

CURRICULUM



DIPLOMA IN ANAESTHESIOLOGY

(D.A)

DEPARTMENT OF ANAESTHESIOLOGY

**Peoples University of Medical & Health Sciences,
Nawabshah, Sindh.**

DIPLOMA IN ANAESTHESIOLOGY

SYLLABUS

APPLIED ANATOMY RELATED TO ANAESTHESIA

- **Cardiovascular system:**
Heart chambers, conducting system, Blood and nerve supply, Great vessels, main peripheral arteries and veins.
- **Respiratory system:**
Mouth, nose, pharynx, main bronchi, segmental bronchi, Pleura, Mediastinum.
Lungs, Lobes, Bronchopulmonary segments, blood supply, lymphatic drainage, Diaphragm and muscles of respiration.
- **Nervous system:**
Brain, spinal cord, spinal meninges, subdural, epidural space, spinal nerves, dermatomes. Brachial plexus, nerves of arm, leg and intercostals nerves.
Lumber, Sacral and coccygeal plexus.
- **Musculoskeletal system:**
Vertebral column ligaments, sacrum and sacral hiatus.

PHYSIOLOGY

- **Fluid and electrolyte balance:**
Composition of body fluids Intracellular, Extracellular, Interstitial
Electrolyte imbalance and management (Na, K, Ca, P, Mg)
- **Heart and Circulation:**
Cardiac muscle, cardiac cycle, pressure changes in chambers.
Rhythmicity of heart, heart blocks, interpretation of ECG, arrhythmias, Ischaemic changes. Pathophysiology of cardiac failure.
- **Blood and immunology:**
Haemoglobin and its variants, composition of blood, haemostasis and coagulation. Inflammatory response, immunity and allergy.

- **Musculoskeletal System:**
Muscle types (skeletal, smooth and cardiac)
Neuromuscular junction, motor end plate, membrane and action potential,
Mechanism of neuromuscular transmission and contraction of smooth and skeletal muscle.
- **Renal system:**
Renal blood flow, glomerular filtration, plasma clearance, tubular function.
Formation of concentrated and dilute urine. Regulation of fluid, electrolyte balance, regulation of acid base balance.
Pathophysiology of acute renal failure.
- **Respiration:**
Volumes, flows dead space, and spirometry.
Gaseous exchange in lungs and tissues, Oxygen and carbondioxide transport,
Hypoxia, hypo and hypercapnoea, oxygen exchange and acid base balance.
Pulmonary ventilation, mechanics of ventilation, ventilation/perfusion relationship and abnormalities. Shunt.
Pathophysiology of respiratory failure.
- **Nervous system:**
Factors determining intracranial pressure, sensory receptors, nociceptive pathways, and effect of therapy on nociceptive mechanism.
Autonomic nervous system, motor and sensory innervations and reflex responses involving cardiovascular, respiratory, digestive and urinary system.
- **Digestive system and Metabolism:**
Nausea, vomiting, gut motility, sphincters and reflexes.
Nutrition, carbohydrates, proteins, fats, vitamins and minerals. Metabolic rates, Hormonal control of metabolism,
Regulation of plasma glucose response to trauma and stress.
- **Liver:**
Functional anatomy and blood supply, metabolic function, bile formation and other functions.
- **Endocrine system:**
Hypothalamus and pituitary functions, adrenal hormones.
Insulin, glucagons and exocrine pancreatic function.

Thyroid, parathyroid hormones and calcium homeostasis.

PHARMACOLOGY:

Intravenous induction agents,
Gases and volatile anaesthetics,
Local anaesthetics
Muscle relaxants with antidotes.
Pharmacokinetics,
Drug interaction,
Analgesics,
Sedatives, tranquilizers, hypnotics and antidepressants.
Cardiovascular drugs like vasodilators, inotropes, chronotropes.
Diuretics,
Antiemetics, antihistamines,
Anticonvulsants, & bronchodilators.

PHYSICS AND CLINICAL MEASUREMENTS:

S.I. units, gas laws, behavior of gases and liquids(volatile) .
Measurements of volumes, flow, pressure, temperature.
Humidification, analysis of gases, electrical safety (fire & explosions)
Theatre pollution hazards and prevention.

EQUIPMENT AND APPARATUS:

Equipment design, anaesthesia delivery system, pressure valves, regulators,
Vaporizers and gas supply (central and cylinders).
Breathing system devices, airway, mask endotracheal tube, laryngeal mask.
Tracheostomy tubes and laryngoscopes.

MONITORING:

Minimum monitoring standards, Pulse, Blood pressure, Temperature,
respiratory rate, cyanosis, anaemia and urine output.
Oximetry, capnography, arterial and central pressure.

CLINICAL MANAGEMENT:

At the end of training the candidate is expected to have the knowledge and skill to do the following:

Preoperative assessment:

History taking, physical examination, evaluation of cardiac, respiratory, haematological, hepatological and neurological status and if necessary referral to concerned specialist.

Basic Techniques

Airway management
 Spinal
 Epidural
 Caudal
 Penile block
 Brachial plexus Block
 Unilateral Spinal
 Intercostal block
 Monitored anaesthesia care
 LMA/ I-gel

Acute Pain

Chronic Pain

Malignant hyperthermia

Myasthenia gravis

Succinyl apnea

Special Techniques

Blind nasal intubation
 Fiberoptic intubation
 Combined spinal Epidural
 Three in one block
 Rapid sequence Induction
 Intubation in trauma patients

SPECIALTY MANAGEMENT & COEXISTING DISEASES

Anaesthesia for gynecological and Genitourinary surgery	Cardiovascular disease
Anaesthesia for orthopedic surgery	Ischaemic heart disease
Anaesthesia for ENT and maxillofacial Surgery	valvular heart disease
Anaesthesia for ophthalmic surgery	Obstructive pulmonary disease
Obstetric anaesthesia and analgesia	Asthma
Pediatric anaesthesia	Liver disease
Neurosurgical anaesthesia	Diabetes mellitus
	Thyroid disease

CRITICAL CARE MEDICINE

Mechanical Ventilation
 Organophosphorus poisoning
 Infection in ICU
 Sepsis,
 ARDS
 Eclapmsia
 Tetanus
 Black stone poisoning(para phelyldiamine poisoning)
 Respiratory failure
 Respiratory therapy
 GB syndrome
 Nutrition in ICU

Clinical skills:

- Maintenance of adequate airway, rapid sequence induction. Venous access, arterial line and central venous line.
- Management of Pneumothorax, interpretation of ECG and application of ACLS
- Able to Anaesthetise patients of different disciplines like general surgery, orthopaedic surgery, neurosurgery, paediatric/neonatal surgery, Eye & ENT surgery, Gynae & obstetric surgery, maxillofacial surgery, Dental surgery, cardiothoracic surgery and day care surgery.
- Able to manage and anaesthetize trauma and emergency surgery. Spinal, epidural , local or regional blocks. Pain management clinics.
- Manage Shock, ventilatory failure, cardiac failure and sepsis.

DA PART I

EXAMINER I

SUBJECT/TOPIC

NUMBER OF QUESTIONS

MCQ

30 Total

ANATOMY

Related to Anaesthesia

10

PHYSIOLOGY & BIOCHEMISTRY

20

Nervous System

02

Cardiovascular System

04

Respiratory System

04

Renal System (including, fluid & Electrolyte Balance
&, acid base balance)

04

Liver & metabolism

01

Hematology

02

Endocrinology

01

Neuromuscular Junction

01

Pregnancy

01

DA PART I

EXAMINER 2

SUBJECT/TOPIC	NUMBER OF QUESTIONS MCQ
	20 Total
<u>PHYSICS</u>	04
<u>CLINICAL MEASUREMENT MONITORING</u>	03
<u>ANAESTHETIC EQUIPMENT</u>	03
<u>ANAESTHESIA BASICS</u>	10
Pre-anaesthetic Patient Evaluation	02
Principles & practice of peri-operative anaesthesia management	02
Principles & practice of post-operative anaesthesia management	02
Posture Positioning	02
Patient Monitoring	02

DA PART I

EXAMINER 3

SUBJECT/TOPIC	NUMBER OF QUESTIONS MCQ
<u>RESUSCITATION</u>	10 Total
BLS, ACLS, ATLS	02
Neonatal Resuscitation	02
Accident & Emergency	02
Airway Management	02
Management of Shock (including Fluid Resuscitation & Blood Transfusion)	02

DA PART I

EXAMINER 4:

SUBJECT/TOPIC

**NUMBER OF QUESTIONS
MCQ**

PHARMACOLOGY

20 Totals

General Pharmacology	01
General Anesthetics (inhalational & intravenous)	04
Local Anesthetics	02
Hypnotics, Sedatives, Opioids, NSAIDs & Other analgesics	02
Neuromuscular Blocking, Agents (including antagonists)	02
Drugs acting on ANS	03
Drugs acting on cardiovascular system (antihypertensives. Antiarrhythmics inotropes & chronotropes	03
Diuretics	01
Anticoagulants	
Antihistamines	02
Antacids, Gastrokinetics and Antiemetics.	

DA PART II

EXAMINER I

SUBJECT/TOPIC	NUMBER OF QUESTIONS	
	SAQ	MCQ
CLINICAL ANAESTHESIA	04	20 Total
Basic Anaesthetic Techniques	02	15
Special Techniques	02	05
Basic Techniques		Special Techniques
Airway management		Blind nasal intubation
Spinal		Fiberoptic intubation
Epidural		Combined spinal Epidural
Caudal		Three in one block
Peink block		Rapid sequence Induction
Brachial plexus Block		Intubation in trauma patients
Unilateral Spinal		
Intercostal block		
Monitored anaesthesia care		
LMA/ I-gel		

DA PART II

EXAMINER 2

SUBJECT/TOPIC	NUMBER OF QUESTIONS	
	SAQ	MCQ
CLINICAL ANAESTHESIA	04	22 Total
Specialty Management	01	10
Management of Coexisting Medical conditions	02	10
Daycare / Ambulatory anaesthesia		
Post op-anaesthesia care unit	01	02
Dental Anaesthesia		
SPECIALTY MANAGEMENT		COEXISTING DISEASES
Anaesthesia for gynecological and Genitourinary surgery		Cardiovascular disease
Anaesthesia for orthopedic surgery		Ischaemic heart disease
Anaesthesia for ENT and maxillofacial Surgery		valvular heart disease
Anaesthesia for ophthalmic surgery		Obstructive pulmonary disease
Obstetric anaesthesia and analgesia		Asthma
Paediatric anaesthesia		Liver disease
Neurosurgical anaesthesia		Diabetes mellitus
		Thyroid disease

DA PART II

EXAMINER 3

SUBJECT/TOPIC	NUMBER OF QUESTIONS	
	SAQ	MCQ
CRITICAL CARE MEDICINE	02	10 Total
Mechanical Ventilation		
Organophosphorus poisoning		
Infection in ICU		
Sepsis,		
Ards	02	10
Eclamsia		
Tetanus		
Black stone poisoning		
Respiratory failure		
Respiratory therapy		
GB syndrome		

DA PART II

EXAMINER 4

SUBJECT/TOPIC	NUMBER OF QUESTIONS
PAIN MANAGEMENT	MCQ 10 Total
Acute Pain	02
Chronic Pain	02
Malignant hyperthermia	02
Myasthenia gravis	02
Succinyl apnea	02

DA PRACTICAL EXAMINATION

DR MUHAMMAD SALEH KHASKHELI (Coordinator)

Dr. Muhammad Saleh Khaskheli
Associate Professor & Chairman
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DA PRACTICAL EXAMINATION

EXAMINER I: PROFESSOR FAZAL HAMEED KHAN

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DA PRACTICAL EXAMINATION

EXAMINER 2: Jan Muhammad Shaikh

Dr. Jan Muhammad Shaikh

Professor & Chairman Department

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DA PRACTICAL EXAMINATION

EXAMINER 3 : PROFESSOR MUHAMMAD YOUNIS KHATRI SB

Dr. Muhammad Younis Khatri
Professor & Chairman Department
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DA PRACTICAL EXAMINATION

EXAMINER 4: DR AHMED-U-DIN SOOMRO SB

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