

SYLLABUS FOR MFCP TO THE POST OF TECHNICAL ASSISTANT (Lab) – A to B
PATHOLOGY (including DIVISION OF CELLULAR AND MOLECULAR
CARDIOLOGY)

1. Histopathology techniques
 - a. Tissue processing for routine formalin-fixed paraffin-embedded tissue
 - b. Section cutting and microtomy, including cryomicrotomy for muscle biopsies
 - c. Artefacts related to section cutting and troubleshooting
 - d. Frozen section and squash smear preparation
2. Staining
 - a. Haematoxylin and eosin
 - b. Masson's trichrome
 - c. Verhoff van Gieson
 - d. Luxol fast blue
 - e. Lugol's iodine
 - f. Reticulin stain
 - g. Kulchitsky-Pal stain
 - h. Alcian blue
 - i. Ziehl-Neelsen stain
 - j. Grocott's methenamine silver
 - k. Periodic acid Schiff
3. Muscle enzyme histochemistry
 - a. Modified Gomori's trichrome
 - b. Enzyme histochemistry for NADH-TR, SDH, COX-SDH and ATPase
4. Immunohistochemistry on formalin-fixed, paraffin-embedded tissue
5. Immunology tests:
 - ELISA (ANCA, APLA, dsDNA, Thyroglobulin, Thyroperoxidase, AChR, MUSK, Titin)
 - Indirect immunofluorescence tests (ANA, AQP4-MOG, VGKC, NMDA, Autoimmune encephalitis panel, IgLON5)
 - Immunoblots (ANA profile, Paraneoplastic antigens profile, Myositis profile)
 - Test for Oligoclonal bands: CSF & Serum

6. Spectrophotometry and Nanodrop:

- Beer- Lamberts law, protein assay, Graphical representation, DNA quantification and purity

7. pH meter and buffer preparation:

- Molarity of solutions, Normality of solution, percentage solution, enzyme activity at optimum pH
- Sterilisation- Steam sterilization, ETO sterilization

8. Microscopy- Bright field microscopy, Phase contrast microscopy, Fluorescence microscopy

9. Cell culture techniques – Cell culture medium components and preparation of cell culture medium, sterile culture techniques, CO₂ incubator, laminar hood, Primary cell isolation, culture of primary cells, trypsinization and passaging

10. Centrifugation

11. Agarose gel electrophoresis, gel documentation


12. Western blotting – SDS PAGE, transfer of proteins to membranes, visualization, protein markers

13. PCR and Real-Time PCR

- Primer designing, cDNA synthesis, amplification procedure, fluorescent dyes/probes

14. Immunohistochemistry

- Fixation of tissue, Paraffin embedding, sectioning, staining, immunostaining, Immunofluorescence, Fluorescent dyes


ADMINISTRATIVE OFFICER Gr.I (I/C)
7/3/24