लोक सेवा आयोग

नेपाल स्वास्थ्य सेवा, मेडिसिन समूह, कार्डियोलोजी उपसमूह, नवौं (९) तहको खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

Paper II: Technical Subject

1. Clinical: (20 Marks)

(Definition, Pathophysiology, Epidemiology, Features of History, Examination findings, Differential Diagnosis, Investigations indicated, detailed initial management and principles of ongoing management (counselling, lifestyle, medical, surgical, care setting and follow up)

1.1 Coronary artery Diseases
1.2 Rheumatic Fever and Rheumatic Heart Diseases
1.3 Congenital Heart diseases
1.4 Vascular Disorders
1.5 Pulmonary Thrombo-embolism and Pulmonary Hypertension
1.6 Systemic Hypertension
1.7 Systemic Diseases involving Heart and its Vessels
1.8 Heart Muscle Diseases
1.9 Tumors of Heart
1.10 Genetics, molecular biology and immunology related to Cardiology
1.11 Geriatric heart diseases
1.12 General Anaesthesia and non-cardiac surgery in heart patients
1.13 Pregnancy and heart diseases
1.14 Epidemiology, preventive and rehabilitative cardiology
1.15 Pericardial Diseases
1.16 Cardiac Arrhythmias
1.17 Approach to common cardiac symptoms like Chest pain, Shortness of Breath and Syncope.

2. Core Procedures and Investigations: (50 Marks)

2.1 **Basic Investigations:**

(Investigations for the diagnosis and assessment of patients with cardiac disease - Level 3)

2.1.1 Electrocardiograms
2.1.2 AmbulatoryECG
2.1.3 Exercise Testing
2.1.4 CXR
2.1.5 Ambulatory BP

2.2 **Echocardiography (Core)**

2.2.1 Role of echocardiography in the management of patients with cardiac disease (Level 3)
2.2.2 To be able to satisfactorily perform, interpret and report transthoracic echocardiography for the diagnosis & assessment of adult patients (Level 3)
2.2.3 To recognise the indications for advanced echocardiography, e.g. transoesophageal and stress echocardiography (Level 1 and 2)
2.2.4 Demonstrate knowledge of:

2.2.4.1 Indications for echocardiography in emergency, in-patient and out patient settings. Ethics and sensitivities of patient care.
2.2.4.2 Basic principles of ultrasound imaging, spectral and colour flow Doppler. Basic instrumentation and scanning. Standard methods of measurement and analysis.
2.2.4.3 the echocardiographic assessment of ventricular structure and function in normal and abnormal cases
2.2.4.4 the echocardiographic assessment of the cardiac valves in normal and abnormal cases, including prosthetic heart valves
2.2.4.5 Echocardiographic assessment of the thoracic aorta in normal (e.g. screening) and abnormal cases
2.2.4.6 Use of echocardiography to assess the right heart; measurement of pulmonary artery pressure
2.2.4.7 Role and echocardiographic assessment of patients with suspected or confirmed endocarditis, intracardiac mass, pericardial disease
2.2.4.8 Indications for and limitations of advanced echocardiography: tissue Doppler/strain analysis, contrast echo, 3D echocardiography, transoesophageal echocardiography, stress echocardiography , perioperative echocardiography

2.3 **Nuclear cardiology (Core):**
2.3.1 To be able to define the indications for nuclear Cardiology investigations
2.3.2 To understand the clinical significance and limitations of the results of nuclear Cardiology investigations having participated in stress, imaging, and reporting sessions
2.3.3 Knowledge on : the indications for MPS and ERNV, the importance of radiation protection IRMER, the methods of stress used in MPS Exam,the radiopharmaceuticals and protocols used in MPS and ERNV Exam, the equipment and techniques used in nuclear Cardiology imaging IRMER, the clinical value of MPS and ERNV in different clinical settings

2.4 **CMR Resonance (core)**
2.4.1 To have a basic understanding of the role of CMR and its capabilities, including its indications
2.4.2 To have a basic understanding of how the procedures are carried out, in particular the safety issues
2.4.3 To have a basic understanding of image analysis, post-processing and interpretation of images and data with emphasis on patient management
2.4.4 Knowledge on : the indications and contra-indications to CMR Exam, the basics of CMR safety , the basics of CMR image acquisition and image processing, the basics of CMR imaging protocols (anatomical imaging and functional imaging) The limitations of CMR

2.5 **Cardiac CT (core)**
2.5.1 Cardiac Computed Tomography Techniques including contrast administration
2.5.2 Modalities: Ultra-fast CT and Coronary angiogram (including grafts and stents)
2.5.3 Indications for: Calcium score Exam and CT coronary angiography

2.6 **Heart Rhythm Training (core):**

2.6.1 Common cardiac arrhythmia particularly in emergency setting like supra ventricular tachycardia, atrial fibrillation, ventricular tachycardia and do temporary pacing

2.6.2 Basic concepts, and theoratical knowledge of different rhythm management procedures like permanent pacing, AICD, CRT etc.

2.7 **Invasive and Interventional Cardiology (core)**

2.7.1 Basic understanding, indications, contraindications and technical aspects of various invasive diagnostic procedures like, coronary angiography, right heart catheterization, left heart catheterization, hemodynamic study, Pericardiocentesis, electrophysiological study and others.

2.7.2 Basic understanding, indications, contraindications and technical aspects of temporary and permanent pacemaker implantation.

2.7.3 Basic understanding, indications, contraindications and technical aspects of coronary angioplasty, mitral balloon valvoplasty and other non-coronary percutaneous interventions.

2.8 **Pericardiocentesis:** Candidates must be capable of performing pericardiocentesis

3. General Internal Medicine: (30 Marks)

3.1 Specialist level competence in the diagnostic evaluation and management of life threatening acute medical conditions including Advanced Cardiac Life Support (ACLS)

3.2 Specialist level competence in general internal medicine including the evaluation, diagnosis and management of major clinical conditions related to pulmonary, renal, gastrointestinal, musculoskeletal, endocrine, hematologic, nervous system and infectious diseases

3.3 Principle of Geriatric Medicine and Palliative Care
