



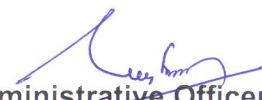
श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम, तिरुवनन्तपुरम - 695 011, केरल, भारत
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P&A.II/363/SA(Lab)/SCTIMST/2021

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Syllabus for written test for selection to the post of
Scientific Assistant (Lab) -VOP

1. Quality control and its implications, errors, sensitivity and specificity in diagnostic assays, pH, common buffers preparation for assays and cell culture, molarity and normality calculation, percentage solutions, conversion to molarity and dilutions, principles of biosafety in laboratories, sterilization and disinfection methods, decontamination and biomedical waste management, automation in laboratories.
2. Spectrophotometry and turbidimetry assays for enzymes and other proteins, diagnostic enzyme assays using chromogenic substrates, methods and clinical significance of blood count, differential WBC count, blood coagulation factors and assays, assays for serum immunoglobulins, serum electrophoresis, assays and clinical significance of blood gases, electrolytes and acid-base balance.
3. Histopathology techniques-processing, section cutting, microtomy and troubleshooting, frozen section and squash smear preparation, staining- routine Haematoxylin & Eosin, special stains. muscle- fresh muscle processing, cryomicrotomy, enzyme histochemistry. immunohistochemistry on formalin-fixed, paraffin-embedded tissues, immunology-ELISA, Indirect immunofluorescence, immunoblots, test for oligoclonal bands.
4. General microbiology – quality control in the media preparation room, methods of culture, water and food bacteriology, environmental sample processing, appropriate use of personal protective equipment, immunology – types of immunity, biomarkers for sepsis, serology, bacteriology – diseases caused by bacteria and their appropriate diagnostic methods, mycology – fungi pathogenic to human beings, identification of fungi- moulds and yeasts, virology – methods for diagnosis of viral diseases, viral serology and interpretation, molecular biology – conventional PCR, RTPCR and uses.
5. Aseptic techniques- explant culture and culture of established cell lines, maintenance of cells- culture media, growth supplements, equipment used in cell culture lab, cell preservation and revival; stem cells- characterization of mesenchymal stem cells, monitoring cell growth and viability *in vitro*, qualitative and quantitative cytotoxicity analysis, microscopy techniques – phase contrast, fluorescence, cell based assays – MTT, international standards related to cytotoxicity evaluation - ISO 10993-5.


Administrative Officer Gr.I (16/21)