placement in allied clinical and paraclinical areas are completed within the initial 15 months. They are then devoted to surgical and cytopathology. During this period they are placed in special sections like immunohistochemistry, immunofluorescence, cyto and molecular genetics, autopsy etc. In the third year they undertake a thesis project which is a prerequisite for the final examination.

The course is divided into two phases: Phase A (two years) and Phase B (two years). Each phase is composed of a number of basic three months block. A resident has to complete a block successfully. Allied subjects are assessed by end block examination and are mentioned in the transcripts. Summative assessments are taken on general and systemic pathology and pathology related branches. The summative examinations are conducted by the university as Paper I, II, III, IV, V and VI examinations at the end of year 1, 2 and 4. Mark sheets mention the subjects with marks.

6. Course content:

- I. Pathology laboratory techniques
- II. General Pathology

- III. Pathology of organ systems (Systemic Pathology)
- IV. Diagnostic surgical pathology (histopathology and cytopathology)
- V. Special techniques in pathology (IHC, IF, cyto- and molecular genetics)
- VI. Haematology
- VII. Medical autopsy
- VIII. Course related sub-specialties and basic science subjects:
 - Microbiology and Virology
 - Medical Biochemistry
 - Clinical Pathology
 - Transfusion Medicine
 - Medical genetics
 - Immunopathology
 - Medical education
 - Information technology
 - Research methodology
 - Medical Statistics

7. Course outline**Name of the course:** Doctor of Medicine (MD), Pathology**Duration of the course:** Four years, comprising of Phase A – Two years (Year 1 and Year 2), and Phase B – Two years (Year 3 and Year 4).**Phase A****Year 1:** Four blocks followed by end block examination, and at year ending, summative examination on two papers.**Blocks****Block 1 and 2:** Pathology (General Pathology and Lab techniques) (24 weeks)**Block 3:** Clinical Pathology (4 weeks)

Microbiology (6 weeks)

Virology (2 weeks)

Block 4: Biochemistry (6 weeks)

Summative examination

Paper I: General Pathology-1 (Cellular adaptation, Cell injury, inflammation, Tissue repair, haemodynamic disorders)

Paper II: General Pathology-2 (Neoplasia, Infectious diseases, Nutritional Pathology, Developmental Pathology, Diseases of aging, other sundry changes).

Year 2: Four blocks followed by end block examination, and at year ending, summative examination on two papers.

Blocks

Block 1: Haematology (10 weeks)

Transfusion medicine (2 weeks)

Block 2, 3, 4: Pathology (Genetics, Immunofluorescence, Immunohistochemistry, Frozen section) (30 weeks)

Summative examination

Paper III : Group A: Pathology Laboratory techniques

Group B: Molecular Pathology.

Paper IV: Group A: Medical Genetics

Group B: Basic Immunology and Immunological disorders

Phase B

Year 3 and Year 4: Eight blocks, two papers, Thesis and thesis defense.

Blocks: Detailed in course handout.

Summative examination

Paper V: Systemic Pathology

Group A: Diseases of the

1. Cardiovascular system,
2. Respiratory system,
3. Gastrointestinal system, Liver and biliary tract, Pancreas
4. Head and neck,
5. Eye, ear, nose and paranasal sinus.

Group B:

1. Haematopoietic and lymphoid tissue
2. Musculoskeletal system
3. Soft tissue
4. Nervous system

Paper VI: Systemic Pathology and Cytopathology

Group C: Systemic Pathology

1. Male and female genital system,
2. Breast
3. Kidney and urinary tract
4. Endocrine system
5. Skin,

Group D: Cytopathology

1. Structure of mammalian cells, benign pathological processes affecting the cell, characteristic of a malignant cell, effusion fluids
2. Cytology of the female genital tract, respiratory tract, oral cavity, urinary tract and prostate, breast and nipple, gastrointestinal tract, CSF and other body fluids

Thesis and thesis defense.

General Note:

1. This curriculum is applicable from 3rd residency batch onwards.
2. Microbiology, Virology, Clinical Pathology, Biochemistry, Haematology, Blood transfusion will be assessed in End block Formative Assessment. These will not be assessed in summative assessment.
3. Medical education, Biostatistics and Research Methodology will be assessed at the end of each course in accordance to the faculty guideline.

8. Course Detail

Phase A Year 1

Objective:

The resident should acquire basic knowledge about laboratory techniques in Pathology and other related subjects in laboratory medicine.

Block 1 (1 March – 31 May)

Placement in Pathology

Theory classes

Basic laboratory techniques

- a. Organization of a histopathology/ cytopathology laboratory
- b. Management of a laboratory- documentation, preservation, information storage (record keeping), laboratory safety and discarding of specimen
- c. Microscopy-general, fluorescence and electron microscopy
- d. Fixatives-mechanism of action, classification, choice of a fixative
- e. Microtomy - general principle, microtome knives, abrasives
- f. Principles of grossing
- g. Routine tissue processing
- h. Principles of staining - routine and special stains
- i. Frozen section
- j. Cytology laboratory techniques- basic sampling techniques, processing and staining
- k. Immunohistochemistry
- l. Immunofluorescence
- m. Cytogenetics
- n. Mounting and display of museum specimen

General Pathology

- i. Cellular adaptation, Cell injury and Cell death
- ii. Acute and chronic inflammation
- iii. Tissue repair
- iv. Haemodynamic disorders

Hands on training

1. Each resident will observe grossing of specimens and aspiration of superficial lesions done by senior residents. A minimum of 50 histo and 50 cyto cases should be observed and followed up to reporting, and then be recorded in the log book, which will be evaluated by respective consultants.
2. Each resident will prepare 10 histo and 10 cyto slides (processing to staining).

Assessment

End block formative assessment (EBFA) comprising of SAQ, Practical, and Viva.

*Assessed contents will not be repeated in Summative examination.

Block 2 (1 June – 31 August)

Placement in Pathology

Theory

General Pathology

1. Neoplasia
2. Infectious diseases
3. Nutritional Pathology
4. Developmental Pathology
5. Diseases of Aging

Hands on training

Each resident will be enrolled in routine departmental works including grossing of specimens, FNA, and Reporting.

Assessment

End block formative assessment (EBFA) comprising of SAQ, Practical, and Viva.

Block 3 (1 Sept – 30 Nov)

A composite block consisting of the following placements:

1. Clinical Pathology for 4 weeks (01 – 30 September).
2. Microbiology for 6 weeks (01 October – 15 November).
3. Virology for 2 weeks (16 – 30 November)

Contents of Clinical Pathology:

- Blood- preparation & microscopic examination of routine blood.
- Urine: Collections, preservation, slide preparation and microscopic examination.

Residency Program

- Stool: Sample collections, preparation and microscopic examination.
- Semen: Sample collections, preparation and microscopic examination.
- CSF: Sample collections, preparation and microscopic examination.
- Other fluids: Collections and examination under microscopic.
- Principles of auto analyzer including practical application.
- Tumour marker analysis in detail.

Contents of Microbiology:

- Bacteriology, Bacterial morphology, Pathogenicity, metabolism, Genetics.
- Staining, Culture and biochemical tests for identifications of bacteria.
- Medical mycology, Classifications identification.
- Medical paracytology, Classification identification.
- Sterilization, disinfections, antimicrobial agents.
- Practical:
 - Common staining (Gram, Z-N, Albert's)
 - Culture and identification of common pathogenic bacteria.
 - Identification of dermatophytes isolated from clinical material.
 - Identification of common parasites in clinical material.
- Contents of Virology:
 - General properties of virus-Types and isolation.
 - Isolation of viruses.
 - Common viral diseases.
 - Hepatitis viruses – identification and (Ab & Ag, DNA)
 - Laboratory diagnosis of common viral diseases.

Practical:

- Flow-cytometry
- PCR
- Hybrid capture

Assessment

EBFA – SAQ, Practical and Viva.

Block 4 (1 Dec – 15 Jan)**Placement in Biochemistry for 6 weeks.****Contents of Biochemistry:**

- Basic chemistry, Biomolecules, Biophysics, Biological membranes, cellular communication.
- Digestion and absorption.
- Bioenergetics, biological oxidation, metabolism.
- Laboratory records, data management and quality control in clinical Chemistry.
- Collection, processing and preservation of samples.
- Units, reference values, interpretation of use of biochemical data.
- Analytical techniques in clinical biochemistry, centrifugation, ultracentrifugation, electrophoresis and immuno-electrophoresis, chromatography, colorimetry, spectrophotometric, flame photometry. (ELISA, RIA, automated analysis, discrete analysis).
- Metabolic effects of tumours and tumour makers.
- Liver function tests.
- Renal function tests.
- Fluid and electrolyte disorders.
- Acid base disorders.
- Analysis of biological fluids.
- Inborn errors of metabolism.
- Blood glucose homeostasis, Diabetes mellitus.
- Lipid profile and dyslipidemia

Assessment

EBFA – SAQ, Practical and Viva

***Preparatory leave for summative examination (16 – 31 Jan)

***-+Summative examination Paper I and II (1 – 28 Feb)

Year 2**Block 1 (1 Mar – 31 May)**

A composite block consisting of the following placements:

1. Haematology for 10 weeks (01 March– 15 May).
2. Transfusion medicine for 2 weeks (16 – 31 May)

Content of Haematology

- Diseases of blood cells and Bleeding disorders.
- Normal development of blood cells.
- Anaemias, Thalassemias, Haemoglobinopathies.
- Polycythaemia,
- Bleeding disorders, Haemorrhagic diathesis, DIC.
- Disease of white cells, Leukopenia, leukocytosis, Leukaemias.

Contents of Transfusion medicine:

Blood group serology

- Red cell membrane antigens. Inheritance of blood groups. Significance of Blood group antigens.
- Bombay phenotypic
- Clinical significances of red cells antibodies
- Detection of red cell antigen - antibody reaction
- Coombs test
- Blood Grouping
- The Rh system
- White cell, platelet antibodies

Clinical Blood Transfusion

- The Blood donor
- Measures to protect donor
- Measures to protect recipient

The storage of blood component

- Anticoagulants
- Storage changes of blood

Blood components:

- Platelet Concentrate
- Granulocyte concentrate
- Fresh frozen plasma
- Cryoprecipitate
- Compatibility Testing
- Massive transfusion

- Complication of Blood transfusion
- Reaction due to white cells & platelets Antibodies
- Haemolytic diseases of newborn
- Exchange transfusion

Assessment

EBFA - SAQ, Practical and Viva

Block 2 (1 June - 31 Aug), Block 3 (1 Sept - 30 Nov) and Block 4 (1 Dec - 15 Jan)

Placement in Pathology

- 1) Rotation in Genetics lab, Immunofluorescence, Immunohistochemistry, Frozen Section.
- 2) Theory classes on Molecular pathology and rotation outside BSMMU lab, where applicable.
- 3) Additional theory classes on Genetics and Immunology, which will not be covered by Common lecture classes

Contents of Molecular Pathology:

1. Basic Molecular Cell Biology

DNA and Chromosomal Structure and Function

- DNA structure
- Intron and exon structure of genes
- RNA composition and synthesis

Regulation of transcription

- RNA polymerises, promoters and enhancers
- RNA editing and splicing
- Control of alternative splicing
- Post-transcriptional control
- Proteins synthesis

Protein structure and function

Cytoskeleton

Cell adhesion

Intracellular compartments and protein sorting

Residency Program

Cell cycle and cell death

Intracellular signalling

Gene Analysis

- Restriction enzyme analysis
- DNA sequencing
- Cloning

Tissue Handling

Tissue bank

Tissue microarray construction and applications

2. Genomic Technologies

- Introduction to array technology
- RNAi technology
- Introduction to proteomics

3. Molecular Diagnostics

- Introduction to molecular diagnostics
- Molecular diagnosis of Infection
- Molecular diagnosis of cancer
- Molecular diagnostics in immunology and genetics

4. Molecular Pathology of Solid Tumours

- Molecular genetics of Cancer
- Cancer and Genetics I
- Genetic markers, DNA polymorphisms and linkage analysis.
- Familial cancer syndromes.
- Colorectal cancer as a model of multistep malignancy
- Breast cancer: emerging molecular classification
- Molecular classification of renal tumours
- Microbial carcinogenesis I

5. Molecular Cytogenetics of Tumour:

- Cytogenetics
- basic cytogenetic techniques
- molecular cytogenetic techniques
- cytogenetics in research

- Chromosomes abnormalities
- CML
- myeloid leukaemias
- acute lymphoblastic leukaemias
- chronic lymphoproliferative disorders and lymphomas
- Secondary leukaemias
- Reviewing the role of cytogenetics in the clinical setting.
- Solid tumour cytogenetics
- Cytogenetics and disease progression

6. Computational Genomics

- Alzheimer's disease: plaques and tangles
- Amyotrophic lateral sclerosis: motor neuron dysfunction
- Pick's disease: frontotemporal dementia
- Huntington's chorea: a polyQ disorder
- Creutzfeldt-Jakob disease: aberrant protein folding
- Parkinson's disease: dopaminergic neuron loss

Content of Medical genetics

- Cytogenetic disorders.
- Diseases due to single gene defect.
- Multifactorial disorders.
- Diagnosis of genetic diseases
- Treatment of genetic diseased
- Genetic counseling

Contents of Immunology**Basic immunology:**

- Structure and organization and cells of immune system.
- Immunity and its types. Immunoglobulins, antibody, antigen reorganization
- Complement system.

Immunological disorders:

- Mechanisms of tissue damage in immunological disorders.

- Hypersensitivity reactions.
- Immunological tolerance.
- Autoimmune diseases.
- Immunodeficiency states.
- MHC system, HLA and disease association.
- Organ transplant.
- Transfusion reactions.
- Diagnostic immunology.

Contents of Medical statistics

- Tests for hypothesis, Measures of morbidity, Methodology of an experiment or a study.
- Common terms and formula, Central tendency mean, median, mode.
- Measures of dispersion, Probability, 'P' value, Frequency distribution, Clinical study, Significance of difference, Sample, Date analysis, Confidence interval.

Assessment

EBFA on Pathology Lab techniques, Molecular Pathology, Genetics, and Immunology

***Preparatory leave for summative examination (16 – 31 Jan)

***Summative examination Paper III and IV (1 – 28 Feb)

Phase B

Year 3 and Year 4

Objectives:

- Trainee will gain theoretical knowledge in surgical pathology and related fields which will enable him/her to understand disease process.
- He/She shall gain competence in all the branches of histopathology and cytopathology through exposure to patients and clinical materials. This will enable him/her to work independently.
- As a medical scientist he/she shall also be able to conduct research by him/herself and be aware of modern medical developments in this field.

Eight blocks: Rotation in departmental activities

Contents:

1. Systemic Pathology and Cytopathology.
2. Thesis
3. Autopsy

Thesis protocol: in 1st block

Systemic Pathology: divided into groups in the blocks

Block 1 1. Protocol presentation 2. Systemic: GIT	Block 2 LR, CVS, RS	Block 3 Autopsy Endocrine	Block 4 Genitourinary
Block 5 Soft ts, BJ, Skin	Block 6 CNS, sp senses	Block 7 Thesis writing and submission	Prep and leave for exam

1. Summative examination: Paper V and VI (1 – 28 Feb)
2. Thesis defense

Content of Systemic Pathology:

I. Systemic Pathology

Diseases of the

- Cardiovascular system,
- Respiratory system,
- Gastrointestinal system, Liver and biliary tract, Pancreas
- Head and neck,
- Eye, ear, nose,
- Haematopoietic and lymphoid tissue, including clinical haematology
- Kidney and urinary tract,
- Male and female genital system,
- Breast
- Endocrine system,
- Skin,
- Musculoskeletal system,
- Nervous system

II. Cytopathology

- c) Structure of mammalian cells, benign pathological processes affecting the cell, characteristic of a malignant cell, effusion fluids
- d) Cytology of the female genital tract, respiratory tract, oral cavity, urinary tract and prostate, breast and nipple, gastrointestinal tract, CSF and other body fluids

Thesis:

- a) Resident will submit thesis protocol at the beginning of Phase B
- b) Research and thesis writing during Phase B (minimum duration -2 years)
- c) Thesis submission at the end of Phase B

9. Rotational Postings

Residents should be posted in all the sections – Histopathology, Cytopathology, Hematology, Clinical Pathology, Microbiology, Virology, Biochemistry and Immunology during the 4 years.

10. Assessment formats

Assessment is the process of forming a judgment about the quality and extent of student's achievement or performance, and therefore, by inference, a judgment about the learning itself. Assessment inevitably shapes the learning that occurs; that is, what students learn and how they learn should reflect closely the purposes and aims of the course.

Residency assessment examination will be of two types, 'Formative' and 'Summative'.

10.1 Formative evaluation

Formative assessment include assessment at work place situations, assessment at rotational placements, End-of-Block (EOB) or End-of-Module Exams and within-Block or within-Module assessments (Seminar/journal club presentations, other presentations, Written, Practical or Clinical assignments etc.). End of Block Exams will be Formative.

10.2 End of Block /End of Module Examination Format

End-of-block or End-of-Module Exams			
Assessment	Total Marks	Pass Marks	Time
A. Written Exams	50	30	90 minutes
Objective questions	35		
SAQ	15		
B. Oral Exams	50	30	
C. Practical/Clinical Exams	50	30	
D. Grades and Marks from Within-Block or Within-Module Assessments (Log-Book results)	50	30	

10.3 Examiners of formative examinations

There shall be two examiners (preferably one external) for oral and practical exams. Written script will be examined by either of the examiners.

Departmental examination committee will propose the name of the examiners. The examiners and moderators of the examinations will be of the rank of Professor/Associate Professor. In the absence of eligible examiners only, assistant Professor of the respective department of BSMMU, Dhaka, may be appointed as examiners provided he/she has worked as regular assistant professor for at least three years.

Eligibility of examinee: Before sitting for EOB exams, all modules of the block must be cleared. If one fails in the End of Block Exam she/he will have to repeat the exam.

Throughout the course, structured assessment will be done for the assessment of students' performance. Log book for every student will be maintained.

10.4 Summative Examinations

These include Year 1 Year 2, and at the end of Year 4, Phase B final examinations.

There are three summative examinations: i) Phase- A, Year- 1 Exams; ii) Phase- A, Year- 2 Exams; iii) Phase- B Exams.

10.4.1 Eligibility

i). Phase- A, Year- 1 Examinations are open to any candidate who:

- Has undertaken the course of study in the respective subject prescribed for Year- 1, and has attended at least 75% of each component of the course composition as prescribed in the syllabus.
- Has completed all the assignments prescribed in the curriculum for Year- 1
- Has cleared the EOB exams.

ii). Phase- A, Year- 2 Examinations are open to any candidate who:

- Has previously passed the Year- 1 Examination in at least two of the three Papers
- Has undertaken the course of study prescribed for Year- 2, and has attended at least 75% of each component of the course composition as prescribed in the syllabus.
- Has completed all the assignments prescribed in the curriculum for Year- 2.
- Has cleared the EOB exams.

There shall be two examiners (one external and one internal) for each paper, who will examine the answer scripts along with practical and oral examination.

The examination will consist of three parts: viz- Part I, Part II & Final Part.

10.4.2 Marks distribution

EXAMINATION (END OF YEAR 1): PART-I

Total marks for each paper is 100.

Pass marks is 60% in each compartment (Written, Oral and Practical)

Paper and Subject	30% marks of formative examination.	70% marks of summative examination	Total marks obtained
Written • Paper-I: General Pathology-1 • Paper-II: General Pathology-2			
Practical • Paper-I: General Pathology-1 • Paper-II: General Pathology-2			
Oral • Paper-I: General Pathology-1 • Paper-II: General Pathology-2			
Microbiology	Satisfactory	Unsatisfactory	
Virology	Satisfactory	Unsatisfactory	
Biochemistry	Satisfactory	Unsatisfactory	
Clinical Pathology	Satisfactory	Unsatisfactory	
Medical Education	Satisfactory	Unsatisfactory	

EXAMINATION (END OF YEAR 2): PART-II

Total marks for each paper is 100.

Pass marks is 60% in each compartment (Written, Oral and Practical)

Paper and Subject	30% marks of formative examination.	70% marks of summative examination	Total marks obtained
Written • <i>Paper-III:</i> Group A: Pathology Laboratory Techniques Group B: Molecular Pathology • <i>Paper-IV:</i> Group A: Medical Genetics Group B: Basic			

Immunology and Immunological disorders			
Practical • Paper-III: Group A: Pathology Laboratory Techniques Group B: Molecular Pathology • Paper-IV: Group A: Medical Genetics Group B: Basic Immunology and Immunological disorders			
Oral • Paper-III: Group A: Pathology Laboratory Techniques Group B: Molecular Pathology • Paper-IV: Group A: Medical Genetics Group B: Basic Immunology and Immunological disorders			
Hematology	Satisfactory	Unsatisfactory	
Transfusion medicine	Satisfactory	Unsatisfactory	
Biostatistics and Research Methodology	Satisfactory	Unsatisfactory	

10.4.3 Examiners of year ending examinations

Departmental examination committee will propose the name of the examiners to the Faculty of Basic Medical Sciences for recommendation. The Academic Council of BSMMU, Dhaka, will then appoint the examiners based on the recommendation of the departmental examination committee and Faculty of Basic Medical Sciences. The examiners and moderators of the examinations will be of the rank of Professor/Associate Professor. In absence of eligible examiners only, assistant Professor of the respective department of BSMMU, Dhaka, may be appointed as examiners provided he/she has worked as regular assistant professor for at least three years. There shall be two examiners

(one external and one internal) for each paper, who will examine the answer scripts along with practical and oral examination. Each group (A and B) of written exam paper will be examined by one examiner of the oral and Practical examination.

10.5 Phase B Final examination

10.5.1 Eligibility

Phase- B examination is open to any candidate who:

- Has previously passed the Year-1 and Year- 2 Final Examinations.
- Has conducted an approved research work for at least one year at BSMMU, Dhaka, or any other institute approved by the University, and has submitted a thesis embodying the results of that research.
- Has submitted five unbound copies of the thesis to the University within the stipulated time.
- Has produced a certificate of completion of his/her work from the Supervisor(s) of the thesis countersigned by the Chairman of the Department.
- Has completed all the assignments prescribed in the curriculum for Phase- B.
- Has cleared the EOB examinations.

A resident passing in any Paper in any summative examination is not required to appear in the same Paper in any subsequent examination.

- a) A resident who fails in Part I or Part II examination may appear in a subsequent examination (which is held every year at 6 months interval) without further pursuing a course of the same studies. The student must clear Part I and Part II within a period of four years of commencement of the course. Otherwise, he/she will be debarred from the course.
- b) A student who fails in final examination may reappear in a subsequent examination on payment of usual fees without carrying out further new research except that is necessary to correct defects in the existing thesis.

Thesis examination: shall be conducted by Board of Examiners comprising four in number in the area of related specialty, and there will be one Chairman and three members, at

least two of whom will be the externals, in each board. The supervisor of the research work may be a member of the board, and the internal other than supervisor will be the chairman of the board of examiners.

10.5.2 Phase B Final Result Components:

A. Summative examination

Paper and Subject	30% marks of formative examination	70% marks of summative examination	Total marks obtained
Written • Paper-V: Systemic Pathology • Paper-VI: Systemic Pathology and Cytopathology			
Practical • Paper-V: Systemic Pathology • Paper-VI: Systemic Pathology and Cytopathology			
Oral • Paper-V: Systemic Pathology • Paper-VI: Systemic Pathology and Cytopathology			

B. Thesis and thesis defense

	Total mark	Pass mark	Mark obtained
Thesis	100	60	
Thesis defense	100	60	
Comprehensive viva	100	60	

- 1) The results of the thesis presentation and defense will be consolidated as follows
 - i) Accepted
 - ii) Accepted with corrections
 - iii) Not accepted

- 2) In case a candidate is unable to satisfy the Viva-voice Board even though the thesis is adjudged adequate, the Board may recommend to the Academic council that the candidate may be permitted to appear at another oral examination after a lapse of 6 months from the first oral examination. Provided that no candidate shall be allowed to appear at the oral examination of the same thesis for more than two times.
- 3) If a thesis is judged inadequate for the award of the MD degree, the examiners may permit the candidate to do more research work in order to improve the standard of the thesis, and may recommend the Academic council that the candidate may be allowed to appear at a new examination after necessary improvement of his/her thesis.

11. Job responsibilities for the residents

- Perform procedures
- Grossing
- Fine needle aspiration
- Attend reporting sessions of Histopathology and Cytopathology with consultant
- Assist in Frozen Section
- Interpret under supervision all Immunopathology techniques, genetics & other special techniques.
- Assist in teaching especially practical classes.
- Reporting in Clinical Pathology (Examination of urine, stool, CSF, other body fluids etc) when placed in respective block.
- Routine haematological tests when placed in respective blocks.
- Bone marrow aspiration, biopsy and examination.
- Reporting of routine microbial samples and serological tests.

12. Guidelines for residents:

Log book:

- Each resident will maintain Logbook from the date of joining in the course to keep records of his/her performance regularly and daily work should be signed-up by respective supervisors.

- The Logbook will be supplied by the department of Pathology, BSMMU.
- Resident will submit Logbook before their final examinations i.e. at the end of the course.
- Head of the department will check Logbook once in a month.
- Resident will carry Logbook when they are placed outside of their parent department to complete the portion carried out there and the specific portion would be regularly signed by the supervisor of the respective department.

Training and skill development:

- He/she should be responsible for his/her own activities and will be able to work in a group.
- She/he should be able to work in the delivery of appropriate aspects of national and international health care services.
- He/she should acquire habit of life long learning.
- He/she should be able to assure the critical aspects of published lecture.
- They should have basic interpretive skills at both macroscopic and microscopic levels.
- They should have sufficient technical knowledge of processing, sectioning and staining of routine histological including other special techniques.
- (e.g.-IHC, IFC, FS and molecular pathology).
- He/she should be able to perform aspiration of superficial as well as deep-seated organs and should also have basic technical aspects of preparation, staining of different cytological samples.
- After completion of residency programme in pathology he/she should be able to diagnosis common surgical pathology and cytology cases.
- Will be able to perform & interpret medical & medico-legal autopsies.
- Will have knowledge to organize & conduct interdepartmental activities:
 - Tumour board.
 - Clinicopathological meeting.
 - Consultation with Imaging & other departments.

- He/she should be familiar with basic health and safety regulation.
- They should have enough knowledge about information technology and have sufficient knowledge to interact appropriately with medical, scientific technical and clinical colleagues in the work place.
- Regarding academic sessions he/she should attain at least 90% of activities (e.g.-Lectures, tutorials, Journal club, Slide seminar, Clinicopathological conference etc).
- Is expected to oblige by medical ethics.
- Will have knowledge how to maintain good medical records and the skill in documentation of histopathology and cytopathology details & preservation of the blocks & slides.

13. Charter of Responsibility of Supervisors, Course Coordinators and Course Directors

A. Supervisor:

Eligibility: Assistant Professor and above.

Responsibility:

- Maintain attendance and discipline of the Residents.
- Provide orientation, guidance and feedback to resident's learning.
- Day to day signing of performance record (log book).
- Authorized to sign casual leave of the resident and forward it to the chairman.
- Be responsible for completing the following block program-
 - a) Clinical performance
 - b) Academic performance
 - c) Global competence
 - d) Organizing end of block assessment
 - e) Leave report
- Assess residents' competence outcomes.
- Send end of Block Report to the Course Coordinator.

B. Course Coordinator:

Eligibility: Associate Professor and above.

Responsibility:

- Be responsible for planning, organizing and providing management support to training and academic activities of the Residents in the Department.

 Residency Program

- Supervise, guide and lead the team of Supervisors.
- Circulate the Training Rotation Schedule to the Supervisors for implementation
- Assist the Course Director in planning, organizing and managing the entire course
- Maintain inter-departmental communications regarding training, end of block report and circulation of the reports.
- Compile end of block report (EOBR) and prepare the Phase Completion Report (PCR).
- Will compile & maintain leave records and take necessary actions as per university rules in consultation with the chairman.
- Report to the Course Director.

C. Course Director:

Eligibility: Any Professor of the respective faculty.

Responsibility:

- Supervise, guide and lead team of Course Coordinators.
- Appoint Course Coordinators as per recommendations of the respective chairman of the Departments.
- Prepare the Training Rotation Schedule (rota) and circulate it to the Course Coordinators/ Chairman.
- Collect and endorse Phase Completion Report.
- Certify qualifications eligibility for appearing in the phase final examinations.
- Will prepare training rotation schedule for Residents with incomplete or defolters, in consultation with respective Chairman.
- Manage disputes and conflicts in consultation with the Dean and refer appropriate cases to the appropriate authority through the Dean.
- Submit Phase Completion Report to the Dean for onward presentation in the Academic Council.
- Report to the Dean.

14. Code of Student Rights, Responsibilities, and Conduct
14.1 Student Responsibilities

Academic misconduct is defined as any activity that tends to undermine the academic integrity of the institution. The university may discipline a student for academic misconduct. Academic misconduct may involve human, hard-copy, or electronic resources.

Policies of academic misconduct apply to all course, department and university-related activities, including field trips, conferences, performances and exams outside of a specific course structure (such as take-home exams, entrance exams, or auditions and theses exams) and research work outside of a specific course structure (such as lab experiments, data collection, service learning, and collaborative research projects). The faculty member may take into account the seriousness of the violation in assessing a penalty for acts of academic misconduct. The faculty member must report all cases of academic misconduct to the appropriate official. Academic misconduct includes, but is not limited to, the following:

1. Cheating

Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.

- a. A resident must not use external assistance on any "in-class", "take-home" or in hall examination, unless the involved faculty member specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, calculators, computers, and wireless communication devices.
- b. A resident must not use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare work, without advanced authorization from the involved faculty member to whom the work is being submitted.
- c. A resident must not use materials from a commercial term paper company; files of papers prepared by other persons, or submit documents found on the Internet.

- d. A resident must not collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student's individual work.
- e. A resident must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
- f. A resident must not steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
- g. A resident must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor or program to whom he work is being submitted.
- h. A resident must not, without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.

2. Fabrication

A resident must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citation to the sources of information.

3. Plagiarism

Plagiarism is defined as presenting someone else's work, including the work of other students, as one's own. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered "common knowledge" may differ from course to course.

- a. A resident must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
- b. A resident must give credit to the originality of others and acknowledge indebtedness whenever:
 1. directly quoting another person's actual words, whether oral or written;
 2. using another person's ideas, opinions, or theories;

3. paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
4. borrowing facts, statistics, or illustrative material; or
5. offering materials assembled or collected by others in the form of projects or collections without acknowledgment

4. Interference

A resident must not steal, change, destroy, or impede another student's work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any resident grade or the evaluation of academic performance. Impeding another resident work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.

5. Violation of Course Rules

A resident must not violate course rules established by a department, the course syllabus, verbal or written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.

6. Facilitating Academic Dishonesty

A resident must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct, nor allow another student to use his or her work or resources to commit an act of misconduct.

15. Suggested Books

15.1 Core books

- Robin's Pathologic Basis of Diseases
- Ackerman's Surgical Pathology
- Sternberg's Surgical Pathology
- Diagnostic Cytopathology (Koss)
- Wintrobe's Clinical Hematology
- Practical Hematology (Dacie)
- Essential immunology (Roitt)

15.2 Reference Books

- WHO Fascicles
- Comprehensive cytopathology (Bibbo)
- Diagnostic cytopathology (Orell) Pathology & Cytopathology
- Greenfield's Neuropathology
- Lever's histopathology of skin
- Primer of Dermatopathology

15.3 Journals

- Bangladesh Journal Of Pathology
- BMRC Bulletin
- Bangladesh Medical Journal
- BSMMU Journal
- MMC Journal
- Cytopathology
- Acta Cytologica
- Cancer
- Archives of Pathology
- American Journal of Pathology
- Human Pathology
- American Journal of Clinical Pathology