

बि.पि. कोइराला मेमोरियल क्यान्सर अस्पताल  
प्राविधिक (स्वास्थ्य) सेवा, मेडिकल (चिकित्सक) समुह, एनेस्थेसियोलोजी उपसमुह, अधिकृत नवौं तह, रजिष्ट्रार  
पदको खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम  
एवं परीक्षा योजना

कुल पूर्णाङ्क : १२०

१. प्रथम चरण : – लिखित परीक्षा				पूर्णाङ्क :- १००	
पत्र / विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली	प्रश्नसंख्या X अङ्क	समय
General Subject and Technical Subject	१००	४०	वस्तुगत बहुवैकल्पिक प्रश्न (MCQs)	१०० प्रश्न x १ अङ्क	१ घण्टा ३० मिनेट

२. द्वितीय चरण : – अन्तर्वार्ता

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता	२०	मौखिक

**द्रष्टव्य :**

१. यो परीक्षा योजनालाई प्रथम चरण (लिखित परीक्षा) र द्वितीय चरण (अन्तर्वार्ता) गरी दुई चरणमा विभाजन गरिएको छ ।
२. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
३. लिखित परीक्षामा यथासम्भव पाठ्यक्रमका सबै एकाईबाट देहाय बमोजिम प्रश्नहरू सोधिनेछ ।

खण्ड	अङ्कभार	वस्तुगत प्रश्न संख्या
<b>A</b>	१०	१० प्रश्न X १ अङ्क = १०
<b>B</b>	१०	१० प्रश्न X १ अङ्क = १०

४. वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
५. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
६. प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
७. पाठ्यक्रम लागू मिति :- २०७४/११/२९

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पत्र/विषय : **General Subject and Technical Subject**

**General Subject**

**Section (A) – 10 Marks**

- 1. B.P.Koirala Memorial Cancer Hospital, Related Legislations and General Health Issues**
  - 1.1. B.P.Koirala Memorial Cancer Hospital : History, organizational structure, functions, roles, services, problems and challenges
  - 1.2. National Health Policy
  - 1.3. B.P.Koirala Memorial Cancer Hospital related act and regulations
  - 1.4. Health Service Act, 2053 and Health Service Regulation, 2055
  - 1.5. Professional council related acts and regulations
  - 1.6. NMC and National Health Agencies
  - 1.7. Professional and medical ethics
  - 1.8. Anaesthesia Related Information
    - 1.8.1. History of Anaesthesia of Nepal
    - 1.8.2. Society of Anaesthesiologists of Nepal
    - 1.8.3. South Asian Confederation of Anaesthesiologists.
    - 1.8.4. World Federation of Societies of Anaesthesiologists
- 2. Present Constitution of Nepal (Health and welfare issues)**

**Technical Subject**

**Section (B) – 90 Marks**

- 1. Anatomy and Physiology**
  - 1.1 Anatomy of the airway
  - 1.2 Anatomy of the spinal cord and nerve supply to the extremities
  - 1.3 Central nervous system
    - 1.3.1 Resting membrane potential
    - 1.3.2 Neuro-muscular and synaptic transmission
    - 1.3.3 Receptors and transmitters
    - 1.3.4 Sensory perception and the pathways involved
    - 1.3.5 Factors affecting muscle tone
    - 1.3.6 Cerebrospinal fluid
  - 1.4 Physiology of respiratory system
    - 1.4.1 Lung volumes and capacities measurement
    - 1.4.2 Clinical application
    - 1.4.3 Lung function tests
    - 1.4.4 Ventilation/perfusion ratios in the lung
    - 1.4.5 Control of respiration
    - 1.4.6 Effects of drugs
    - 1.4.7 Blood gas transport
    - 1.4.8 Pulmonary circulation
    - 1.4.9 Physiology of lung mechanics, compliance, resistance, surfactant

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- 1.5 Physiology cardiovascular system
  - 1.5.1 The cardiac cycle
  - 1.5.2 Instrumentation, the oscilloscope and ECG
  - 1.5.3 Cardiac output and its measurement, blood pressure
  - 1.5.4 Microcirculation
  - 1.5.5 Control of the circulation
  - 1.5.6 Ventricular function curve
  - 1.5.7 Cardiac arrest
  - 1.5.8 Cardiac pulmonary resuscitation
- 1.6 Renal physiology
  - 1.6.1 Renal blood flow
  - 1.6.2 Renal function tests
  - 1.6.3 Control of blood volume
  - 1.6.4 Water and electrolyte balance
  - 1.6.5 Renal influence on acid-base balance
  - 1.6.6 Haemodialysis (silent features)
  - 1.6.7 End stage renal failure
  - 1.6.8 Management of hyperkalima
- 1.7 Liver Physiology
  - 1.7.1 Liver perfusion and function
  - 1.7.2 Liver function tests
  - 1.7.3 Hematology
    - 1.7.3.1 Hemoglobin, normal and abnormal, clotting
    - 1.7.3.2 Blood transfusion
    - 1.7.3.3 Disseminated intravascular clotting
    - 1.7.3.4 Management of anticoagulation
2. **History of Anaesthesia** - From open to modern anaesthesia, balanced anaesthesia, dissociative anaesthesia and total intravenous anaesthesia
3. **Basic Science and Instruments**
  - 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
    - 3.3.1 Thermal conductivity in the body
    - 3.3.2 Sources of heat loss during anaesthesia
    - 3.3.3 Methods of measuring temperature, thermostats and thermocouples
    - 3.3.4 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 Practices of Anaesthesia

- 5.1 Pharmaco-kinetics of anesthetic drugs, uptake, distribution, transport and drug binding, partition coefficients, pK and ionization, regional uptake, MAC, enzyme induction and drug elimination
- 5.2 Sedatives: Barbiturate and non-barbiturate hypnotic, common tranquilizers, premedication
- 5.3 Analgesics, Opioids and NSAIDS and drug interactions
- 5.4 Local anesthetics, methods of prolongation of action and effects and treatment of overdose
- 5.5 Drugs and the parasympathetic system, cholinergic and anti-cholinergic compounds
- 5.6 Drugs and the sympathetic system, sympathomimetic drugs alpha and beta-adrenergic compounds and their antagonist and effects of monoamine oxidase inhibitors,
- 5.7 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.
- 5.8 Cardiac glycosides, digitalis and related compounds, onset and duration, factors modifying action, precipitating factors, toxicity
- 5.9 Inhalation anesthetic agents, Nitrous oxide, halothane ether, general properties and effects of other halogenated anesthetic agents
- 5.10 Vaporization and humidification, common vaporizers used in anaesthesia
- 5.11 Intravenous induction agents, Thiopentone, Ketamine, diazepam
- 5.12 Narcoleptic agents
- 5.13 Histamine and antihistamines
- 5.14 Analeptic, complications of their use
- 5.15 Oxytocics and their interaction with inhalation anesthetics
- 5.16 Neuromuscular blocking agents, including abnormal responses and re-occurarisation
- 5.17 Diuretics
- 5.18 Hormone therapy, insulin and its substitutes, steroids
- 5.19 Thyroid, anti thyroid drugs and management of thyroid crisis
- 5.20 Steroids, management of steroid supplement/ withdrawal therapy
- 5.21 Oxygen therapy and toxicity and the physics of the gas laws
- 5.22 Resuscitation, acid-base balance
- 5.23 Blood gases, pulse oximetry, capnography
- 5.24 Emergency Anaesthesia
- 5.25 Acute and chronic pain control
- 5.26 Adrenal, pituitary, thyroid function
- 5.27 Anaesthesia in endocrine disease
- 5.28 Glycolysis, protein binding, fat utilization, stress and nutrition
- 5.29 Anaesthesia for general surgery

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- 5.30 Paediatric and geriatric anaesthesia
- 5.31 Anaesthesia for head and neck surgery
- 5.32 Specialized anaesthesia :
  - 5.32.1 Obstetric
  - 5.32.2 Renal surgery
  - 5.32.3 Vascular/Transplant
  - 5.32.4 Trauma and burns
- 5.33 ICU organization, special problems
- 5.34 Anaesthesia for neonatal surgery
- 5.35 Anaesthesia outside the operating theatre
- 5.36 Procedures-Chemoport, PICC, CVP (CT scan, Radiotherapy)
- 5.37 Regional anesthesia (Spinal, Epidural Nerve Block)
- 5.38 Anaesthesia and Monitor Machine and its accessories

## 6. General Surgical Principles

- 6.1 Shock
- 6.2 Surgical infection
- 6.3 Fluid and electrolyte imbalance
- 6.4 Preoperative and post operative patient care
- 6.5 TNM classification of cancers

The questions distribution for this paper/subject shall be as follows:

Section	Marks	Multiple Choice Questions
		No. of Questions × Mark
A	10	10 Questions × 1Mark =10 Marks
B	90	90 Questions × 1Mark =90 Marks