

DETAILED SYLLABUS FOR THE POST OF LAB ASSISTANT (DIALYSIS)
IN MEDICAL EDUCATION - DIRECT RECRUITMENT
(Category Nos.:581/2023)

Module 1 : 5 marks

Anatomy and Physiology of Kidney, Distribution of total body water and composition of body fluids Functions of normal kidney – Acute Kidney Injury and Chronic Kidney Disease; Diffusion, Osmosis, Convection and Ultrafiltration, Uremic Toxins

Module 2 : Vascular access for dialysis (10 marks)

Temporary Hemodialysis Catheters, subclavian, internal jugular, and femoral access
Arteriovenous fistula -sites, technique of assessing adequacy of AV Fistula for haemodialysis, technique of AVF cannulation
Permanent Haemodialysis Catheters and technique of using Permcath in Haemodialysis
Haemodialysis Catheter Lock Solutions

Module 3 : Anticoagulation in Hemodialysis (5 marks)

Anticoagulation –anticoagulants used in hemodialysis, Unfractionated Heparin and Low Molecular Weight Heparins, systemic heparinization and regional heparinization. Normal heparin Dialysis, Tight heparin Dialysis, Heparin free Hemodialysis-Indications and technique Citrate Anticoagulation in Hemodialysis.

Module 4a : 10 marks

Hemodialysis machine, different pumps and monitors on dialysis machine, Dialysis Circuit
Dialysate composition – Preparation – acetate bicarbonate – delivery system, proportioning water, water pressure regulation, temperature sensors- chemical proportioning, flow and negative pressure control monitors, conductivity and chemical concentration monitor, temperature monitors- Pressure monitors, flow rate monitors, blood leak monitors, alarms on dialysis machine and problem solving, volumetric ultrafiltration, multi patient monitors

Module 4b : 5 marks

Hollow fiber dialyzers – Low Flux Dialyzers and High Flux Dialyzers
Dialyzer reuse- merits and demerits. Manual and automated reprocessing

Module 4c : 5 marks

Water quality and water treatment for dialysis systems, AAMI Water Quality Standard, Microbiological Standards of Dialysate Water, Water Quality Testing Protocol in Hemodialysis Unit, Ultrapure Water

Module 5: 15 marks

Hemodialysis Procedure: - a) Rinsing and priming b) obtaining vascular access c) initiating dialysis d) alarms e) patient monitoring and complications f) termination of dialysis g) post dialysis evaluation.

Complications during Hemodialysis

Methods of assessing dialysis adequacy, consequences of inadequate dialysis, Pitfalls in proving adequate dialysis

Vascular Access Related Infections, Infections through contaminated hemodialysis equipment or dialysate, Infection control measures for hemodialysis units: Dialysis unit precautions, infection control, screening for hepatitis C and Hepatitis B and HIV and special dialysis requirements for Hepatitis C and Hepatitis B

Infection Control in Hemodialysis Unit during epidemics

Module 7 : Peritoneal Dialysis (15 marks)

Physiology of Peritoneal Dialysis, Patient Selection for CAPD, Contraindications to PD.

Complications of PD – Monitoring of CAPD patients, patient management during CAPD.

Cycler machine, adequacy of PD

Peritoneal Dialysis Related Peritonitis- Clinical features and its diagnosis

Module 8 : 10 marks

Principles of Hemofiltration, difference between HF and HD - technical aspect of HF

Machines capable of Hemofiltration therapy.

Isolated Ultra filtration, Hemoperfusion for poisoning

Module 9: 10 marks

Continuous Renal Replacement Therapy in Intensive Care Unit

Choice of CVVHD and SLED, Technical and operational concerns in Continuous Renal Replacement Therapy, Anticoagulation in Continuous Therapy. Citrate Anticoagulation

Module 10 a) : 5 marks

Home Hemodialysis- Dialysis Machines for Home Hemodialysis, Patient Selection, Water Treatment for Home Hemodialysis

Module 10b : 5 marks

Hemodialysis Software, Computerized Medical Records, Online Hemodiafiltration

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.