

**बी.पी. कोइराला मेमोरियल क्यान्सर अस्पताल**  
**प्राविधिक (स्वास्थ्य) सेवा, मेडिकल (चिकित्सक) समूह, एनेस्थेसियालोजी उपसमूह, अधिकृत एघारौं तह, कन्सल्टेन्ट**  
**पदको खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम**

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

**प्रथम चरण :-** लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

**द्वितीय चरण :-** अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

**परीक्षा योजना (Examination Scheme)**

**प्रथम चरण (First Phase) : लिखित परीक्षा**

Paper	Subject	Full Marks	Pass Marks	No. Questions & Weightage	Time Allowed
I	General Subject	100	40	10 × 5 = 50 (Short answer) 5 × 10 = 50 (Long answer)	3.00 hrs
II	Technical Subject	100	40	6 × 10 = 60 (Long answer) 2 × 20 = 40 (Problem Solving)	3.00 hrs

**द्वितीय चरण (Second Phase)**

Subject	Full Marks	Examination
Interview	30	Oral

**द्रष्टव्य :**

- यो परीक्षा योजनालाई प्रथम चरण (लिखित परीक्षा) र द्वितीय चरण (अन्तर्वार्ता) गरी दुई चरणमा विभाजन गरिएको छ ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- परीक्षामा सोधिने प्रश्नसंख्या, अङ्क र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा तोकिए अनुसार हुनेछ ।
- विषयगत प्रश्नमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रममा जे सुकै लेखिएको भएतापनि पाठ्यक्रममा परेका ऐन, नियमहरू, परीक्षाको मिति भन्दा ३ महिना अगाडी (संशोधन भएका वा संशोधित भई हटाईएका वा थप गरी संशोधित भई कायम रहेका) लाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- माथी परीक्षा योजनामा उल्लिखित प्रथम चरणको लिखित परीक्षामा प्रथम चरणको विषयवस्तु स्वास्थ्य सेवाका सबै समूह / उपसमूहका लागि एउटै हुनेछ । तर द्वितीय पत्रको पाठ्यक्रमको विषयवस्तु सम्बन्धित समूह/ उपसमूह अनुरूप फरक फरक हुनेछ ।
- पाठ्यक्रम लागू मिति :- २०७९/०९/०२

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**Paper I: General Subject**

**Section (A): 40% Marks (4×5 marks, 2×10 marks)**

**1. Administration and Management**

- 1.1. Public Administration: concept, scope, functions and challenges
- 1.2. Management: concept, scope, functions, principles, and its practices
- 1.3. Contemporary management issues and challenges
- 1.4. Hospital Management : concept, scope, function, principle and its practices
- 1.5. Human resource management: concept, functions and different aspects
- 1.6. Basic managerial skills: coordination and public relation, communication and counselling, problem solving and decision making, leadership, team building, rapport building, planning, organizing, monitoring and evaluation
- 1.7. Emerging management concepts and their application in the Nepalese Public Management: Time management, Resource management (human, financial and physical), Technology management, Performance management, Stress management, Conflict management, Risk management and Participative management
- 1.8. Planning: concept, principles, nature, types, instrument and steps
- 1.9. Motivation, appreciative inquiry and social responsibility
- 1.10. Positive attitude and self-development
- 1.11. Group dynamic and organizational behavior
- 1.12. Grievance redressal and settlement
- 1.13. Financial Management: Concept, Approaches, Budget Formulation and Implementation, Auditing and topics related to Fiscal administration

**Section (B): 40% Marks (4×5 marks, 2×10 marks)**

**2. General Health Issues**

- 2.1. Present Constitution of Nepal (health and welfare issues)
- 2.2. National Health Policy
- 2.3. Health sector in current periodical plan
- 2.4. Health Service Act, 2053 and Health Service Regulation, 2055
- 2.5. Professional council related acts and regulations
- 2.6. Act Regulating Narcotics
- 2.7. NMC and National Health Agencies
- 2.8. Indigenous and traditional faith healing and health practices
- 2.9. International health agencies: Role and responsibilities of WHO, UNICEF, UNFPA and interagency relationships
- 2.10. Health and Human Right including Women's Right, Children's Right, Professional's Right, Client Right and Informed consent
- 2.11. Gender issues and health
- 2.12. Urbanization and health impacts
- 2.13. National health training system
- 2.14. Supervision, types and its usage in Health Sector

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- 2.15. Monitoring and Evaluation System in Health
- 2.16. Health Management Information System
- 2.17. Health economics - basic terms, health insurance and financing in Health Care
- 2.18. Federal governance and decentralization in health
- 2.19. Evidence Based Medicine / Critical Appraisal of Scientific Literature
- 2.20. Principles of Research Methodology and Scientific paper writing/publication
- 2.21. Professional and medical ethics
- 2.22. Informed Consent and Medico legal Issues
- 2.23. Medical Audit and Quality Assurance
- 2.24. Information technology and Tele medicine
- 2.25. Drug act and regulation
- 2.26. Rational use of drugs, national drug policy and importance of essential drug list
- 2.27. Ethics, Integrity and Accountability of health professionals
- 2.28. Private sector health institution its regulation and management
- 2.29. Health institution development and management
- 2.30. Patient safety & Breaking Bad News
- 2.31. Cancer Registry: Hospital and Community Based Cancer Registry
- 2.32. Preventive Oncology
  - 2.32.1. Epidemiology
  - 2.32.2. Primary prevention (Cancer Awareness, Cancer Education, Vaccination)
  - 2.32.3. Secondary Prevention (Screening, Screening Methods)
- 2.33. Multidisciplinary Approach in Cancer Management

**Section (C): 20% Marks (2×5 marks, 1×10 marks)**

**3. Organizational Knowledge**

- 3.1. B.P. Koirala Memorial Cancer Hospital: History, organizational structure, functions, roles, services, possibilities, problems and challenges
- 3.2. Service provided by B.P. Koirala Memorial Cancer Hospital-service types, quality, technology, citizen engagement in service design
- 3.3. Relations between Government and other national and international related organizations
- 3.4. Health manpower recruitment and development in B.P. Koirala Memorial Cancer Hospital
- 3.5. B.P. Koirala Memorial Cancer Hospital related act and regulations

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**Paper II : Technical Subject**  
**Section (A) – 50 % 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
- 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

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**2. History of Anaesthesia**

- 2.1 From open to modern anaesthesia, balanced anaesthesia, dissociative anaesthesia and total intravenous anaesthesia
- 2.2 History of Anaesthesia of Nepal, Society of Anaesthesiologists of Nepal, South Asian Confederation of Anaesthesiologists & World Federation of Societies of Anaesthesiologists

**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

**Section (B) – 50 % Marks**

**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 tranquillizers, 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

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- 5.15 Oxytocics and their interaction with inhalation anesthetics
- 5.16 Neuromuscular blocking agents, including abnormal responses and recurarisation
- 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
- 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