TABLE OF SPECIFICATIONS
MORBID ANATOMY AND HISTOPATHOLOGY
PAPER-1

Sr. #	Topics	MCQ's	SEQ's
1.	Light Microscope	10	01
2.	Fixation	15	01
3.	Tissue processing	15	01
4.	Microtomy	10	01
5.	The Frozen Section Techniques:	10	01
6.	Stains:	10	01
7.	Routine Hematoxylin-Eosin Staining Of Paraffin Sections:	10	01

PAPER-2

Sr. #	Topics	MCQ's	SEQ's
1.	Stains for Connective Tissue Elements:	12	01
2.	Stains for Nervous Tissue	03	Nil
3.	Histochemical demonstration of lipids:	05	0.5
4.	Histochemical demonstration of glycogen:	05	0.5
5.	Stains for amyloid	03	0.5
6.	Stain for iron	03	0.5
7.	Stain for Reticulin fiber	04	0.5
8.	Stains for Bacteria & Fungi	12	01
9.	Stain for melanin	02	0.5
10.	Tumor Marker and Immunohistochemistry	12	01
11.	Autopsy Techniques	03	Nil
12	Electron Microscopy	03	0.5
13.	Immunofluorescent techniques	06	0.5
14.	Introduction of gross Anatomy	07	Nil

M.Phil MLS Histotechnology (Part-I)
PAPER I
TABLE OF SPECIFICATIONS

The grey areas of the courses which cannot be covered or are difficult to cover in MCQ's shall be used for framing SEQ's, which may be split into two parts if necessary; attempt shall be made to avoid duplication between MCQ'S and SEQ's.

Topics	No. of MCQ's	No. of SEQ's
Introduction And Theory Of The Light Microscope	10	01
Nature of light		
Concepts of Wavelength and Phase		
Perception of color and brightness		
Refraction, formation of images		
Simple and Compound microscope		
Lenses of The Microscope		
Merits and Demerits of achromatic and apochromatic objectives		
Immersion objectives		
Specification of objective magnification, focal length, tube length, resolution, numerical aperture etc		
Calculation of the resolution and magnification		
Eye pieces, magnification of eye pieces use of eye piece micrometer		
Condensers, correct use of condenser and the iris diaphragm		
Microscope Illumination:		
Use of illuminators		
Alignment of illuminator with the microscope		
Setting up kohler illumination		
Setting up dark field illumination		
Care and Cleaning of the Microscope:		
Care of the mechanical parts		
Care of the Optical parts		
Techniques of cleaning the optical components.		
Introduction to common Histological Techniques:		
Examination of fresh material		
Supravital staining		
Examination of fixed material		

Fixation The purpose of fixation Common fixative used for the histological techniques	15	01

Tissue processing Principles of Tissue processing Dehydration : Types with advantages and disadvantages Clearing: Types with advantages and disadvantages Impregnation : Types with advantages and disadvantages Schedule of manual and automated tissue processing with maintenance of processing machine **The Paraffin method of embedding and Sectioning of Tissue:** Advantages and disadvantages of the paraffin method Paraffin block making Fixing paraffin section to slides	15	01

Microtomy Principles of Microtomy Types of microtome's and their uses Rocking microtome, Rotary Microtome, Sledge Microtome, Freezing Microtome, Cryostat, Ultra microtome **Paraffin Sectioning :** Requirement and procedure **Care of Microtome and Microtome Knives:** Grinding and stooping of microtome knives. Cleaning and lubrication of the microtome.	10	01

The Frozen Section Techniques: Theory of Frozen section techniques Advantages and disadvantages of freezing method Common techniques of freezing tissues Cutting sections with a freezing microtome.	10	01

Stains: Object of staining. Classification of stains. Acids and basic dyes. Basophilic and acidophilic tissue components.	10	01

Routine Hematoxylin-Eosin Staining Of Paraffin Sections: Types of Hematoxylin-eosin stains The procedure of Hematoxylin-eosin staining and mounting sections. Progressive Hematoxylin-eosin staining, Regressive Hematoxylin-eosin staining The relation of various steps in this procedure.	10	01

MCQ's = 80 Total Marks = 80 Time = 90 Minutes
SEQ's =7 Total Marks = 70 Time = 90 Minutes
Total Marks of the Paper = 150 **Total Time = 3 Hours**

Grand Total	**= 150**

M.Phil MLS Histotechnology (Part-I)
PAPER II
TABLE OF SPECIFICATIONS

The grey areas of the courses which cannot be covered or are difficult to cover in MCQ's shall be used for framing SEQ's, which may be split into two parts if necessary; attempt shall be made to avoid duplication between MCQ'S and SEQ's.

Topics	No. of MCQ's	No. of SEQ's
Special Staining Techniques		
Stains for Connective Tissue Elements: Mallory's connective tissue stain Aldehyde fuchsine stain for elastic fibers Aldehyde duchsin stain for elastic fibers Toluidine blue staining of mast cells.	12	01
Stains for Nervous Tissue Luxol fast blue for myelin Nissel Stain for myelin	03	Nil
Histochemical demonstration of lipids: Choice of fixative Choice of sectioning Technique Sudan Black B, Oil Red O Stain	05	0.5
Histochemical demonstration of glycogen: Choice of fixative and sectioning **BEST'S CARMINE** staining for paraffin sections. **The PAS & PASD Technique:** The Schiff reaction Significance of the Schiff reaction Procedure of the PAS & PASD staining	05	0.5

Stains for amyloid Congo red Crystal violet for amyloid	03	0.5

Stain for iron Perls Prussian blue stain for iron	03	0.5

Stain for reticulin fiber Retuculin methods for reticulin fiber	04	0.5

Stains for Bacteria & Fungi Gram stain Stains for H.Pylori AFB ➢ Ziehl-Nelson stain for AFB ➢ Kinyoun (Cold Method) Method ➢ AFB Auramine-Rhodamine - Fluorescent Method Stains for fungi	12	01

Stain for melanin Masson Fontana Staining	02	0.5

Tumor Marker and Immunohistochemistry Types of different tumor markers and their role in diagnosis. The background theory of IHC procedures. Immunohistochemistry techniques and introduction to various steps in this procedure. Quality control of the Immunohistochemistry procedures.	12	01

Autopsy Techniques	03	Nil

Procedure and stages of Autopsy techniques and sampling technique.		

Electron Microscopy Brief history and basic concepts of Electron microscopy. Transmission and scanning Electron microscopy. The use of E/M in diagnosis and research.	03	0.5

Immunoflorescent techniques Principle and theory of immunoflorescent techniques. Role of this technique in research and diagnosis.	06	0.5

Introduction of gross Anatomy General organization of the body Division into systems Descriptive terms used in gross anatomy Skeletal system: Subdivision, recognition of individual bones Vascular system: Identification of gross components, heart and recognition of its chambers, recognition of major arteries and veins. Respiratory system: Recognition of larynx, trachea, main bronchi, Main pulmonary vessels and lobes of lungs. Digestive system: Parts of GIT: Liver, Spleen, and Pancreas. Their recognition and locations. Genitourinary system: Parts of male and female reproductive and urinary systems, their recognition and location. Nervous System: Gross Components: Brain, Cerebrum, Brain Stem, Spinal Cord, and Cerebellum. Nerves: Cranial & Spinal.	07	Nil

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