

Syllabus for Licensing Examination of Diploma in Anaesthesia



Nepal Health Professional Council

Bansbari, Kathmandu

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S.N	Subject	Marks
1	Applied Anatomy, Physiology and Clinical Pathology	(20%)
2	Basic and Clinical Pharmacology	(20%)
3	Clinical Anesthesia Part-I	(30%)
4	Clinical Anesthesia Part-II	(30%)

1. Applied Anatomy, Physiology and Clinical Pathology

A. Cardiovascular System

Chambers of the heart, Valves of the heart, Heart sounds and auscultation of the heart, Cardiopulmonary circulation, load supply of the heart, Conduction system of the heart, Cardiac output, Cardiac cycle, Blood pressure and regulation mechanisms, Major veins and arteries of:

- Hand and arm
- Radius and ulna
- Aorta
- Femur
- Vena cava

Hypoxia, Dysrhythmias, ECG, Ischemic heart disease, Congenital heart disease, Valvular heart disease

B. Central Nervous System

Autonomic nervous system, Nerve conduction, Spinal cord

- Epidural space
- Subarachnoid space

Neuromuscular junction, Major nerves of:

- Upper Limb:
 - Brachial plexus
 - Axillary
 - Supraclavicular nerve
- Lower Limb:
 - Femoral nerve
 - Sciatic nerve
 - Peroneal nerve
 - Popliteal nerve

CSF, Seizures, CVA, Spinal cord injury, Intracranial pressure

C. Respiratory System

Pharynx, Larynx, Epiglottis, Vocal cord, Lobes of lungs, Tracheal and bronchial tree, Alveoli/capillary membrane, Diffusion of gases, Gas transportation, Diaphragm, Lung volume and capacity, Chest compliance, Asthma, COPD, Pulmonary embolism, Pulmonary hypertension, Acidosis and alkalosis, Perfusion/ventilation

D. Musculoskeletal System

Musculoskeletal diseases, Malignant hyperthermia

E. Endocrine System

Diabetes Mellitus, Hypothyroidism, Hyperthyroidism

2. Basic and Clinical Pharmacology

A. General Principles

Pharmacodynamics, Pharmacokinetics, Anaphylaxis, Drugs interaction, Routes of drug administration

B. Inhalational Anaesthesia

Nitrous oxide, Halothane, Isoflurane, Desflurane, Sevoflurane

C. Intravenous medication

Opioids

- Morphine
- Fentanyl
- Pethidine
- Tramadol

D. Benzodiazepines

Diazepam, Midazolam

E. Induction agent/ Sedative/ Hypnotics

Propofol, Thiopentone, Ketamine, Etomidate

F. Local Anaesthetic Agent

Lignocaine, Lignocaine with adrenaline, Lidocaine, Bupivacaine, Ropivacaine, Bupivacaine 0.5% with 8% dextrose

G. Muscle Relaxant

Succinylcholine, Vecuronium, Atracurium, Rocuronium

H. Antagonists

Neostigmine, Pyridostigmine, Physostigmine, Naloxone, Flumazenil, Protamine, isulfiram

I. Non-steroidal anti-inflammatory drugs (NSAIDs)

J. Vasopressors

Mephentermine, Ephedrine, Phenylephrine, Dopamine, Noradrenaline, Adrenaline

K. Anticholinergic drugs

Atropine, Glycopyrrolate

L. Anti-Hypertensive Drugs

Beta blockers, ACE inhibitor, Vasodilator: NTG, SNP, Calcium Channel Blockers

M. Antiarrhythmic Drugs

Lidocaine, Amiodarone, Adenosine

N. Bronchodilator

O. Insulin

P. Diuretics

Q. Antacid and Gastrointestinal medications

R. Anticoagulants and thrombolytics

S. Corticosteroids

T. Tocolytics (Magnesium sulphate)

U. Uterotonics (e.g. Oxytocin, Ergometrine)

V. Commonly used Antibiotics

3. Clinical Anesthesia Part-I

A. Medical Gas:

Compressed gas cylinder, Color coding of different gas, Cylinder and pipeline system, Safety system, Oxygen concentrator working principle

B. Gas administration device:

Anesthesia masks: Type and Size, Flow meter, Gas regulator

C. O₂ Therapy

Definition, cause and responses to hypoxia, Clinical signs of hypoxia, Hazards of O₂ therapy

D. Anesthesia Machine

Boyle's anaesthesia machine and its functions., Modern anaesthesia machines., Hanger and yoke system., Vaporizers, Testing of Anaesthesia Machine, Safety system of Anaesthesia Machine

E. Breathing System:

Semi-closed and closed circuits, Mapleson breathing system, Jackson and Rees circuits, Bain circuits, AMBU bag and its parts

F. Injection Techniques:

IM/IV and other techniques. , Handling of sterilized syringes and needles

G. Fluids and Electrolytes:

Types of fluids., Preparation of I/V drips, Blood and its components, Indications of special fluid and complications

H. Resuscitation:

Recognition of cardio-pulmonary arrest, Basic Life Support (BLS), Advanced Cardiovascular Life Support (ACLS), Defibrillation

I. Artificial Airway:

Types of airways, Size, color coding, and methods of insertion, Indications

J. Face Masks and Laryngoscopes:

Types and sizes, Endotracheal tubes: Types and sizes, Cuff systems, Cuff pressure, complications, LMA

K. Ventilator and Working Principles, Circle System and Soda Lime

L. Monitoring:

SpO₂, ECG, Pulse, Temperature, IBP, CVP, ETCO₂

4. Clinical Anesthesia Part-II

A. Basic Anesthesia Technique

Inhalational Anaesthetic Evaluation, Regional Anaesthetic Evaluation:

- Spinal Anesthesia
- Epidural Anesthesia
- Peripheral nerve block

Intravenous Anaesthetic Evaluation, General Anaesthesia

B. Pre op Preparation

Pre-Anaesthetic Assessment, ASA Grading of patient

C. Pre-Anaesthetic Preparation

Informed Consent, NPO, Premedication, Checking of Anaesthesia working station, Checking O₂, pipeline systems and suction apparatus, Checking appropriate size of airways, laryngoscope and endotracheal tube

D. Intraoperative Management:

Check up the surgical safety checklist, Confirm the identification of the patients, Monitoring, Induction, Endotracheal intubation, Maintenance of anaesthesia, Positioning of the patients, Fluid/Blood/Acid/Base, and electrolytes balance, Reversal of Anaesthesia, Recovery room, Setup and items needed

E. Postoperative Complications and Management:

Delay recovery, Nausea/vomiting, Aspiration, Sore throat, Neurological complications, Pain management

F. Sterilization

Physical method, Liquid Chemical Method, Gaseous Method