

**Paper II: Technical Subject**

**A. Clinical Practice of Anaesthesia (Including relevant basic sciences)**

1. History of Anaesthesia. From open to modern anaesthesia, balanced anaesthesia, dissociative anaesthesia and total intravenous anaesthesia.
2. Anaesthesia machines and circuits. Physics of pressure measurement, manometers and strain gauges.
3. Physiology of lung mechanics, compliance, resistance, surfactant. Physics of flow, laminar and turbulent, viscosity and density. Respirometers and rotameters.
4. Assessment of patients, effects on choice and technique of anaesthesia, Radiological assessment of lung disorders.
5. Pharmacokinetics of anaesthetic drugs.
6. Premedication, Pharmacology of premedicants.
7. Pharmacology of intravenous induction agents.
8. Inhalation anaesthetic agents. Vaporisers and humidification.
9. Oxygen therapy and toxicity. The physics of the gas laws.
10. Pharmacology of analgesics and opioids.
11. Neuromuscular blocking agents. Abnormal responses, pharmacogenetics.
12. Blood transfusion.
13. Pharmacology of local anaesthetic drugs. Nerve blocks. Epidural and spinal anaesthesia.
14. Resuscitation. Acid-base balance.
15. Blood gases. Pulse oximetry, capnography.
16. Emergency anaesthesia.
17. Drugs and the autonomic nervous system.
18. Drugs used in control of blood pressure.
19. Clinical trials. Use and misuse of statistics.

**B. Clinical practice of Anaesthesia (Combined with relevant basic sciences)**

1. Adrenal, pituitary, thyroid function. Control of blood sugar. Abnormalities of function. anaesthesia in endocrine disease.
2. Glycolysis, protein binding, fat utilization, Stress, Nutrition.
3. Shock.
4. Acute and chronic pain control.
5. Anaesthesia for general surgery.
6. Obstetric anaesthesia / gynaecological surgery.
7. Paediatric anaesthesia.
8. Geriatric anaesthesia.
9. Anaesthesia for thoracic surgery.
10. Anaesthesia for neurosurgery. Cerebral blood flow and factors affecting.
11. Anaesthesia for vascular surgery.
12. Anaesthesia for trauma and orthopaedics.
13. Anaesthesia for burns and plastic
14. Anaesthesia for head and neck surgery.
15. Anaesthesia outside the operating theatre.

**C. Additional subjects for level XI**

1. Prolonged artificial ventilation.
2. ICU organization, Special problems.
3. Foetal circulation, changes at birth, neonatal ventilation. Neonatal and paediatric ICU problems.
4. Anaesthesia for neonatal surgery.