

शहीद धर्मभक्त राष्ट्रिय प्रत्यारोपण केन्द्र
मानव अङ्ग प्रत्यारोपण विकास समिति, प्रविधिक सेवा, मेडिसिन समूह, ग्यास्ट्रोइन्टेरोलोजी उपसमूह, आठौं तह, सिनियर रजिष्ट्रार/रजिष्ट्रार (ग्यास्ट्रोइन्टेरोलोजी तथा हेपाटोलजी) पदको खुला तथा आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम एवं परीक्षा योजना

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :- लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

प्रथम चरण (First Phase) : लिखित परीक्षा योजना (Written Examination Scheme)

Paper	Subject	Marks	Full Marks	Pass Marks	No Questions & Weightage	Time Allowed
I	Management	25	100	40	5 × 5 = 25 (Short answer)	3.00 hrs
	General Health Issues & Related Legislations	40			4 × 5 = 20 (Short answer) 2 × 10 = 20 (Long answer)	
	Human Organ Donation & Transplantation	35			3 × 5 = 15 (Short answer) 2 × 10 = 20 (Long answer)	
II	Technical Subject (Gastroenterology and Hepatology)		100	40	6 × 10 = 60 (Short answer) 2 × 20 = 40 (Long answer)	3.00 hrs

द्वितीय चरण (Second Phase) : अन्तर्वार्ता (Interview)

Subject	Full Marks	Examination
Interview	30	Oral

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- लिखित परीक्षामा सोधिने प्रश्नसंख्या र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा दिईए अनुसार हुनेछ ।
- विषयगत प्रश्नमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिनेछ ।
- प्रथम र द्वितीय पत्रमा प्रत्येक खण्ड (Section) को लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । उम्मेदवारले प्रत्येक खण्ड (Section) को प्रश्नको उत्तर छुट्टाछुट्टै उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जुन सुकै कुरा लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम 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 ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम स्वीकृत मिति :- २०८१/०८/०४

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Paper I: General Subject
(Management, Human Organ Donation & Transplantation, General Health Issues & Related Legislations)

Section (A)

Short Questions	5 Question × 5 Marks = 25 Marks	25 Marks
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1. Management

- 1.1 Management: concept, principles, functions, scope, role, level and skills of managers
- 1.2 Participative management: concept, advantages and disadvantages, techniques of participation
- 1.3 Time management: concept, advantages, and disadvantages
- 1.4 Conflict management: concept, approaches to conflict, levels of conflict, causes of conflict and strategies for conflict management
- 1.5 Stress management: concept, causes and sources of stress, techniques of stress management
- 1.6 Planning: concept, principles, nature, types, instrument and steps
- 1.7 Motivation: concept, theories of motivation, reason for low productivity, techniques of employee motivation
- 1.8 Leadership: concept, functions, leadership styles, leadership and management effectiveness
- 1.9 Coordination: concept, need, types, techniques & approaches of effective coordination
- 1.10 Communication: concept, communication process and barrier to effective communication, techniques for improving communication
- 1.11 Decision making: Importance, types, rational process of decision making, problem solving techniques, improving decision making
- 1.12 Fundamental principles of healthcare institution and hospital management

Section (B)

Short Question	4 Question × 5 Marks = 20 Marks	40 Marks
Long Question	2 Question × 10 Marks = 20 Marks	

2. General Health Issues (25 Marks)

- 2.1 Present Constitution of Nepal (health and welfare issues)
- 2.2 International health agencies: role and responsibilities of WHO, UNICEF, UNFPA and interagency relationships
- 2.3 Medical ethics
- 2.4 Indigenous and traditional faith healing and health practices
- 2.5 Supervision, types and its usage in health sector
- 2.6 Monitoring and evaluation system in health Sector
- 2.7 Health management information system
- 2.8 Health insurance and financing in health care
- 2.9 Effects of environment in public health: air pollution, domestic pollution, noise pollution
- 2.10 Importance of water, sanitation and hygiene in public health

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- 2.11 Effects of disaster in public health: deforestation, landslide, flood, earthquake & fire
- 2.12 Health volunteers' involvement in health service delivery
- 2.13 Counseling: concept, type, importance and its application in health service delivery

3. Related Legislations (Policy, Act and Regulations) (15 Marks)

- 3.1 National Health Policy, 2076
- 3.2 Human Organ Transplantation (Regulation and Prohibition) Act, 2055 with amendment
- 3.3 Human Organ Transplantation Regulations, 2073
- 3.4 Guidelines on medical treatment of deprived citizens program, 2080
- 3.5 Human Organ Transplant Development Committee Personnel Administration Rules, 2069 (मानव अंग प्रत्यारोपण विकास समिति कर्मचारी प्रशासन नियमवाली, २०६९)
- 3.6 Human Organ Transplant Development Committee Formation Order, 2068 (मानव अंग प्रत्यारोपण विकास समिति गठन आदेश, २०६८)
- 3.7 Health Workers and Health Institutions Security Act, 2066 & Health Workers and Health Institutions Security Regulation, 2069
- 3.8 Health Insurance Act, 2074
- 3.9 Health Service Act, 2053
- 3.10 Public Health Service Act, 2075

Section (C)

Short Question	3 Question × 5 Marks = 15 Marks	35 Marks
Long Question	2 Question × 10 Marks = 20 Marks	

4. General Concept of Solid Organ Donation and Transplantation

- 4.1 Basic Concept of Transplant Science
 - 4.1.1 Transplant immunology
 - 4.1.2 Basic terminology : autologous graft, syngeneic graft, allogeneic graft, xenogeneic graft, alloantigen, alloreactive, immune rejection
 - 4.1.3 Types of graft rejection : hyper acute rejection, acute cellular rejection, acute antibody mediated rejection, chronic rejection
 - 4.1.4 Immunosuppressant drugs used in organ transplantation
 - 4.1.5 Evaluation of donor and recipient and management
 - 4.1.6 Organ preservation and procurement
 - 4.1.7 Role of immunological test in transplantation : Human leucocyte antigen (HLA), Donor specific antibodies (DSA), Panel reactive antibodies (PRA), Complement dependent cytotoxicity (CDC) cross match, flow cross match
 - 4.1.8 Complications among organ transplant recipients and management
- 4.2 Concepts of Organ Donation and Transplantation Process
 - 4.2.1 Demand vs. supply gap in transplantation
 - 4.2.2 Health promotion and prevention of organ failure
 - 4.2.3 Organ failure, organ donation, transplant etc
 - 4.2.4 Organ recovery process
 - 4.2.5 Organ donation process
 - 4.2.6 Brain death donation: definition, declaration & management

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- 4.2.7 Contraindication of transplantation in brain death donation
- 4.2.8 Hurdles in brain death donation program
- 4.2.9 Brain death, criteria for certifying brain death and tests to confirm diagnosis
- 4.2.10 Concept of circulatory death : donation after circulatory death (DCD), types, different from brain death donation
- 4.2.11 Allocation of Kidneys, Liver, Heart and Lungs in Deceased donor transplantation
- 4.2.12 Preservation and transportation of retrieved organs
- 4.3 History of organ transplantation in Nepal
- 4.4 Role, scope and importance of Shahid Dharmabhakta National Transplant Center in organ transplantation
- 4.5 Religion and culture in organ donation and transplantation

5. Ethical Issues in Organ Donation and Transplantation

- 5.1 Patient confidentiality and privacy legislation
- 5.2 Patient autonomy
- 5.3 Principles of informed consent and decision making
- 5.4 Next of kin designation
- 5.5 End of life decision making
- 5.6 Organ procurement for transplantation
- 5.7 Management and review of adverse events
- 5.8 Communication with families in crisis

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**Paper II: Technical subject
(Gastroenterology and Hepatology)**

Section A

Short Question	3 Question × 10 Marks = 30 Marks	50 Marks
Long Question	1 Question × 20 Marks = 20 Marks	

1. Basic Sciences related to Gastro-Intestinal System (GIT) and Nutrition (10 Marks)

- 1.1 Embryology of the gut, liver, pancreas & congenital anomalies
- 1.2 Immune system of the GIT and its importance in various G.I. disorders
- 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 Normal nutritional requirement
- 1.10 Nutritional assessment and management
- 1.11 Protein energy malnutrition
- 1.12 Manifestations and management of nutritional deficiency & excess
- 1.13 Nutritional support in various G.I. disorders (malabsorption, acute & chronic pancreatitis, Inflammatory bowel disease (IBD))

2. Problems related to (Gastro-Intestinal System) GIT, Hepatobiliary and Pancreatic system (20 Marks)

- 2.1 Upper & lower G.I. bleeding
- 2.2 Gastrointestinal tuberculosis
- 2.3 GIT, hepatobiliary and pancreatic system in HIV
- 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
 - 2.7.6 Vascular Diseases of GI Tract
 - 2.7.7 Peritoneum and Retroperitoneum
 - 2.7.7.1 Chronic peritonitis
 - 2.7.7.2 Malignant ascites
 - 2.7.7.3 Diseases of retroperitoneum

3. Esophagus and Stomach (10 Marks)

- 3.1 Basic anatomy, histology & physiology of esophagus and stomach
- 3.2 Congenital anomalies of esophagus and stomach
- 3.3 Motor physiology and motor disorder of the esophagus
- 3.4 GERD (gastro esophageal reflux disease) & its complication

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- 3.5 Esophageal disorders caused by infection, systemic illness, medication radiation & trauma
- 3.6 Esophageal and gastric tumors
- 3.7 Physiology of acid & bicarbonate secretion in health & diseases
- 3.8 Defense mechanism against acid & pepsin
- 3.9 Gastroduodenal motor function in health & diseases
- 3.10 Gastritis (specific & nonspecific)
- 3.11 H pylori
- 3.12 Peptic ulcer & its complications, their management
- 3.13 Stress & stomach
- 3.14 Gastric hypersecretory states including Zollinger Ellison Syndrome (ZES)
- 3.15 Surgery for peptic ulcer
- 3.16 Post gastrectomy complication
- 3.17 Tumors of stomach
- 3.18 Diverticuli & hernia of the stomach

4. Small intestine and Colon (10 Marks)

- 4.1 Anatomy, blood supply, histology
- 4.2 Motility of small intestine and colon
- 4.3 Congenital anomalies
- 4.4 Normal absorption of the nutrients
- 4.5 Intestinal electrolyte absorption and secretion
- 4.6 Malabsorption syndrome
 - 4.6.1 Pathophysiology, manifestations & approach
- 4.7 Celiac sprue
- 4.8 Infection related diseases
 - 4.8.1 Intestinal microflora in health & diseases
 - 4.8.2 Tropical sprue
 - 4.8.3 Infectious diarrhoea & food poisoning
 - 4.8.4 Parasitic diseases
- 4.9 Small intestinal ulcers
- 4.10 Short bowel syndrome
- 4.11 Eosinophilic gastroenteritis
- 4.12 Food allergies
- 4.13 Intestinal obstruction & pseudo-obstruction
- 4.14 Management of diarrhoea.
- 4.15 G.I. lymphomas
- 4.16 Small intestinal tumors
- 4.17 Small intestinal transplantation
- 4.18 Motility of the colon & disorders of motility
- 4.19 Megacolon
- 4.20 Constipation
- 4.21 Colonic pseudo-obstruction.
- 4.22 Fecal incontinence
- 4.23 Antibiotic associated diarrhoea
- 4.24 Inflammatory bowel disease
 - 4.24.1 Ulcerative colitis
 - 4.24.2 Crohn's disease
 - 4.24.3 Indeterminate colitis

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- 4.24.4 Ileostomies & its management
- 4.25 Diverticular disease of colon
- 4.26 Radiation entetero-colitis
- 4.27 Colonic polyps & polyposis syndrome
- 4.28 Malignant disease of colon
- 4.29 Hemorrhoids
- 4.30 Disease of the anorectum
- 4.31 Other inflammatory diseases of the colon including
 - 4.31.1 Solitary rectal ulcer syndrome
 - 4.31.2 Diversion colitis
 - 4.31.3 Collagenous & microscopic colitis
 - 4.31.4 Nonspecific ulceration of the colon
 - 4.31.5 Pneumatoses cystoids intestinalis

Section B

Short Question	3 Question × 10 Marks = 30 Marks	50 Marks
Long Question	1 Question × 20 Marks = 20 Marks	

5. Biliary Tree (10 Marks)

- 5.1 Anatomy, physiology
- 5.2 Physiology of bile formation & excretion
- 5.3 Enterohepatic circulation
- 5.4 Bilirubin metabolism
- 5.5 Approach to the patient with jaundice
- 5.6 Gall stone, its complications & management
- 5.7 Acute calculous cholecystitis
- 5.8 Miscellaneous disorders of the gall bladder
- 5.9 Acute cholangitis
- 5.10 Benign biliary structures
- 5.11 Benign & malignant neoplasm of the biliary system
- 5.12 Endoscopic management of biliary obstruction
- 5.13 Motility & dysmotility of the biliary system & sphincter of oddi dysfunction
- 5.14 Congenital diseases of the biliary system
- 5.15 Sclerosing cholangitis & recurrent pyogenic cholangitis

6. Liver (20 Marks)

- 6.1 Anatomy, physiology, blood supply
- 6.2 Function of liver
- 6.3 Microcirculation of liver
- 6.4 Liver function test
- 6.5 Portal hypertension
 - 6.5.1 Extra hepatic porto splenic vein obstruction
 - 6.5.2 Non cirrhotic portal fibrosis
 - 6.5.3 Cirrhosis
- 6.6 Acute viral hepatitis
- 6.7 Chronic hepatitis
- 6.8 Fulminant hepatic failure
- 6.9 Cirrhosis of liver with the emphasis on the spectrum of alcohol related disorder
- 6.10 Ascites

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- 6.11 Hepatorenal syndrome
 - 6.12 Autoimmune liver disease
 - 6.13 Metabolic liver disease
 - 6.14 Primary biliary cirrhosis
 - 6.15 Hepatic venous outflow tract obstruction
 - 6.16 Fibrocystic disease of the liver
 - 6.17 Wilson's disease
 - 6.18 Hemochromatosis
 - 6.19 Liver abscess & bacterial, parasitic, fungal and granulomatous liver disease
 - 6.20 Liver in porphyria, pregnancy & congestive heart failure
 - 6.21 Hepatic tumors
 - 6.22 Liver biopsy
 - 6.23 Liver transplantation & artificial liver support
- 7. Pancreas, Gastro-intestinal- Radiology, Pathology and related procedures (10 Marks)**
- 7.1 Pancreas
 - 7.1.1 Anatomy, Physiology, blood supply developmental anomalies
 - 7.1.2 Physiology of the pancreatic secretion
 - 7.1.3 Pancreatic function test
 - 7.1.4 Acute, recurrent & chronic pancreatitis
 - 7.1.5 Pancreatic tumor (Exocrine & endocrine)
 - 7.1.6 Cystic fibrosis & other childhood disorder of the pancreas
 - 7.1.7 Pancreatic transplantation
 - 7.2 Radiology

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

 - 7.2.1 X-ray films of the abdomen
 - 7.2.2 Barium studies, ultrasound of abdomen, endoscopic ultrasound (EUS)
 - 7.2.3 CT scan including CT angiography / Portography, MRCP, Portography, Percutaneous Cholangiography (PTC) & Percutaneous Cholangiography drainage (PTCD), transjugular intrahepatic portosystemic shunt (TIPS), BRTO (Ballon Occluded Transvenous Obliteration), Angiographic Management of difficult GI bleeding, MR scan, angiography and endoscopic retrograde cholangiopancreatography (ERCP) films
 - 7.3 Gastrointestinal (GI) Pathology
 - 7.3.1 Reading and interpreting histological slides of common gastrointestinal and liver diseases
 - 7.3.2 Adequate understanding and training of procedures including upper G.I. endoscopy and lower G.I. procedures
 - 7.3.3 Orientation of EUS, ERCP, Capsule Endoscopy, Chromo endoscopy, Esophageal Manometry, Enteroscopy and pH study
- 8. Organs (Kidney, Liver, Pancreas and others) donation and transplantation (10 Marks)**
- 8.1 Basic concept of solid organ donation and transplantation
 - 8.2 GI assessment and other investigations of the donor and recipient undergoing Liver transplantation
 - 8.3 Concept of immunology and commonly used drugs used in liver transplantation with their side effects
 - 8.4 Complications and their management in a liver transplant recipient