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SYLLABUS FOR WRITTEN TEST FOR POST OF SCIENTIFIC ASSISTANT

~~HISTOPATHOLOGY~~ LABORATORY – BMT WING

Div. of Experimental Pathology

PART A

1. **Techniques in Histopathology:**

   Fixation of tissues: Principles, types of fixatives, preparation of fixatives. Cryofixation.

   Tissue processing: Principles, methods for processing, preparation of reagents, types of embedding media, quality assessment of processed tissue.

   Techniques of microtomy for sectioning of issues, types of microtomes, types of knives, quality assessment of cut sections. Cryomicrotomy.

   Staining: Principles, procedures for commonly used stains, quality assessment of staining.

   Special stains.

2. **Molecular biology techniques** as applied to histopathology:
   In-situ hybridisation, in-situ polymerase chain reaction.
3. **Maintanance** of a histopathology laboratory.
4. **Optical microscopy:** Basic principles, maintenance of microscope.
5. General principles of **immunohistochemistry.**
6. **Automation** in the laboratory.
7. **Safety** in the laboratory: Types of hazards, prevention and treatment

PART B

1. **Histopathological techniques:**

   Tissue processing: Principles, methods for processing soft and hard tissues with implanted polymers, metals, ceramics, composites, preparation of reagents, types of embedding media and their preparation.

   Techniques of microtomy for sectioning of resin blocks, types of microtomes, grinding and polishing of resin sections.

   Techniques in staining of resin sections: Principle and procedure.

2. **Testing of biocompatibility of materials for medical devices.**
3. **Establishment of a Quality system in the laboratory**.

International Standards – ISO 17025, Elements of a Quality system, Quality assessment, Laboratory accreditation.

Purchase of quality laboratory reagents.

Training of laboratory personnel.

Receiving of specimens.

Preparation and revision of work procedures, maintanance of an archival system, technical records, preventive and corrective measures in the laboratory.

References:

1. Theory and Practice of Histological Techniques. John D. Bancroft and Marilyn Gamble (Editors). Elsiever Science,2002.

2. Techniques of Biocompatibility Testing Vol I & II .David F Williams (Editor). CRC Press, Boca Raton, 1986.