

पाटन स्वास्थ्य विज्ञान प्रतिष्ठान, सेवा आयोग
प्राज्ञिक सेवा, एनेस्थेसिया समूह, सहायक-प्राध्यापक पद, नौ ख (९ ख) तहको
खुल्ला र आन्तरिक प्रतियोगितात्मक परिक्षाको पाठ्यक्रम

Paper II: Technical Subject
Section (A) - 45 Marks

1. Drug act and regulation
2. Rational use of drugs
3. Prevailing national drug policy and importance of essential drug list
4. Anaesthesia Related Information
 - 4.1 History of Anaesthesia of Nepal
 - 4.2 Society of Anaesthesiologists of Nepal
 - 4.3 South Asian Confederation of Anaesthesiologists.
 - 4.4 World Federation of Societies of Anaesthesiologists
5. Institutional management
6. Organization of faculty/ department
7. Financial planning
8. Principles of Medical Ethics and Medical Informatics
9. Evidence Based Medicine / Critical Appraisal of Scientific Literature
10. Principles of Research Methodology and Scientific Writing
11. Principles of Medical Education
12. Principle of Communication and Patient Counseling
13. Patient Safety
14. Breaking Bad News
15. Medical Audit
16. Epidemiology and Principle of Prevention and Control of Non-communicable Diseases
17. Information technology, Tele medicine etc.

Section (B) - 55 Marks

- 1. Anatomy and physiology**
 - 1.1 Anatomy of the airway
 - 1.2 Anatomy of the spinal cord & nerve supply to the extremities
 - 1.3 Neonatal physiology and anatomy
 - 1.4 Central nervous system
 - 1.4.1 Resting membrane potential
 - 1.4.2 Neuro-muscular and synaptic transmission
 - 1.4.3 Receptors and transmitters
 - 1.4.4 Sensory perception and the pathways involved
 - 1.4.5 Factors affecting muscle tone
 - 1.4.6 Cerebrospinal fluid
 - 1.5 Physiology of respiratory system
 - 1.5.1 Lung volumes and capacities measurement

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- 1.5.2 Clinical application
- 1.5.3 Lung function tests
- 1.5.4 Ventilation/perfusion ratios in the lung
- 1.5.5 Control of respiration
- 1.5.6 Effects of drugs
- 1.5.7 Blood gas transport
- 1.5.8 Pulmonary circulation
- 1.5.9 Physiology of lung mechanics, compliance, resistance, surfactant
- 1.6 Physiology cardiovascular system
 - 1.6.1 The cardiac cycle
 - 1.6.2 Instrumentation, the oscilloscope and ECG
 - 1.6.3 Cardiac output and its measurement, blood pressure
 - 1.6.4 Microcirculation
 - 1.6.5 Control of the circulation
 - 1.6.6 Ventricular function curve
 - 1.6.7 Cardiac arrest
 - 1.6.8 Cardiac pulmonary resuscitation
- 1.7 Renal physiology
 - 1.7.1 Renal blood flow
 - 1.7.2 Renal function tests
 - 1.7.3 Control of blood volume
 - 1.7.4 Water and electrolyte balance
 - 1.7.5 Renal influence on acid-base balance
 - 1.7.6 Haemodialysis (silent features)
 - 1.7.7 End stage renal failure
 - 1.7.8 Management of hyperkalima
- 1.8 Liver Physiology
 - 1.8.1 Liver perfusion and function
 - 1.8.2 Liver function tests
 - 1.8.3 Hematology
 - 1.8.3.1 Hemoglobin, normal and abnormal, clotting
 - 1.8.3.2 Blood transfusion
 - 1.8.3.3 Disseminated intravascular clotting
 - 1.8.3.4 Management of anticoagulation
- 2. History of anaesthesia**
 - 2.1 open to modern anaesthesia
 - 2.2 balanced anaesthesia
 - 2.3 dissociative anaesthesia and
 - 2.4 total intravenous anaesthesia
- 3. Basic science and instruments**

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- 3.1 Physics of pressure measurement, manometers and strain gauges and transduce
- 3.2 Physics of flow, laminar and turbulent, viscosity and density
- 3.3 Physics of heat
 - 1.8.4 Thermal conductivity in the body
 - 1.8.5 Sources of heat loss during anaesthesia
 - 1.8.6 Methods of measuring temperature, thermostats and thermocouples
 - 1.8.7 Management of malignant hyperpyrexia
- 3.4 Anaesthesia machines and circuits, respirometers and rotameters

4. Assessment of patients, effects on choice and technique of anaesthesia, radiological assessment of lung disorders
5. **Pharmacology and clinical practice of anaesthesia**
 - 2.1 Pharmacokinetics of anesthetic drugs, uptake, distribution, transport and drug binding, partition coefficients, pK and ionization, regional uptake, MAC, enzyme induction and drug elimination
 - 2.2 Sedatives: Barbiturate and non-barbiturate hypnotic, common tranquilizers, premedication
 - 2.3 Analgesics, Opioids and NSAIDs, and interaction with other drugs
 - 2.4 Local anesthetics, methods of prolongation of action and effects and treatment of overdose
 - 2.5 Drugs and the parasympathetic system, cholinergic and anti-cholinergic compounds
 - 2.6 Drugs and the sympathetic system, sympathomimetic drugs alpha and beta-adrenergic compounds and their antagonist and effects of monoamine oxidase inhibitors,
 - 2.7 Drugs used in the control of blood pressure, Ganglion blocking drugs, drugs acting on the peripheral sympathetic nerves, catecholamine synthesis and storage. and vascular smooth muscle relaxants.
 - 2.8 Cardiac glycosides, digitalis and related compounds, onset and duration, factors modifying action, precipitating factors, toxicity
 - 2.9 Inhalation anesthetic agents, Nitrous oxide, halothane ether, general properties and effects of other halogenated anesthetic agents
 - 2.10 Vaporization and humidification, common vaporizers used in anaesthesia
 - 2.11 Intravenous induction agents, Thiopentone, Ketamine, diazepam, etc.
 - 2.12 Narcoleptic agents
 - 2.13 Histamine and antihistamines
 - 2.14 Analeptic, complications of their use
 - 2.15 Oxytocics and their interaction with inhalation anesthetics
 - 2.16 Neuromuscular blocking agents, including abnormal responses and re-occurance.
 - 2.17 Diuretics
 - 2.18 Hormone therapy, insulin and its substitutes, steroids

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- 2.19 Thyroid, anti thyroid drugs and management of thyroid crisis
- 2.20 Steroids, management of steroid supplement/ withdrawal therapy
- 2.21 Oxygen therapy and toxicity and the physics of the gas laws
- 2.22 Resuscitation, acid-base balance
- 2.23 Blood gases, pulse oximetry, capnography
- 2.24 Emergency Anaesthesia
- 2.25 Acute and chronic pain control
- 2.26 Adrenal, pituitary, thyroid function
- 2.27 Control of blood sugar
- 2.28 Abnormalities of function
- 2.29 Anaesthesia in endocrine disease
- 2.30 Glycolysis, protein binding, fat utilization, stress and nutrition
- 2.31 Anaesthesia for general surgery
- 2.32 Paediatric and geriatric anaesthesia
- 2.33 Anaesthesia for head and neck surgery
- 2.34 Specialized anaesthesia :
 - 2.34.1 Obstetric
 - 2.34.2 Renal surgery
 - 2.34.3 Vascular/Transplant
 - 2.34.4 Trauma and burns
- 2.35 ICU organization, special problems
- 2.36 Foetal circulation, changes at birth, neonatal ventilation, neonatal and paediatric ICU problems
- 2.37 Anaesthesia for neonatal surgery
- 2.38 Anaesthesia outside the operating theatre
- 2.39 Drugs used in control of blood pressure
- 2.40 Clinical trials, use and misuse of statistics

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