

बी.पी. कोइराला मेमोरियल क्यान्सर अस्पताल
प्राविधिक (स्वास्थ्य) सेवा, मेडिकल (चिकित्सक) समूह, सर्जिकल अंकोलोजी (ग्याष्ट्रोइन्टेरोलोजी) उपसमूह,
अधिकृत दसौं तह, जुनियर 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 उत्तरपुस्तिकाहरु हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरुको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रममा जे सुकै लेखिएको भएतापनि पाठ्यक्रममा परेका ऐन, नियमहरु, 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 उम्मेदवारहरुलाई 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

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

1. **Basic Sciences**
 - 1.1 Embryology of the gut, liver, pancreas & congenital anomalies
 - 1.2 Immune system of the GIT and its importance in various G.I. disorder
 - 1.3 Molecular biology in relation to GIT
 - 1.4 Genetic diseases of GIT & liver
 - 1.5 Gene Therapy
 - 1.6 GI Tumors & Tumor biology
 - 1.7 Gastrointestinal hormones in health & diseases
 - 1.8 GI related microbiology, clinical chemistry & haematology
 - 1.9 General human anatomy and physiology
2. **Problems related to GIT, Hepatobiliary and Pancreatic system**
 - 2.1 Upper & lower G.I. bleeding
 - 2.2 Gastrointestinal tuberculosis
 - 2.3 HIV and the GIT, hepatobiliary and pancreatic system
 - 2.4 GIT & liver in systemic diseases
 - 2.5 Cutaneous manifestation of G.I. disease
 - 2.6 Gastrointestinal side effects of drugs especially NSAIDS
 - 2.7 Gastro-intestinal symptoms physiology and interpretation:
 - 2.7.1 Nausea, vomiting
 - 2.7.2 Pain abdomen
 - 2.7.3 Diarrhoea, constipation
 - 2.7.4 Dysphagia
 - 2.7.5 Jaundice
3. **Nutrition**
 - 3.1 Normal nutritional requirement
 - 3.2 Nutritional assessment and management
 - 3.3 Protein energy malnutrition
 - 3.4 Manifestations and management of nutritional deficiency & excess
 - 3.5 Nutritional support in various G.I. disorders (malabsorption, acute & chronic pancreatitis, IBD)
4. **Esophagus, Stomach, Duodenum, Small Intestine, Appendix, Spleen & Portal hypertension:**
 - 4.1 **Esophagus:**
 - 4.1.1 Applied anatomy, physiology & embryology
 - 4.1.2 Investigations for different esophageal conditions
 - 4.1.3 Neoplasm of esophagus – benign & malignant:
 - 4.1.3.1 Benign Tumor and Cysts of Esophagus
 - 4.1.3.2 Esophageal Cancer
 - 4.1.3.3 Esophagogastric Junction tumor
 - 4.1.3.4 Adjuvant and Neoadjuvant Therapy for Ca Esophagus
 - 4.1.4 Other Esophageal conditions:
 - 4.1.4.1 Gastro-esophageal reflux disease, Barret's esophagus
 - 4.1.4.2 Esophageal Injuries
 - 4.1.4.3 Paraesophageal and Other Complex Diaphragmatic Hernias
 - 4.2 **Stomach, Duodenum, Small Intestine and Appendix:**
 - 4.2.1 Applied anatomy, physiology & embryology

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- 4.2.2 Diagnostic procedures- Barium study, CECT, CT-enteroclysis, MRI, PET scan, Laparoscopy, Diagnostic and Therapeutic Endoscopy of the Stomach and Small Bowel
- 4.2.3 Neoplasm of Stomach, Duodenum, Small bowel and Appendix: Benign and Malignant
 - 4.2.3.1 Benign neoplasm of stomach, duodenum, small intestine and appendix
 - 4.2.3.2 Cancer of stomach: Advanced and Early Gastric Carcinoma
 - 4.2.3.3 Lymphomas
 - 4.2.3.4 Gastrointestinal stromal tumor
 - 4.2.3.5 Carcinoid tumor
 - 4.2.3.6 Adjuvant and Neoadjuvant Therapy for malignant conditions
- 4.2.4 Other conditions:
 - 4.2.4.1 Injuries to the Stomach, Duodenum, and Small Bowel
 - 4.2.4.2 Peptic Ulcer Disease, Zollinger–Ellison Syndrome
 - 4.2.4.3 Foreign Bodies and Bezoars of the Stomach and Small Intestine
 - 4.2.4.4 Small Bowel Obstruction and strangulation, volvulus of the stomach and small bowel
 - 4.2.4.5 Perforation peritonitis
 - 4.2.4.6 Appendicitis
 - 4.2.4.7 Crohn's Disease
 - 4.2.4.8 Tuberculosis of abdomen, peritoneum, small and large bowel
 - 4.2.4.9 Gastric, Duodenal, and Small Intestinal Fistulas
 - 4.2.4.10 Mesenteric Ischemia
 - 4.2.4.11 Radiation injury to stomach and intestine
 - 4.2.4.12 Short bowel syndrome
 - 4.2.4.13 Internal Hernias: Congenital and Acquired
 - 4.2.4.14 Enteral and parenteral feeding–NG, feeding gastrostomy/ jejunostomy

4.3 Spleen:

- 4.3.1 Applied anatomy, physiology & embryology of spleen
- 4.3.2 Preoperative evaluation, preparation and complications of splenectomy
- 4.3.3 Management of splenic trauma in adults and in children
- 4.3.4 Cysts, tumors and abscess of the spleen
- 4.3.5 Splenectomy for conditions other than trauma

4.4 Portal Hypertension:

- 4.4.1 Applied anatomy & Pathophysiology of portal hypertension, location of Portosystemic Shunting
- 4.4.2 Etiology, clinical presentation, diagnostic work up & management of portal hypertension- cirrhotic & non-cirrhotic
- 4.4.3 Portal Hypertension in Children
- 4.4.4 Medical and Endoscopic Management of Bleeding Varices; Primary and Secondary Prophylaxis
- 4.4.5 Surgery for Esophageal Varices and portal hypertension: Devascularization and Splenectomy, Different shunt procedures- indications, techniques and outcome
- 4.4.6 Transjugular Intrahepatic Portosystemic Shunting (TIPS): Indications, Technique and complications

Section (B) – 50 % Marks

5. Liver, Pancreas and Biliary System:

5.1 Embryology, Applied Anatomy, Physiology and Pathology:

- 5.1.1 Embryologic Development of the Liver, Biliary Tract, and Pancreas
- 5.1.2 Surgical and Radiologic Anatomy of the Liver, Biliary Tract, and Pancreas
- 5.1.3 Liver Blood Flow: Physiology, Measurement and Clinical Relevance
- 5.1.4 Bile Secretion and Pathophysiology of Biliary Tract Obstruction
- 5.1.5 Assessment of Hepatic Function: Implications for the Surgical Patient
- 5.1.6 Pancreatic Physiology and Functional Assessment
- 5.1.7 Pancreatic Cancer and Premalignant Tumors
- 5.1.8 Biliary Tract Cancer
- 5.1.9 Infections in Liver, Biliary, and Pancreatic Surgery

5.2 Diagnostic Techniques:

- 5.2.1 Clinical Investigation of Hepatopancreaticobiliary Disease
- 5.2.2 Ultrasound of the Liver, Biliary Tract, and Pancreas
- 5.2.3 Nuclear Medicine Techniques in Hepatobiliary and Pancreatic Disease
- 5.2.4 Computed Tomography of the Liver, Biliary Tract and Pancreas
- 5.2.5 Magnetic Resonance Imaging of the Liver, Biliary Tract and Pancreas
- 5.2.6 Direct Cholangiography: Approaches, Techniques and Current status
- 5.2.7 Percutaneous Biopsy

5.3 Techniques of Biliary Tract Intervention- Radiologic, Endoscopic & Surgical:

- 5.3.1 Interventional Endoscopy: Technical Aspects
- 5.3.2 Radiologic Hepatobiliary Interventions
- 5.3.3 Bile Duct Exploration and Biliary-Enteric Anastomosis

5.4 Gall bladder and Biliary Tract Diseases:

- 5.4.1 Inflammatory, Infective and Congenital:
 - 5.4.1.1 Cholelithiasis and Choledocholithiasis
 - 5.4.1.2 Biliary Stricture and Fistula
 - 5.4.1.2.1 Biliary Atresia
 - 5.4.1.2.2 Primary Sclerosing Cholangitis
 - 5.4.1.2.3 Benign Biliary Strictures and biliary fistula
 - 5.4.1.3 Biliary Infection and Infestation
 - 5.4.1.3.1 Cholangitis
 - 5.4.1.3.2 Recurrent Pyogenic Cholangitis
 - 5.4.1.3.3 Biliary Parasitic Disease
 - 5.4.1.4 Cystic Disease of the Biliary Tree - Bile Duct (choledochal) Cysts in Adults and children
- 5.4.2 Neoplastic:
 - 5.4.2.1 Benign Tumors and Pseudotumors of the Biliary Tract
 - 5.4.2.2 Malignant Tumors
 - 5.4.2.2.1 Cancer of the Gallbladder and Bile Ducts
 - 5.4.2.2.2 Interventional Techniques in Hilar and intrahepatic Biliary Structures
 - 5.4.2.2.3 Adjuvant and Neoadjuvant Therapy

5.5 Pancreatic Disease:

- 5.5.1 Inflammatory, Infective and Congenital:
 - 5.5.1.1 Congenital Disorders of the Pancreas: Surgical Consideration
 - 5.5.1.2 Pancreatitis

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- 5.5.1.2.1 Acute & Chronic Pancreatitis: Etiology, Pathophysiology and Clinical Aspect
- 5.5.1.2.2 Management of Acute Pancreatitis and Complications
- 5.5.1.2.3 Management of Chronic Pancreatitis: Conservative, Endoscopic and Surgical
- 5.5.2 Neoplasm:
 - 5.5.2.1 Benign and Premalignant Tumors: Cystic Neoplasms of the Pancreas
 - 5.5.2.2 Pancreatic and Periapillary Cancer: Epidemiology, Clinical Aspects, Assessment and Management; Borderline resectable tumours
 - 5.5.2.3 Duodenal Adenocarcinomas
 - 5.5.2.4 Endocrine Tumors of the Pancreas: Clinical Picture, Diagnosis & Therapy
- 5.5.3 Operative procedures and their complications:
 - 5.5.3.1 Resectional Techniques: Pancreaticoduodenectomy, Distal Pancreatectomy, Segmental Pancreatectomy, Total Pancreatectomy Surgery of the Pancreas: Minimally Invasive Approaches
 - 5.5.3.2 Chemotherapy and Radiotherapy for Pancreatic and Periapillary Cancer: Adjuvant, Neoadjuvant and Palliative
 - 5.5.3.3 Palliation of Pancreatic and Periapillary Tumors
- 5.6 Hepatic Disease**
 - 5.6.1 Inflammatory, Infective and Congenital:
 - 5.6.1.1 Liver Infection and Infestation: Pyogenic Liver Abscess, Amebiasis and Other Parasitic Infections, Hydatid Disease of the Liver
 - 5.6.1.2 Simple Cysts and Polycystic Liver Disease
 - 5.6.1.3 Hepatitis, Hepatic Cirrhosis, Portal Hypertension and Hepatic Failure
 - 5.6.2 Neoplastic:
 - 5.6.2.1 Tumors of the Liver: Diagnostic & Pathologic Aspects
 - 5.6.2.2 Benign and Premalignant
 - 5.6.2.2.1 Benign Liver Lesions
 - 5.6.2.2.2 Cystic Hepatobiliary Neoplasia
 - 5.6.2.3 Malignant Tumors
 - 5.6.2.3.1 Hepatocellular Carcinoma
 - 5.6.2.3.2 Metastatic Malignant Liver Tumors: Colorectal Cancer & Neuroendocrine
 - 5.6.2.3.3 Hepatic Tumors in Childhood
 - 5.6.2.4 Treatment: Nonresectable
 - 5.6.2.4.1 Hepatic Artery Embolization and Chemoembolization for Liver Tumors
 - 5.6.2.4.2 Percutaneous Methods for Ablating Liver Tumors
 - 5.6.2.4.3 Radiofrequency Ablation for Liver Tumors
 - 5.6.2.4.4 Microwave Ablation and Emerging Technologies for Liver Tumors
 - 5.6.2.4.5 Regional Chemotherapy for Liver Tumors
 - 5.6.2.4.6 Systemic Chemotherapy for Hepatic Colorectal Cancer
 - 5.6.2.4.7 Systemic Therapy for Hepatocellular Carcinoma
- 5.7 Hepatobiliary Injury and Hemorrhage:**
 - 5.7.1 Injuries to the Liver and Biliary Tract
 - 5.7.2 Pancreatic and Duodenal Injuries
 - 5.7.3 Aneurysm and Arteriovenous Fistula of the Liver and Pancreatic Vasculature

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5.7.4 Hemobilia and Bilhemia

6. **Colon, Rectum, and Anus:**

6.1 **Anatomy, Physiology and Diagnosis of Colorectal and Anal Disease:**

6.1.1 Applied Anatomy and Embryology of the Colon, Rectum and Anus

6.1.2 Physiology of the Colon and Its Measurement

6.1.3 Diagnostic procedures of Colon, Rectal, and Anal Disease

6.2 **Benign Colon, Rectal and Anal Conditions:**

6.2.1 Pelvic Floor Dysfunction, Rectal Prolapse

6.2.2 Rectovaginal and Rectourethral Fistulas, Pilonidal Disease

6.2.3 Traumatic Colorectal Injuries, Foreign Bodies

6.2.4 Colonic Intussusception and Volvulus, Bleeding and Ischemia

6.2.5 Diverticular Disease, Hemorrhoids, Fissure / Fistula -in-Ano

6.2.6 Miscellaneous Disorders of the Rectum and Anus

6.2.7 Inflammatory Bowel Diseases-surgery for ulcerative colitis & Crohns disease

6.2.8 Anorectal Anomalies

6.3 **Neoplastic Diseases:**

6.3.1 Colorectal Polyps and Polyposis Syndromes

6.3.2 Adenocarcinoma of the Colon and Rectum

6.3.3 Operations for Colorectal Cancer & Recurrent & Metastatic Colorectal Cancer

6.3.4 Resection and Ablation of Metastatic Colorectal Cancer to the Liver

6.3.5 Neoplasms of the Anus

6.3.6 Adjuvant and Neoadjuvant Therapy for Colorectal Cancer

6.3.7 Radiation Injuries to the Rectum

7. **Peritoneum and Retroperitoneum:**

7.1 Chronic peritonitis

7.2 Malignant ascites

7.3 Diseases of retroperitoneum

8. **G.I. Radiology**

8.1 Reading and interpreting the common x-ray film's including

8.1.1 X-ray films of the abdomen

8.1.2 Barium studies, ultrasound of abdomen, EUS

8.1.3 CT scan including CT angiography / Portography, MRCP, Portography, Percutaneous Cholangiography (PTC) & PTCD, TIPS, BRTO (Ballon Occluded Transvenous Obliteration), Angiographic Management of difficult GI bleeding, MR scan, angiography and ERCP films

9. **G.I. Pathology**

9.1 Reading & interpreting histological slides of common gastrointestinal & liver diseases

10. Adequate understanding and training of procedures including upper G.I. endoscopy and lower G.I. procedures

11. Orientation of EUS, ERCP Capsule Endoscopy, Chromoendoscopy, Esophageal Manometry, Enteroscopy and pH study

12. WHO-TNM and other cancer staging systems

13. **General Surgical Principles**

13.1 Shock

13.2 Surgical infection

13.3 Fluid and electrolyte imbalance

13.4 Preoperative and post operative patient care

13.5 TNM classification of cancers