

Paper II

Part I: General Subject

25 Marks

1. Research, Publication, Audit and Ethics:

- 1.1. Bio-statistics: Probability, probability distributions, hypothesis tests, parametric and non-parametric statistics, regression and correlation, longitudinal studies
- 1.2. Research Methodology: Title, rationale, study design (non-intervention, intervention), study variables, sampling, data collection, data entry, data analysis, interpretation and dissemination of the results
- 1.3. Clinical trials: Phases and types, Levels of evidence
- 1.4. Clinical audit: Objective, method and steps
- 1.5. Medical ethics, including introduction to ethical theories, medical ethics, professional ethics, ethics in research, ethics in health policy
- 1.6. Informed consent
- 1.7. Evidence based medical practice

2. Medical Education and Training:

- 2.1. General principal, curricular components, the fundamentals of educational process
- 2.2. Continuing Professional Development (CPD)

3. Act/ Regulation related to health:

- 3.1. Human organ transplant act, Consumer protection act
- 3.2. Primary health care
- 3.3. Rational use of drugs, drug policies
- 3.4. NMC and National Health Agencies
- 3.5. National Antibiotic Guideline, 2071
- 3.6. Brain Death Rules/ Regulations

4. Organization of Surgical Gastroenterology services:

- 4.1. Organization of Surgical Gastroenterology services at different levels of health institutions, Networking of services, Referral system

Part II: Technical Subject

100 Marks

1. Esophagus, Stomach, Duodenum, Small Intestine, Appendix, Spleen & Portal hypertension:

1.1 Esophagus:

- 1.1.1 Applied anatomy, physiology & embryology
- 1.1.2 Investigations for different esophageal conditions
- 1.1.3 Neoplasm of esophagus – benign & malignant:
 - 1.1.3.1 Benign Tumor and Cysts of Esophagus
 - 1.1.3.2 Esophageal Cancer
 - 1.1.3.3 Esophagogastric Junction tumor
 - 1.1.3.4 Adjuvant and Neoadjuvant Therapy for Ca Esophagus
- 1.1.4 Other Esophageal conditions:
 - 1.1.4.1 Gastro-esophageal reflux disease, Barret's esophagus
 - 1.1.4.2 Esophageal Injuries

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- 1.1.4.3 Paraesophageal and Other Complex Diaphragmatic Hernias
- 1.1.5 Operative procedures and related complications:
 - 1.1.5.1 Pre and post-operative evaluation and management in esophageal surgery
 - 1.1.5.2 Techniques of Esophageal Resection, Reconstruction and Complications of Esophagectomy
 - 1.1.5.3 Post-operative management
- 1.1.6 Recent advances related to various esophageal conditions and their management

1.2 Stomach, Duodenum, Small Intestine and Appendix:

- 1.2.1 Applied anatomy, physiology & embryology
- 1.2.2 Diagnostic procedures- Barium study, CECT, CT-enteroclysis, MRI, PET scan, Laparoscopy, Diagnostic and Therapeutic Endoscopy of the Stomach and Small Bowel
- 1.2.3 Neoplasm of Stomach, Duodenum, Small bowel and Appendix: Benign and Malignant
 - 1.2.3.1 Benign neoplasm of stomach, duodenum, small intestine and appendix
 - 1.2.3.2 Cancer of stomach: Advanced and Early Gastric Carcinoma
 - 1.2.3.3 Lymphomas
 - 1.2.3.4 Gastrointestinal stromal tumor
 - 1.2.3.5 Carcinoid tumor
 - 1.2.3.6 Adjuvant and Neoadjuvant Therapy for malignant conditions
- 1.2.4 Other conditions:
 - 1.2.4.1 Injuries to the Stomach, Duodenum, and Small Bowel
 - 1.2.4.2 Peptic Ulcer Disease, Zollinger–Ellison Syndrome
 - 1.2.4.3 Foreign Bodies and Bezoars of the Stomach and Small Intestine
 - 1.2.4.4 Small Bowel Obstruction and strangulation, volvulus of the stomach and small bowel
 - 1.2.4.5 Perforation peritonitis
 - 1.2.4.6 Appendicitis
 - 1.2.4.7 Crohn's Disease
 - 1.2.4.8 Tuberculosis of abdomen, peritoneum, small and large bowel
 - 1.2.4.9 Gastric, Duodenal, and Small Intestinal Fistulas
 - 1.2.4.10 Mesenteric Ischemia
 - 1.2.4.11 Radiation injury to stomach and intestine
 - 1.2.4.12 Short bowel syndrome
 - 1.2.4.13 Internal Hernias: Congenital and Acquired
 - 1.2.4.14 Enteral and parenteral feeding–NG, feeding gastrostomy/ jejunostomy
- 1.2.5 Operative procedures and related complications:
 - 1.2.5.1 Various gastric resections, reconstruction, bypass, gastric conduit
 - 1.2.5.2 Post-gastrectomy, Post-vagotomy syndrome
 - 1.2.5.3 Operations for Morbid Obesity and Metabolic Syndrome
 - 1.2.5.4 Bowel resections, lengthening and transplantation.
 - 1.2.5.5 Ileostomy

1.2.6 Recent advances related to various surgical conditions of stomach, duodenum and small intestine and their management

1.3 Spleen:

1.3.1 Applied anatomy, physiology & embryology of spleen

1.3.2 Preoperative evaluation, preparation and complications of splenectomy

1.3.3 Management of splenic trauma in adults and in children

1.3.4 Cysts, tumors and abscess of the spleen

1.3.5 Splenectomy for conditions other than trauma

1.4 Portal Hypertension:

1.4.1 Applied anatomy & Pathophysiology of portal hypertension, location of Portosystemic Shunting

1.4.2 Etiology, clinical presentation, diagnostic work up & management of portal hypertension- cirrhotic & non-cirrhotic

1.4.3 Portal Hypertension in Children

1.4.4 Medical and Endoscopic Management of Bleeding Varices; Primary and Secondary Prophylaxis

1.4.5 Surgery for Esophageal Varices and portal hypertension: Devascularization and Splenectomy, Different shunt procedures- indications, techniques and outcome

1.4.6 Transjugular Intrahepatic Portosystemic Shunting (TIPS): Indications, Technique and complications

2. Liver, Pancreas and Biliary System:

2.1 Embryology, Applied Anatomy, Physiology and Pathology:

2.1.1 Embryologic Development of the Liver, Biliary Tract, and Pancreas

2.1.2 Surgical and Radiologic Anatomy of the Liver, Biliary Tract, and Pancreas

2.1.3 Liver Blood Flow: Physiology, Measurement and Clinical Relevance

2.1.4 Bile Secretion and Pathophysiology of Biliary Tract Obstruction

2.1.5 Assessment of Hepatic Function: Implications for the Surgical Patient

2.1.6 Pancreatic Physiology and Functional Assessment

2.1.7 Pancreatic Cancer and Premalignant Tumors

2.1.8 Biliary Tract Cancer

2.1.9 Infections in Liver, Biliary, and Pancreatic Surgery

2.2 Diagnostic Techniques:

2.2.1 Clinical Investigation of Hepatopancreaticobiliary Disease

2.2.2 Ultrasound of the Liver, Biliary Tract, and Pancreas

2.2.3 Nuclear Medicine Techniques in Hepatobiliary and Pancreatic Disease

2.2.4 Computed Tomography of the Liver, Biliary Tract and Pancreas

2.2.5 Magnetic Resonance Imaging of the Liver, Biliary Tract and Pancreas

2.2.6 Direct Cholangiography: Approaches, Techniques and Current status

2.2.7 Percutaneous Biopsy

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

2.3.1 Interventional Endoscopy: Technical Aspects

2.3.2 Radiologic Hepatobiliary Interventions

2.3.3 Bile Duct Exploration and Biliary-Enteric Anastomosis

2.4 Gall bladder and Biliary Tract Diseases:

2.4.1 Inflammatory, Infective and Congenital:

2.4.1.1 Cholelithiasis and Choledocholithiasis:

- 2.4.1.1.1 Natural History of Gallstones and Asymptomatic Gallstones
- 2.4.1.1.2 Acute and Chronic Cholecystitis: Symptoms, Pathophysiology and Management
- 2.4.1.1.3 Percutaneous Approaches to the Treatment of Gallbladder Disease
- 2.4.1.1.4 Stones in the Bile Duct: Clinical Features, Endoscopic and Percutaneous Approaches
- 2.4.1.1.5 Open Cholecystectomy and Choledocholithotomy
- 2.4.1.1.6 Laparoscopic Cholecystectomy and Choledocholithotomy
- 2.4.1.1.7 Postcholecystectomy Problems

2.4.1.2 Biliary Stricture and Fistula

- 2.4.1.2.1 Biliary Atresia
- 2.4.1.2.2 Primary Sclerosing Cholangitis
- 2.4.1.2.3 Benign Biliary Strictures and biliary fistula

2.4.1.3 Biliary Infection and Infestation

- 2.4.1.3.1 Cholangitis
- 2.4.1.3.2 Recurrent Pyogenic Cholangitis
- 2.4.1.3.3 Biliary Parasitic Disease

2.4.1.4 Cystic Disease of the Biliary Tree - Bile Duct (choledochal) Cysts in Adults and children

2.4.2 Neoplastic:

2.4.2.1 Benign Tumors and Pseudotumors of the Biliary Tract

2.4.2.2 Malignant Tumors

- 2.4.2.2.1 Cancer of the Gallbladder
- 2.4.2.2.2 Cancer of the Bile Ducts
- 2.4.2.2.3 Interventional Techniques in Hilar and intrahepatic Biliary Structures
- 2.4.2.2.4 Adjuvant and Neoadjuvant Therapy

2.5 Pancreatic Disease:

2.5.1 Inflammatory, Infective and Congenital:

2.5.1.1 Congenital Disorders of the Pancreas: Surgical Consideration

2.5.1.2 Pancreatitis

- 2.5.1.2.1 Acute & Chronic Pancreatitis: Etiology, Pathophysiology and Clinical Aspect
- 2.5.1.2.2 Management of Acute Pancreatitis and Complications
- 2.5.1.2.3 Management of Chronic Pancreatitis: Conservative, Endoscopic and Surgical

2.5.2 Neoplasm:

2.5.2.1 Benign and Premalignant Tumors: Cystic Neoplasms of the Pancreas

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- 2.5.2.2 Pancreatic and Periampullary Cancer: Epidemiology, Clinical Aspects, Assessment and Management; Borderline resectable tumours
- 2.5.2.3 Duodenal Adenocarcinomas
- 2.5.2.4 Endocrine Tumors of the Pancreas: Clinical Picture, Diagnosis and Therapy
- 2.5.3 Operative procedures and their complications:
 - 2.5.3.1 Resectional Techniques: Pancreaticoduodenectomy, Distal Pancreatectomy, Segmental Pancreatectomy, Total Pancreatectomy Surgery of the Pancreas: Minimally Invasive Approaches
 - 2.5.3.2 Chemotherapy and Radiotherapy for Pancreatic and Periampullary Cancer: Adjuvant, Neoadjuvant and Palliative
 - 2.5.3.3 Palliation of Pancreatic and Periampullary Tumors

2.6 Hepatic Disease

- 2.6.1 Inflammatory, Infective and Congenital:
 - 2.6.1.1 Liver Infection and Infestation: Pyogenic Liver Abscess, Amebiasis and Other Parasitic Infections, Hydatid Disease of the Liver
 - 2.6.1.2 Simple Cysts and Polycystic Liver Disease
 - 2.6.1.3 Hepatitis, Hepatic Cirrhosis, Portal Hypertension and Hepatic Failure
- 2.6.2 Neoplastic:
 - 2.6.2.1 Tumors of the Liver: Diagnostic & Pathologic Aspects
 - 2.6.2.2 Benign and Premalignant
 - 2.6.2.2.1 Benign Liver Lesions
 - 2.6.2.2.2 Cystic Hepatobiliary Neoplasia
 - 2.6.2.3 Malignant Tumors
 - 2.6.2.3.1 Hepatocellular Carcinoma
 - 2.6.2.3.2 Metastatic Malignant Liver Tumors: Colorectal Cancer & Neuroendocrine
 - 2.6.2.3.3 Hepatic Tumors in Childhood
 - 2.6.2.4 Treatment: Nonresectable
 - 2.6.2.4.1 Hepatic Artery Embolization and Chemoembolization for Liver Tumors
 - 2.6.2.4.2 Percutaneous Methods for Ablating Liver Tumors
 - 2.6.2.4.3 Radiofrequency Ablation for Liver Tumors
 - 2.6.2.4.4 Microwave Ablation and Emerging Technologies for Liver Tumors
 - 2.6.2.4.5 Regional Chemotherapy for Liver Tumors
 - 2.6.2.4.6 Systemic Chemotherapy for Hepatic Colorectal Cancer
 - 2.6.2.4.7 Systemic Therapy for Hepatocellular Carcinoma
- 2.6.3 Operative procedures and their complications:
 - 2.6.3.1 Hepatic Resection: General Considerations, Resection for Benign Disease and for Liver and Biliary Tumors
 - 2.6.3.2 Extended Hepatic Resections for Biliary Tumors: An Alternative Approach
 - 2.6.3.3 Minimally Invasive Techniques in Hepatic Resection
 - 2.6.3.4 Vascular Reconstruction Techniques

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2.6.3.5 Segment-Oriented Anatomic Liver Resections

2.6.3.6 Preoperative Portal Vein Embolization: Rationale, Indications, Technique and Results

2.6.3.7 Adjuncts to Hepatic Resection: Ultrasound and Emerging Guidance Systems

2.7 Hepatobiliary Injury and Hemorrhage:

2.7.1 Injuries to the Liver and Biliary Tract

2.7.2 Pancreatic and Duodenal Injuries

2.7.3 Aneurysm and Arteriovenous Fistula of the Liver and Pancreatic Vasculature

2.7.4 Hemobilia and Bilhemia

2.8 Recent advances related to management of Hepato-pancreato-biliary diseases and transplantation

3. Colon, Rectum, and Anus:

3.1 Anatomy, Physiology and Diagnosis of Colorectal and Anal Disease:

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

3.1.2 Physiology of the Colon and Its Measurement

3.1.3 Diagnostic procedures of Colon, Rectal, and Anal Disease

3.2 Benign Colon, Rectal and Anal Conditions:

3.2.1 Pelvic Floor Dysfunction, Rectal Prolapse

3.2.2 Rectovaginal and Rectourethral Fistulas, Pilonidal Disease

3.2.3 Traumatic Colorectal Injuries, Foreign Bodies

3.2.4 Colonic Intussusception and Volvulus, Bleeding and Ischemia

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

3.2.6 Miscellaneous Disorders of the Rectum and Anus

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

3.2.8 Anorectal Anomalies

3.3 Neoplastic Diseases:

3.3.1 Colorectal Polyps and Polyposis Syndromes

3.3.2 Adenocarcinoma of the Colon and Rectum

3.3.3 Operations for Colorectal Cancer & Recurrent and Metastatic Colorectal Cancer

3.3.4 Resection and Ablation of Metastatic Colorectal Cancer to the Liver

3.3.5 Neoplasms of the Anus

3.3.6 Adjuvant and Neoadjuvant Therapy for Colorectal Cancer

3.3.7 Radiation Injuries to the Rectum

3.4 Colorectal surgeries: Indications, Pre-operative preparation, Techniques and Complications:

3.4.1 Pre-operative preparation, Antibiotics, Approaches, Strategy and Anastomoses

3.4.2 Different colonic and rectal surgeries

3.4.3 Laparoscopic Colorectal Surgery

3.4.4 Colostomy and Ostomy Management

3.4.5 Reoperative Pelvic Surgery

3.5 Recent advances related to management of colorectal and anal diseases

4. Peritoneum, mesentery, retroperitoneum and abdominal wall:

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4.1 Abdominal Wall:

- 4.1.1 Surgical Anatomy & physiology
- 4.1.2 inguinal hernias, ventral hernias & its management : open & laparoscopic
- 4.1.3 Congenital Abnormalities & Acquired Abnormalities

4.2 Peritoneum & Omentum:

- 4.2.1 Applied anatomy, physiology and embryology- Recesses, reflection, subdiaphragmatic spaces
- 4.2.2 Peritonitis – Primary , Secondary & Tertiary
- 4.2.3 Peritoneal Tuberculosis
- 4.2.4 Pseudomyxoma peritoni, primary peritoneal tumors
- 4.2.5 Ascites : Diagnostic investigation and management
- 4.2.6 Peritoneoscopy
- 4.2.7 Omental Cysts
- 4.2.8 Omental Neoplasms

4.3 Mesentery:

- 4.3.1 Applied Anatomy
- 4.3.2 Sclerosing Mesenteritis
- 4.3.3 Mesenteric Cysts
- 4.3.4 Mesenteric Tumors

4.4 Retroperitoneum

- 4.4.1 Surgical Anatomy
- 4.4.2 Retroperitoneal Infections
- 4.4.3 Retroperitoneal Fibrosis
- 4.4.4 Retroperitoneal tumors

5. Laparoscopic surgery:

- 5.1 Definition of minimal access surgery, advantage and disadvantage,
- 5.2 Pre-operative evaluation, indication and contraindication of laparoscopic surgery
- 5.3 Creation of pneumoperitoneum - open/ close technique and its complications
- 5.4 Complications of Laparoscopic Surgery and Management
- 5.5 Limitations of laparoscopic surgery
- 5.6 Principles of Electrosurgery during laparoscopic surgery
- 5.7 Various Laparoscopic procedures – Lap cholecystectomy, Lap gastrectomy, Lap colorectal surgeries, Lap inguinal and ventral hernia surgeries
- 5.8 Recent advances related to laparoscopic surgery

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