

पाटन स्वास्थ्य विज्ञान प्रतिष्ठान सेवा आयोग  
प्राज्ञिक सेवा, इन्टर्नल मेडिसिन समूह, **Cardiology** उपसमूह सहायक प्राध्यापक पद, नौ ख (९ ख) तहको  
खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

**Paper II: Technical Subject**  
**Section (A) - 45 Marks**

1. **Clinical Cardiology:** Etiopathology, hemodynamic, clinical evaluation, non-invasive and invasive evaluation and management strategies for the following disorders:
  - 1.1 **Coronary artery disease**  
Coronary Blood Flow and Myocardial Ischemia, Approach to the Patient with Chest Pain, Classification of myocardial infarction, ST-Elevation Myocardial Infarction: Pathology, Pathophysiology, and Clinical Features, ST-Elevation Myocardial Infarction: Management, Primary Percutaneous Coronary Intervention in the Management of Acute Myocardial Infarction, Unstable Angina and Non-ST Elevation Myocardial Infarction, Chronic Coronary Artery Disease
  - 1.2 **Rheumatic heart disease**  
Rheumatic Fever, Rheumatic Diseases and the Cardiovascular System
  - 1.3 **Congenital heart disease**  
Aortic Valve Stenosis (AVS), Atrial Septal Defect (ASD), Coarctation of the Aorta (CoA), Complete Atrioventricular Canal defect (CAVC), d-Transposition of the Great Arteries, Ebstein's Anomaly, Hypoplastic Left Heart Syndrome, I-Transposition of the Great Arteries, Patent Ductus Arteriosus (PDA), Pulmonary Atresia, Pulmonary Valve Stenosis, Single Ventricle Defects, Tetralogy of Fallot, Total Anomalous Pulmonary Venous Connection (TAPVC), Tricuspid Atresia, Truncus Arteriosus, Ventricular Septal Defect (VSD)
  - 1.4 **Pericardial diseases**  
Pericarditis, pericardial effusion, cardiac tamponade, and constrictive pericarditis
  - 1.5 **Cardiac arrhythmias**  
Genesis of Cardiac Arrhythmias: Electrophysiological Considerations, Diagnosis of Cardiac Arrhythmias, Therapy for Cardiac Arrhythmias, Cardiac Pacemakers and Cardioverter-Defibrillators, Specific Arrhythmias: Diagnosis and Treatment, Cardiac Arrest and Sudden Cardiac Death, Hypotension and Syncope.
  - 1.6 **Valvular Heart Disease**  
Aortic valve stenosis, Aortic regurgitation, Mitral valve stenosis, Mitral regurgitation, Tricuspid valve stenosis, Tricuspid regurgitation, Pulmonary valve stenosis and Pulmonary regurgitation
  - 1.7 **Heart failure**  
Mechanisms of Cardiac Contraction and Relaxation, Pathophysiology of Heart Failure, Clinical assessment, Classification of heart failure, Acute Heart Failure, Systolic Heart Failure, Heart Failure w/Preserved Systolic Fx, Surgical management of Heart Failure, Assisted Circulation in the treatment of Heart Failure, Emerging therapies for Heart Failure, Care of Patients with End-Stage Heart Disease.

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1.8 **Systemic diseases involving a heart**

- Diabetes Mellitus, Thiamine deficiency, Hyperthyroidism, Hypothyroidism, Malignant carcinoid, Pheochromocytoma, Acromegaly, HIV, Amyloidosis, Sarcoidosis, Hemochromatosis, Marfan syndrome, Ehlers-Danlos syndrome
- Rheumatic disorders & cardiovascular diseases (RA, SLE, SpA, psoriatic arthritis etc)
- Neurological disorders & cardiovascular diseases
- Renal disorders & cardiovascular diseases
- Cancer patient & cardiovascular diseases
- Cardiovascular manifestations of autonomic disorders
- Infections & heart (Infective endocarditis, HIV & others)
- Toxins & heart

1.9 **Heart muscle diseases**

Classification of heart muscle disease, Dilated cardiomyopathy (DCM), Hypertrophic cardiomyopathy (HCM), Restrictive cardiomyopathy (RCM), Left Ventricular Non-compaction (LVNC), Arrhythmogenic Right Ventricular Dysplasia (ARVD), Stress-related cardiomyopathy

1.10 **Traumatic heart disease**

1.11 **Tumours of heart**

**Section (B) - 55 Marks**

2. **Clinical Cardiology:** Etiopathology, hemodynamic, clinical evaluation, non-invasive and invasive evaluation and management strategies for the following disorders:

2.1 **Peripheral vascular disorders**

2.2 **Pulmonary thromboembolism and pulmonary hypertension**

2.3 **Systemic hypertension**

2.4 **Genetics, molecular biology and immunology related to cardiology**

Molecular Biology, Genomics and Proteomics in Cardiovascular Disease, Genetics and Cardiovascular Disease, Genetics of Cardiac Arrhythmias, Genetics of Myocardial Disease

2.5 **Geriatric heart disease**

2.6 **General anaesthesia and non-cardiac surgery in patients with heart disease**

2.7 **Pregnancy and heart disease**

2.8 **Epidemiology and preventive cardiology**

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The Vascular Biology of Atherosclerotic disorders and Cardiovascular Disease, The Metabolic Syndrome, Diabetes Mellitus, and Atherosclerotic Vascular Disease, Nutrition and Cardiovascular Disease, Primary and Secondary Prevention of Coronary Heart Disease, Comprehensive Rehabilitation of Patients with Cardiovascular Disease, Complementary and Alternative Approaches to Management

3. **Non-invasive Technique:** To perform and interpret various non-invasive techniques including:
  - 3.1 Electrocardiography
  - 3.2 Radiography-routine and specialized areas like CT and MRI
  - 3.3 Stress testing-tread mill test, stress-related and other nuclear techniques
  - 3.4 Holter monitoring for arrhythmias and ischemic disorders
  - 3.5 Echocardiography-M-mode, two dimensional, Doppler, colour flow imaging, transoesophageal echocardiography and echo directed hemodynamic studies
4. **Invasive Cardiology**
  - 4.1 Experience in cardiac catheterization to calculate and interpret various hemodynamic parameters
  - 4.2 Right and left heart Cath and coronary angiography procedures in adults and children
  - 4.3 To perform temporary pacemaker insertion
  - 4.4 To assist in various interventions including valvuloplasty, coronary and congenital interventions
  - 4.5 Electrophysiology: To interpret electrophysiological data and assist in electrophysiology procedures, permanent pacemaker implantation