

**DETAILED SYLLABUS FOR THE POST OF THEATRE TECHNICIAN -
DIRECT RECRUITMENT IN MEDICAL EDUCATION SERVICE**

(Category No: 677/2023)

I BASIC ANATOMY AND PHYSIOLOGY (10 Marks)

1. Basic anatomy and physiology of cardiovascular system
2. Basic anatomy and physiology of central nervous system
3. Basic anatomy and physiology of respiratory system
4. Hepatic and renal metabolism of drugs and elimination
5. Basic Physiological changes in pregnancy and paediatrics

II ANAESTHESIA EQUIPMENTS (10 Marks)

1. Modern anaesthesia machine and vaporisers- design, function, physical principles, safety measures and checking
2. Gas cylinders, physical properties, parts and safety measures
3. Manifold and central oxygen pipeline supply
4. Endotracheal intubation- positioning, techniques, laryngoscopes, endotracheal tubes, facemasks, airways, stylets, modern airway gadgets (LMA, ILMA, video-laryngoscopes), Fibre optic bronchoscopy
5. Paediatric anaesthesia equipment and preparation

III ANAESTHESIA TECHNIQUES (10 Marks)

1. General anaesthesia- preparation of OT, monitoring, management of complications
2. Neuraxial blocks- spinal and epidural anaesthesia- techniques, positioning and preparation, monitoring, complications
3. Regional blocks- different types, techniques, equipments, positioning and preparation monitoring and complications
4. Central venous lines, indications, techniques, preparation and complications
5. Blood transfusion and component therapy

IV OPERATION THEATRE EQUIPMENTS (10 Marks)

1. Electrocautery, operation tables, infusion pumps, OT lights- parts, physical properties and safety measures, maintenance
2. Specialised equipments- endoscopy/ laparoscopy, operating microscope, ultrasonic aspirators, C arm- sterilization and maintenance
3. Radiation hazards- precautions and safety measures
4. Electric vacuum, nitrogen cylinders, compressed air and vacuum pipelines and outlets - physical principles, safety measures and maintenance
5. Electric and fire hazards in OT and management

V STERILIZATION TECHNIQUES AND UNIVERSAL PRECAUTIONS (10 Marks)

1. Principles of Aseptic precaution and biohazards
2. Sterilization techniques- autoclaving, plasma sterilization, ETO sterilization, Gluteraldehyde (Cidex)- principles and techniques
3. Cleaning and Sterilization of anaesthesia equipments
4. Cleaning and sterilization of surgical equipments
5. Segregation and disposal of waste and contaminated material

VI POSITIONING (10 Marks)

1. Positioning for neuraxial blocks, arterial and central venous lines and regional blocks
2. Prone position- technique, different equipments, precautions and complications
3. Sitting position- technique, complications, preventive methods and additional monitoring
4. Lateral position, Trendelenberg position and lithotomy position- technique, complications and precautions.
5. Precautions in positioning the obese, pregnant, paediatric and elderly patient.

VII DRUGS (10 Marks)

1. Drugs used for premedication, inhalational and intravenous anaesthetics, analgesics
2. Local anaesthetics and adjuvant agents.
3. Cardiac drugs- inotropes, vasopressor agents and vasodilator agents, heparin and protamine
4. Neuromuscular blocking agents and drugs used for their reversal
5. IV fluids and preparation of intravenous infusions

VIII MONITORING (10 Marks)

1. Basic monitoring- ECG, pulseoxymetry, non- invasive blood pressure monitoring, capnography, temperature monitoring- management of equipments and sterilization
2. Advanced monitoring equipments and their maintenance and sterilization- invasive blood pressure, ultrasound probe, transesophageal echocardiography probe, cardiac output monitoring, neuromuscular monitoring, depth of anaesthesia monitoring.
3. Blood gas analysis and interpretation
4. Pulmonary function tests and their interpretation
5. Point of care testing of haemoglobin, blood glucose and anticoagulation- ACT (activated clotting time), thromboelastography (TEG)

IX CARDIOPULMONARY RESUSCITATION (10 Marks)

1. Basic Life Support (BLS)
2. Advanced Cardiac Life Support (ACLS)
3. Defibrillators and their maintenance
4. Drugs used in ACLS
5. Paediatric and neonatal resuscitation- equipments, drugs and maintenance

X SPECIAL CIRCUMSTANCES (10 Marks)

1. Preparation for anaesthesia for Open- heart procedures and cardiopulmonary bypass
2. Preparation for anaesthesia in remote locations- MRI, endoscopy, angiography suites
3. Preparation for difficult airway management
4. Day to day maintenance, sterilization, and preparation of ventilators and humidifiers.
5. Managerial duties and maintenance of stock and narcotic registers

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 appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.