

Paper II : Technical Subject

1. Basic Sciences

- 1.1 Embryology, anatomy, histology and developmental anomalies of liver, biliary system and pancreas
- 1.2 Functional liver anatomy, liver cell biology and molecular biology, liver chemistry and liver function test
- 1.3 Physiology and pathophysiology of diseases of liver and biliary tract
- 1.4 Microcirculation of liver and portal hemodynamics
- 1.5 Metabolic functions of liver including drug metabolism
- 1.6 Physiology of hepatobiliary system and energy metabolism, bilirubin metabolism and its disorders
- 1.7 Physiology of bile formation & excretion
- 1.8 Physiology of exocrine and endocrine pancreas
- 1.9 Pancreatic enzymes, regulation and feedback mechanisms
- 1.10 Enterohepatic circulation
- 1.11 Immunology relevant to liver diseases
- 1.12 Molecular and genetic factors in liver function and disease
- 1.13 Liver hormones in health & diseases
- 1.14 Liver related microbiology, clinical chemistry & hematology
- 1.15 Gut-liver, liver-heart, and liver-brain axes
- 1.16 Liver regeneration
- 1.17 Epidemiology and preventive hepatology
- 1.18 Surgical and vascular anatomy relevant to liver transplant and resection

2. Clinical Problems and Nutrition

- 2.1 Liver disease symptoms: physiology and interpretation
- 2.2 Liver function test abnormalities
- 2.3 Approach to the patient with jaundice
- 2.4 Liver disease in systemic disorders
- 2.5 Cutaneous manifestation of liver disease
- 2.6 Space occupying lesions in liver: imaging and diagnostic approach
- 2.7 Preoperative and postoperative liver dysfunction
- 2.8 Liver and HIV
- 2.9 **Nutrition**
 - 2.9.1 Normal nutritional requirement
 - 2.9.2 Nutritional assessment and management
 - 2.9.3 Protein energy malnutrition, manifestations and management of nutritional deficiency & excess
 - 2.9.4 Nutritional support in various liver diseases
 - 2.9.5 Sarcopenia and frailty in liver disease

2.9.6 Nutrition in post liver transplant

2.9.7 Obesity

3. Liver Diseases

3.1 Acute and chronic liver diseases

3.2 Portal hypertension

3.2.1 Cirrhosis

3.2.2 Extrahepatic portal vein obstruction

3.2.3 Non cirrhotic portal fibrosis

3.3 Cirrhosis of liver with the emphasis on the spectrum of alcohol related disorder

3.4 Ascites

3.5 GI bleeding

3.6 Hepatic encephalopathy

3.7 Hepatic hydrothorax and spontaneous bacterial peritonitis and empyema

3.8 Renal failure in liver disease /hepatorenal syndrome

3.9 Hepatopulmonary syndrome and Porto-pulmonary hypertension

3.10 Viral hepatitis (acute and chronic): Hepatitis A, E, B, C & D, non-hepatotropic viral hepatitis

3.11 Acute liver failure

3.12 Acute on chronic liver failure

3.13 Autoimmune liver disease and overlap syndromes

3.14 Cholestatic liver disorders: Primary biliary cholangitis, primary sclerosing cholangitis

3.15 Metabolic dysfunction- associated Steatosis liver disease

3.16 Drug induced liver injury (DILI): Liver diseases caused by drugs, anesthetics and toxins; herbal medicine and dietary supplements

3.17 Vascular diseases of liver: hepatic venous outflow tract obstruction, PVT, SVT, EHPVO, idiopathic non-cirrhotic intrahepatic portal HTN, Porto-Sinusoidal Vascular Disease (PSVD), Budd Chiari Syndrome

3.18 Fibrocystic disease of the liver

3.19 Wilson's disease

3.20 Hemochromatosis

3.21 Liver infection: liver abscess, bacterial, parasitic and fungal; tropical liver diseases

3.22 Granulomatous liver diseases

3.23 Hepatic trauma

3.24 Liver heart disease

3.25 Genetic disease of liver

4. Biliary and Pancreatic Diseases

4.1 Biliary diseases

4.1.1 Gall stone, its complications & management

4.1.2 Acute calculous cholecystitis

- 4.1.3 Miscellaneous disorders of the gall bladder
- 4.1.4 Acute cholangitis
- 4.1.5 Benign biliary structures
- 4.1.6 Benign & malignant neoplasm of the biliary system
- 4.1.7 Endoscopic management of biliary obstruction
- 4.1.8 Motility & dysmotility of the biliary system & sphincter of oddi dysfunction
- 4.1.9 Congenital diseases of the biliary system
- 4.1.10 Sclerosing cholangitis & recurrent pyogenic cholangitis
- 4.2 **Pancreatic diseases**
 - 4.2.1 Acute and chronic pancreatitis
 - 4.2.2 Autoimmune pancreatitis
 - 4.2.3 Pancreatic cystic lesions
 - 4.2.4 Pancreatic neoplasms
 - 4.2.5 Pancreatic neuroendocrine disorders
- 5. **Transplant Hepatology, Hepatobiliary Diseases and Research**
 - 5.1 **Transplant Hepatology and Artificial Liver Support**
 - 5.1.1 Preoperative and perioperative assessment
 - 5.1.2 Post-operative management and long-term follow-up
 - 5.1.3 Immunosuppression principles
 - 5.1.4 Donor/recipient evaluation and graft assessments
 - 5.1.5 ICU care related to liver transplant patients
 - 5.1.6 Surgical and medical aspects of transplant care
 - 5.2 Pediatric and geriatric hepatobiliary diseases
 - 5.3 Liver in pregnancy
 - 5.3.1 Physiological changes in the liver during pregnancy
 - 5.3.2 Disease typical to pregnancy
 - 5.4 Research on hepatobiliary diseases
- 6. **Hepatobiliary Radiology, Procedures and Pathology**
 - 6.1 **Hepatobiliary Radiology**
 - 6.1.1 X-ray films of the abdomen
 - 6.1.2 Barium swallow, ultrasound of abdomen and doppler studies
 - 6.1.3 Radionuclide scan
 - 6.1.4 CT scan, MRI, Endoscopic ultrasound
 - 6.1.5 Transient elastography
 - 6.1.6 Angiography
 - 6.1.7 Radiologic guided procedures
 - 6.1.8 Hepatic fibrosis and non-invasive assessment of liver fibrosis & cirrhosis
 - 6.2 **Hepatobiliary and Pancreatic Procedures**
 - 6.2.1 Diagnostic upper GI endoscopy

- 6.2.2 Endoscopic variceal therapy (EVL, Sclerotherapy, Glue)
- 6.2.3 Liver biopsy (percutaneous/trans jugular, EUS guided)
- 6.2.4 Paracentesis
- 6.2.5 HVPG measurement
- 6.2.6 Partial splenic embolization
- 6.2.7 TIPS
- 6.2.8 BRTO, PARTO, CARTO
- 6.2.9 Argon plasma coagulation
- 6.2.10 EPCP (Endoscopic Retrograde Cholangiopancreatography)
- 6.2.11 Percutaneous therapies of HCC (Thermal and Non thermal therapies)
- 6.2.12 EUS guided procedures in hepatobiliary and pancreatic diseases

6.3 Hepatobiliary Pathology

- 6.3.1 Reading & interpreting histological slides of common hepatobiliary diseases

6.4 Laboratory Investigations in Hepatobiliary Pathology(HPB) diseases

- 6.4.1 Common laboratory tests
- 6.4.2 Interpretations of different LFT
- 6.4.3 Viral serology (Hepatitis A, B, C, D, E)
- 6.4.4 Non hepatotropic viral serology