

शहीद धर्मभक्त राष्ट्रिय प्रत्यारोपण केन्द्र
मानव अङ्ग प्रत्यारोपण विकास समिति, प्रविधिक सेवा, सर्जरी समूह, हेपाटो विलियरी, प्यान्क्रियाटोलोजी तथा
ट्रान्सप्लाण्ट उपसमूह, आठौं तह, सिनियर रजिष्ट्रार/रजिष्ट्रार पदको खुला 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 (HPB & Transplant Surgery)		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
(HPB & Transplant Surgery)**

Section A

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

1. Liver and Biliary Tree (30 Marks)

1.1 Anatomy and Pathophysiology

- 1.1.1 Surgical anatomy and anatomical surgery of the liver
- 1.1.2 The biliary tract and anatomy of biliary exposure
- 1.1.3 Radiological anatomy of the liver and biliary tract
- 1.1.4 Assessment of liver function in the surgical patient
- 1.1.5 Compensatory hyperplasia of the liver
- 1.1.6 Liver hyperplasia, hypertrophy and atrophy: clinical relevance
- 1.1.7 Liver blood flow: physiology, measurement and clinical relevance
- 1.1.8 Bile secretion
- 1.1.9 The function of biliary tract and Factors in production of biliary pain
- 1.1.10 Biliary tract obstruction: - pathophysiology
- 1.1.11 Infection in hepato-biliary-pancreatic surgery
- 1.1.12 Endotoxin in liver and biliary tract disease
- 1.1.13 Haemostatic factors in liver and biliary disease

1.2 Diagnostic Techniques

- 1.2.1 Clinical examinations and investigations
- 1.2.2 USG in surgery of the liver and biliary tract
- 1.2.3 Isotopic studies
- 1.2.4 Computed tomography of the liver and biliary tract
- 1.2.5 Magnetic resonance imaging
- 1.2.6 Plain radiographs oral cholecystograph and intravenous cholangiography
- 1.2.7 Percutaneous transhepatic cholangiography
- 1.2.8 Diagnostic endoscopic retrograde
- 1.2.9 Angiography
- 1.2.10 Liver biopsy
- 1.2.11 Diagnostic laparoscopy
- 1.2.12 Laparotomy and minilaparotomy
- 1.2.13 Assessment of diagnostic technique for biliary obstruction and liver masses
- 1.2.14 Intraoperative radiology
- 1.2.15 Intraoperative ultrasound- biliary disease
- 1.2.16 Choledochoscopy
- 1.2.17 Intraoperative ultrasound-diagnostic aspects in liver surgery

1.3 Pre- and Post-Operative Care and Anaesthesia

- 1.3.1 The kidney and liver, pre and postoperative factors
- 1.3.2 Pre and postoperative nutrition in hepato - biliary surgery
- 1.3.3 Anaesthesia and postoperative intensive care

1.4 Interventional Radiology and Endoscopic Technique

- 1.4.1 Intervention endoscopy (technical aspects)
- 1.4.2 Intervention radiology technique in the liver and biliary tract
- 1.4.3 Percutaneous and endoscopic drainage and endoprosthesis- surgical relevance

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- 1.5 Gallstones and Gall Bladder
 - 1.5.1 Gallstones formation and epidemiology
 - 1.5.2 The natural history of gallstones and asymptomatic gallstones
 - 1.5.3 Dissolution of gallstones
 - 1.5.4 Acute cholecystitis
 - 1.5.5 Chronic cholecystitis
 - 1.5.6 Biliary acute pancreatitis
 - 1.5.7 The technique of cholecystectomy
 - 1.5.8 Laparoscopic cholecystectomy and laparoscopic choledocholithotomy
 - 1.5.9 Cholecytolithiasis: which approaches gallbladder disease
 - 1.5.10 Shock wave therapy for gall bladder and bile duct stones
 - 1.5.11 Stones in the common bile duct- surgical approaches
 - 1.5.12 Stones in the bile duct- endoscopic approaches
 - 1.5.13 Intervention radiology in the management of duct stones
 - 1.5.14 Dissolution of the common bile duct stones
 - 1.5.15 Stones in CBD
 - 1.5.16 Intrahepatic stones
 - 1.5.17 Supraduodenal choledochotomy
 - 1.5.18 Transduodenal sphincteroplasty and exploration of CBD
 - 1.5.19 Choledochoduodenostomy- technique
 - 1.5.20 Postcholecystectomy problems
 - 1.5.21 Papillary stenosis
- 1.6 Biliary Stricture and Fistula
 - 1.6.1 Biliary atresia
 - 1.6.2 Scroosing cholangitis
 - 1.6.3 Benign biliary strictures
 - 1.6.4 External biliary fistula
 - 1.6.5 Internal biliary fistula and gallstone ileus
- 1.7 Biliary Tumours
 - 1.7.1 Tumours of the bile duct- pathological aspects
 - 1.7.2 Benign tumours and pseudotumours of biliary tract
 - 1.7.3 Tumours of the gall bladder
 - 1.7.4 Cancer of the bile ducts
 - 1.7.5 Periapillary and pancreatic cancer
 - 1.7.6 Whipple pancreaticoduodenectomy
 - 1.7.7 Transduodenal resection of the papilla of vater
 - 1.7.8 Percutaneous intubation techniques in biliary and periampullary cancer
 - 1.7.9 The endoscopic management of biliary and periampullary cancer
- 1.8 Biliary Bypass and Intubational Techniques
 - 1.8.1 Hilar and interhepatic biliary-enteric anastomosis
 - 1.8.2 Operative intubational technique in biliary obstruction
- 1.9 Liver and Biliary Infection and Infestation
 - 1.9.1 Cholangitis nontoxic and toxic
 - 1.9.2 Liver abscess and subphrenic abscess
 - 1.9.3 Amebiasis and biliary infestation
 - 1.9.4 Hydatid disease
 - 1.9.5 Recurrent pyogenic cholangitis
- 1.10 Biliary and Liver Cysts
 - 1.10.1 Choledochal cyst
 - 1.10.2 Choledochal cyst in adult life

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- 1.10.3 Non-parasitic cystic disease of the liver and intrahepatic biliary tree
- 1.10.4 Surgical management of Non-parasitic liver cysts
- 1.11 Injury and Haemorrhage
 - 1.11.1 Liver and bile duct injury
 - 1.11.2 Trauma to the liver vasculature aneurysm and atriovenous fistula
 - 1.11.3 Haemobilia.
- 1.12 Liver Tumours
 - 1.12.1 Tumors of the liver- Pathological aspects
 - 1.12.2 Benign liver tumors
 - 1.12.3 Primary hepato-cellular carcinoma
 - 1.12.4 Liver tumors in children
 - 1.12.5 Metastatic tumor of the liver
 - 1.12.6 Endocrine aspects of liver tumors
 - 1.12.7 Embolization of liver tumor
 - 1.12.8 Ischemic therapy of liver tumors
 - 1.12.9 Chemotherapy of liver tumors
 - 1.12.10 Intra-arterial chemotherapy for liver tumors
- 1.13 Hepatic Resection
 - 1.13.1 Liver resection- liver and biliary tumours
 - 1.13.2 Liver resection in cirrhosis of the liver
 - 1.13.3 Segment oriented anatomical liver resection
 - 1.13.4 Intraoperative Ultrasound and liver surgery
- 1.14 Cirrhosis And Portal Hypertension
 - 1.14.1 Cirrhosis and portal hypertension: pathological aspects
 - 1.14.2 Diagnosis of cirrhosis and portal hypertension
 - 1.14.3 Measurement of variceal pressure
 - 1.14.4 Management of liver failure
 - 1.14.5 Management of ascites in cirrhosis and portal hypertension
 - 1.14.6 Medical management of bleeding varices
 - 1.14.7 Injection sclerotherapy in management of cirrhosis and portal hypertension
 - 1.14.8 Operative devascularization and oesophageal transection
 - 1.14.9 Devascularization- modified Sugiura procedure
 - 1.14.10 Percutaneous transhepatic occlusion of oesophageal varices
 - 1.14.11 The place of portasystemic shunting
 - 1.14.12 Portal hypertension in children
 - 1.14.13 Portal hypertension in nonalcoholic liver
 - 1.14.14 Budd-Chiari syndrome and veno-occlusive disease
 - 1.14.15 The technique of portacaval shunt
 - 1.14.16 Distal splenorenal shunt
 - 1.14.17 Mesocaval Shunt – technique

2. Pancreas (20 Marks)

- 2.1 Pancreas
 - 2.1.1 Surgical anatomy of the pancreas
 - 2.1.2 Surgical physiology: the exocrine and endocrine pancreas
 - 2.1.3 Estimation of pancreatic enzymes in body fluids
 - 2.1.4 Pancreatic function tests
 - 2.1.5 Ultrasonography in surgery of pancreas
 - 2.1.6 Computerised tomography in surgery of pancreas
 - 2.1.7 Magnetic resonance imaging

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- 2.1.8 Endoscopic retrograde cholangiopancreatography
- 2.1.9 Congenital abnormalities: cystic fibrosis, Annular pancreas, Ectopic pancreas.
- 2.2 Acute Pancreatitis
 - 2.2.1 Etiopathogenesis and Epidemiology of Alcohol-Induced Acute Pancreatitis
 - 2.2.2 Etiology and Epidemiology of Biliary Acute Pancreatitis
 - 2.2.3 Acute Pancreatitis Associated with Congenital Anomalies
 - 2.2.4 Acute Pancreatitis Associated with Metabolic, Infectious, and Drug-Related Diseases
 - 2.2.5 Acute Pancreatitis in Children
 - 2.2.6 Genetic Factors in Acute Pancreatitis
 - 2.2.7 Histopathology of Acute Pancreatitis
 - 2.2.8 Molecular, Biochemical, and Metabolic Abnormalities of Acute Pancreatitis
 - 2.2.9 Clinical Course of Alcoholic Acute Pancreatitis
 - 2.2.10 Clinical Course and Treatment Principles of Biliary Acute Pancreatitis
 - 2.2.11 Clinical Assessment & Biochemical Markers to Objectify Severity and Prognosis
 - 2.2.12 Imaging Acute Edematous–Interstitial and Necrotizing Pancreatitis
 - 2.2.13 Treatment of Acute Pancreatitis
 - 2.2.14 Bacterial and Fungal Infections in Necrotizing Pancreatitis: Pathogenesis, Prevention, and Treatment
 - 2.2.15 Endoscopic Treatment of Necrotizing Pancreatitis
 - 2.2.16 Management of Fluid Collections in Acute Pancreatitis
 - 2.2.17 Management of Pancreatic Fistula in Acute Pancreatitis
 - 2.2.18 Enteral Nutrition and Parenteral Nutrition
 - 2.2.19 Long-Term Outcome after Acute Pancreatitis
 - 2.2.20 Indications for Interventional and Surgical Treatment of Acute Pancreatitis
 - 2.2.21 Surgical Management of Necrotizing Pancreatitis
 - 2.2.22 Strategies for Surgical Treatment of Pseudocysts after Acute Pancreatitis
 - 2.2.23 Minimal-Access Surgical Treatment of Necrotizing Pancreatitis and Pancreatic Abscess
- 2.3 Chronic Pancreatitis
 - 2.3.1 Chronic Pancreatitis: Consequences of Recurrent Acute Episodes
 - 2.3.2 Fibrogenesis of the Pancreas: The Role of Stellate Cells
 - 2.3.3 Epidemiology and Pathophysiology of Alcoholic Chronic Pancreatitis
 - 2.3.4 Hereditary Chronic Pancreatitis
 - 2.3.5 Epidemiology and Pathogenesis of Tropical Chronic Pancreatitis
 - 2.3.6 Autoimmune Pancreatitis
 - 2.3.7 Molecular understanding of Chronic Pancreatitis
 - 2.3.8 Pain Mechanisms in Chronic Pancreatitis
 - 2.3.9 Clinical and Laboratory Diagnosis of Chronic Pancreatitis
 - 2.3.10 Contrast-Enhanced Computed Tomography and Magnetic Resonance Imaging
 - 2.3.11 Endoscopic Retrograde Cholangiopancreatography, Magnetic Resonance Cholangiopancreatography, and Endoscopic Ultrasound in Chronic Pancreatitis
 - 2.3.12 Natural Course of Chronic Pancreatitis
 - 2.3.13 Treatment of Pseudocysts in Chronic Pancreatitis
 - 2.3.14 Medical Treatment of Chronic Pancreatitis
 - 2.3.15 Endoscopic and Interventional Therapy of Chronic Pancreatitis
 - 2.3.16 Strategies for Surgical Treatment of Chronic Pancreatitis
 - 2.3.17 Chronic Pancreatitis: Late Outcome after Medical and Surgical Treatment
 - 2.3.18 Management of Pancreatic Diabetes Secondary to Chronic Pancreatitis

शहीद धर्मभक्त राष्ट्रीय प्रत्यारोपण केन्द्र

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2.4 Neoplastic Lesions of Exocrine Tissue: Pancreatic Cancer

- 2.4.1 Epidemiology of Pancreatic Cancer
- 2.4.2 Molecular Biological Understanding of Development of Pancreatic Cancer
- 2.4.3 Familial Pancreatic Cancer
- 2.4.4 Pathology of Exocrine Pancreatic Tumors
- 2.4.5 Precancerous Lesions
- 2.4.6 Role of Endoscopic Ultrasound for Diagnosis and Differential Diagnosis of Neoplastic Lesions
- 2.4.7 Radiologic Diagnosis of Pancreatic Cancer: Computed Tomography and Magnetic Resonance Imaging
- 2.4.8 Clinical Assessment and Staging of Pancreatic Cancer
- 2.4.9 Role of Positron Emission Tomography in Diagnosis of Pancreatic Cancer and Cancer Recurrence
- 2.4.10 Tumor Markers in Pancreatic Malignancies
- 2.4.11 The Role of Laparoscopy and Peritoneal Cytology in the Management of Pancreatic Cancer
- 2.4.12 Pancreatic Cancer Staging Systems and their Clinical Impact
- 2.4.13 Endoscopic and Interventional Palliation of Pancreatic Cancer
- 2.4.14 Pancreatic Cancer: Indications for Resection
- 2.4.15 Pancreaticoduodenectomy for Pancreatic Cancer: Results after Kausch–Whipple and Pylorus-Preserving Resection
- 2.4.16 Extended Radical Surgery for Pancreatic Cancer
- 2.4.17 Palliative Pancreaticoduodenectomy: Benefits and Limitations
- 2.4.18 Bypass Surgery for Advanced Pancreatic Cancer
- 2.4.19 Neoadjuvant Treatment of Pancreatic Cancer: Borderline-Resectable Disease
- 2.4.20 Adjuvant Chemotherapy in Pancreatic Cancer
- 2.4.21 Palliative Chemotherapy for Advanced Pancreatic Cancer
- 2.4.22 Management of Cancer Pain
- 2.4.23 Role of Radiotherapy in the Treatment of Pancreatic Cancer
- 2.4.24 Management of Cancer Recurrence
- 2.4.25 Survival and Late Morbidity after Resection of Pancreatic Cancer

2.5 Endocrine Tumors of The Pancreas

- 2.5.1 Diagnosis of Endocrine Tumors of the Pancreas
- 2.5.2 Islet Cell Tumors
- 2.5.3 Pancreatic Endocrine Tumors in Multiple Endocrine Neoplasia Syndrome
- 2.5.4 Nonfunctioning Endocrine Tumors.
- 2.5.5 Surgical Treatment of Endocrine Tumors
- 2.5.6 Treatment of Carcinoids of the Pancreas and Biliary Tract
- 2.5.7 Nonsurgical Management of Endocrine Tumors
- 2.5.8 Liver Transplantation in Advanced Disease of Endocrine Tumors
- 2.5.9 Long-Term Outcome after Treatment of Endocrine Tumors
- 2.5.10 Periampullary Tumors: Clinical Presentation and Diagnostic Strategy
- 2.5.11 Histology of Cancer of the Papilla, Distal Common Bile Duct, and Duodenum
- 2.5.12 Adenoma and Adenocarcinoma of the Ampulla of Vater: Diagnosis and Management
- 2.5.13 Endoscopic Treatment of Adenomas of the Ampulla of Vater: Benefits and Limits
- 2.5.14 Surgical Treatment of Periampullary Cancer: Early and Late Results after Resection

2.6 Other Tumors of The Pancreas

- 2.6.1 Histology of Cystic Tumors of the Pancreas

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- 2.6.2 Diagnostic Imaging of Cystic Tumors
- 2.6.3 Diagnosis and Natural History of Intra ductal Papillary Mucinous Neoplasms
- 2.6.4 Mucinous Cystic Neoplasm
- 2.6.5 Surgical Treatment and Long-Term Outcome of Cystic Neoplasms of the Pancreas
- 2.6.6 Minimally Invasive and Local Ablation Techniques of Serous and Mucinous Cystic Lesions
- 2.7 Spleen
 - 2.7.1 Anatomy of the spleen
 - 2.7.2 Splenectomy and Splenorrhaphy
 - 2.7.3 Laparoscopic Splenectomy.
 - 2.7.4 Post splenectomy complications and management
 - 2.7.5 Splenic preservation

Section B

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

3. Organ (Kidney, Liver, Pancreas) Donation and Transplantation (10 Marks)

- 3.1 Pharmacology and Immunosuppression
 - 3.1.1 Basic pharmacology (mechanisms of action, metabolism, adverse effects, potential interactions, dosing strategies, and target levels) for all immunosuppressive agents in current clinical use
 - 3.1.2 Concept of transplant immunology and potential complications and clinical and laboratory markers of over- and under- immunosuppression
 - 3.1.3 Donor and recipient factors which impact the use of immunosuppressive agents including the risk of rejection, infection and malignancy
 - 3.1.4 Clinical and pathologic features of acute and chronic cellular and humoral rejection and implement appropriate pharmacologic therapy; identify short and long term ramifications of rejection episodes
 - 3.1.5 Opportunistic Infections in transplant recipients
 - 3.1.6 Organ Transplantation and malignancies
 - 3.1.7 Donor and recipient factors that impact the use of immunosuppressive agents, including the risk of rejection, infection, and malignancy
 - 3.1.7.1 Rejection : Identification of recipient groups that would generally be considered at high vs. low risk for acute rejection; Induction protocols for management of recipients at high vs. low risk for acute rejection; Clinical and pathologic features of acute and chronic cellular and antibody mediated rejection; Management strategies for the treatment of Antibody mediated rejection, Mild acute cellular rejection, Moderate to severe acute cellular rejection, Chronic rejection; Identification of the early and late adverse events associated with the treatment of rejection episodes
- 3.2 Organ Procurement
 - 3.2.1 Moral, ethical and legal issues and steps involved in determining brain death.
 - 3.2.2 Moral, ethical and legal issues and steps involved in live organ donation.
 - 3.2.3 Basic assessment of the medical, laboratory, and anatomic characteristics of a potential organ donor (live or deceased), the quality of a donor organ, and its suitability for a given recipient.

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- 3.2.4 Procedure to safely recover abdominal organs from deceased donors, including those for donation after cardiac death (DCD)
- 3.2.5 Recovery processes for living donor organs and describe the steps necessary to perform relevant organ specific recovery (liver, kidney, or pancreas)
- 3.2.6 Outline the basic principles and limits of organ preservation and be familiar with organ preservation techniques, including pulsatile perfusion

4. Liver Transplantation (20 Marks)

- 4.1 Basic principles of liver transplantation, donor and recipient selection and donor allocation.
- 4.2 Types of immunosuppressive therapy utilized in liver transplantation
- 4.3 Different disease processes which may require liver transplantation; management of complications of liver disease including end stage liver disease and the care of patients with fulminant hepatic failure
- 4.4 Workup needed to diagnose liver transplant rejection
- 4.5 Technique of percutaneous liver biopsy including management of complications
- 4.6 Operative steps necessary involved in performing liver allograft recovery from deceased donors and deceased donor liver transplant
- 4.7 Diagnosis and implementation of treatment approaches for both short and long term medical and surgical complications following liver transplantation

5. Pancreas Transplantation & Kidney Transplantation (10 Marks)

- 5.1 Indications for kidney transplantation, explain the different disease processes resulting in end-stage renal disease, and describe the treatment options
- 5.2 Basic of principles of donor and recipient selection and deceased donor organ allocation.
- 5.3 Living and deceased donor kidney transplant procedures
- 5.4 Basic immunosuppressive strategies used in kidney transplantation, including induction and maintenance therapy
- 5.5 Diagnosis of renal transplant rejection including performing diagnostic biopsy, identification of basic pathologic findings of rejection, and treatment strategies for rejection
- 5.6 Long term follow-up and identification and treatment of short and long term complications of kidney transplantation
- 5.7 Short and long term outcomes of kidney transplantation
- 5.8 Basic principles of renal replacement therapy; identification of indications for and surgical techniques necessary to place hemo- and peritoneal dialysis access
- 5.9 Criteria used to assess suitability of a living donor for kidney transplant
- 5.10 Identification and treatment of surgical complications after kidney transplant
- 5.11 Basic principles of pancreas transplantation, donor and recipient selection and donor allocation
- 5.12 Types of immunosuppressive therapy utilized in pancreas transplantation.
- 5.13 Different disease processes which may require pancreas transplantation
- 5.14 Workup needed to diagnose pancreas transplant rejection
- 5.15 Operative steps necessary involved in performing pancreas allograft recovery from deceased donors and deceased donor pancreas transplant
- 5.16 Diagnosis and implementation of treatment approaches for both short and long term medical and surgical complications following pancreas transplantation

6. Post-Transplant Care after organ (Kidney/ Liver/ Pancreas) transplantation (10 Marks)

- 6.1 Immediate Post Transplant Care after organ (Kidney/ Liver/ Pancreas) transplantation
 - 6.1.1 Immediate Post Transplant Management

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- 6.1.2 ICU management
- 6.1.3 Surgical and Medical Complications
- 6.1.4 Prophylactic Regime
- 6.1.5 Immunosuppression therapy
- 6.1.6 Management of Acute Cellular Rejection and Antibody Mediated Rejection
- 6.1.7 Management strategies of acute cellular rejection
- 6.1.8 Management strategies of antibody medicated (humoral) rejection
- 6.1.9 Post-operative Patient Education
- 6.1.10 Medication teaching
- 6.1.11 Signs and symptoms of infection and rejection
- 6.1.12 Monitoring for infection, rejection and changes in medical status
- 6.1.13 Follow up care post discharge
- 6.2 Long Term Follow-up
 - 6.2.1 Follow up Surveillance program (include common complications diabetes, HTN, hypercholesterolemia)
 - 6.2.2 Current recommendations
 - 6.2.3 Role of surveillance biopsy
 - 6.2.4 Non-transplant complications, frequencies, and treatment strategies
 - 6.2.5 Return to Work, School and Quality of Life
 - 6.2.6 Infection and Malignancy
 - 6.2.7 Common infections and their timing in the post-transplant period
 - 6.2.8 Prevention and treatment of infections
 - 6.2.9 Malignancy Risk
 - 6.2.10 Prevention and treatment of malignancy
 - 6.2.11 Chronic Rejection
 - 6.2.12 Signs and symptoms
 - 6.2.13 Current treatment strategies
 - 6.2.14 Re-transplantation
- 6.3 Transplant Immunology (physiological processes and clinical relevance)
 - 6.3.1 Direct and indirect T-cell activation
 - 6.3.2 Role of passenger leukocytes
 - 6.3.3 Immune processes leading to hyperacute, acute, chronic allograft rejection
 - 6.3.4 GVHD (Graft Vs Host Disease)
 - 6.3.5 Relevance of HLA antibodies in rejection
 - 6.3.6 Non-HLA immunity
 - 6.3.7 Tolerance and Regulatory cell population