

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 and current practice guidelines)
- 1.1 History taking and Clinical SubjectExamination in cardiology
 - 1.2 Coronary artery Diseases
 - 1.3 Rheumatic Fever and Rheumatic Heart Diseases
 - 1.4 Congenital Heart diseases
 - 1.5 Vascular Disorders
 - 1.6 Pulmonary Thrombo-embolism and Pulmonary Hypertension
 - 1.7 Systemic Hypertension
 - 1.8 Systemic Diseases involving Heart and its Vessels
 - 1.9 Heart Muscle Diseases
 - 1.10 Tumors of Heart
 - 1.11 Heart Failure
 - 1.12 Sudden death
 - 1.13 Cardiopulmonary resuscitation (CPR)
 - 1.14 Geriatric heart diseases
 - 1.15 General Anaesthesia and non-cardiac surgery in heart patients
 - 1.16 Pregnancy and heart diseases
 - 1.17 Pericardial Disease
 - 1.18 Condecction disturbances of the Heart
- 2. Epidemiology, Prevention of Cardiovascular Diseases and Cardiac Rehabilitation (20 Marks)**
- 2.1 Epidemiology and Worldwide burden of cardiovascular diseases
 - 2.2 Cardiovascular risk factors :
 - 2.2.1 Age, Sex and Race
 - 2.2.2 Heredity
 - 2.2.3 Dietary imbalances
 - 2.2.4 Physical inactivity
 - 2.2.5 Obesity
 - 2.2.6 Abnormal lipids
 - 2.2.7 Hypertension
 - 2.2.8 Glucose intolerance and Diabetes Mellitus
 - 2.2.9 Tobacco use
 - 2.2.10 Alcohol consumption
 - 2.2.11 Adverse Psychological patterns
 - 2.2.12 Socioeconomic conditions
 - 2.2.13 Modernization
 - 2.2.14 Novel risk factors

लोक सेवाआयोग
नेपाल स्वास्थ्य सेवा, मेडिसिन समूह, कार्डियोलोजीउपसमूह, एघारौं (११) तहको खुला र आन्तरिक प्रतियोगितात्मकलिखित
परीक्षाको पाठ्यक्रम

- 2.3 Primordial, Primary and Secondary prevention of coronary heart disease
- 2.4 Prevention of Rheumatic fever/Rheumatic heart disease
- 2.5 Prevention of congenital heart diseases
- 2.6 International and national prevention policies
- 2.7 Advancement of epidemiological research for the prevention of cardiovascular diseases.
- 2.8 Cardiac Rehabilitation:
 - 2.8.1 Recommendation and guidelines
 - 2.8.2 Rationale
 - 2.8.3 Principles of cardiac rehabilitation
 - 2.8.4 Practical implementation of cardiac rehabilitation programs

3. Intervensional Cardiology (15 Marks)

- 3.1 Basics of X –Ray
- 3.2 Radiation hazard and protection from it
- 3.3 Benefits and limitations of interventional cardiology
- 3.4 Procedures done at the catheterization Laboratory
- 3.5 Different imaging angles and their value
- 3.6 Coronary anatomy
- 3.7 Guidelines for different procedures : Indication, Principles and Techniques
 - 3.7.1 Percutaneous coronary Angioplasty Guideline
 - 3.7.2 Guideline for coronary angiography
 - 3.7.3 Percutaneous Mitral valvotomy guidelines
 - 3.7.4 Aortic and Pulmonary valvotomy guidelines
- 3.8 Role of Catheterization study in structural heart disease
- 3.9 Catheterization laboratory Complication and it management

4. Cardiac Electrophysiology (15 Marks)

- 4.1 Normal electrical flow in the heart
- 4.2 Atrial and ventricular ectopics
- 4.3 When to and when not to treat atrial and ventricular ectipics
- 4.4 Ventricular tachycardia
 - 4.4.1 Causes and Management (acute and long term)
- 4.5 Supraventricular tachycardias
 - 4.5.1 Causes and Management (acute and long term)
- 4.6 Indication and role of Electrophysiological study
- 4.7 Different types of Brady arrhythmias
 - 4.7.1 Heart block, Etiology and Management
- 4.8 Guidelines on the indication of pacemaker implantation
- 4.9 Guidelines on the implantation of Intra cardiac Defibrillator (ICD),
- 4.10 Guidelines on Cardiac resynchronization therapy (CRT)

5. Non –invasive Cardiology

(15 Marks)

- 5.1 Electrocardiogram
 - 5.1.1 indication and role of EKG in Cardiology; Knowledge of normal and abnormal EKG
 - 5.1.2 Holter or Ambulatory ECG and 24 Hrs Arterial Blood Pressure Monitoring
 - 5.1.2.1 Indications and analysis
 - 5.1.3 Exercise ECG Testing/ Trade mill test
 - Role of Treadmill test in patient with Coronary artery diseases.
 - 5.1.3.1 Indications, Contraindications and Limitations
 - 5.1.3.2 Exercise Protocols
 - 5.1.3.3 Interpretation of exercise ECG and data
- 5.2 Chest X-Ray :Role of CXR in diagnosis and management of patients with cardiac disease
 - 5.2.1 Indications, Advantages and Limitations
 - 5.2.2 Interpretation of CXR findings
- 5.3 Echocardiography
 - 5.3.1 Role of echocardiography in the management of patients with cardiac disease
 - 5.3.2 Perform, interpret and report transthoracic and transoesophageal echocardiography for the diagnosis & assessment of cardiac patients
 - 5.3.3 Indications, contraindications, limitations of basic and advanced echocardiography, tissue Doppler/strain analysis, contrast echo, 3D echocardiography, transoesophageal echocardiography, stress echocardiography, perioperative echocardiography
 - 5.3.3.1 Contrast echocardiography
 - 5.3.3.2 Three Dimentional Echocardiography
 - 5.3.3.3 Transoesophegeal echocardiography
 - 5.3.3.4 Dobutamine Stress echocardiography
- 5.4 Nuclear cardiology
 - 5.4.1 To be able to understand the nuclear Cardiology
 - 5.4.2 To understand the clinical significance of the results of nuclear Cardiology
 - 5.4.2.1 Types of nuclear scan
 - 5.4.2.2 Role of PET Scanning in cardiology
 - 5.4.2.3 Image interpretation and clinical applications of MPS (Myocardial Perfusion Scanning) and myocardial viability test
- 5.5 Cardiac Magnetic Resonance (CMR)
 - 5.5.1 To know the basics of Cardiac MRI , its Indications and Contraindications
 - 5.5.2 To have a basic understanding of procedures, image analysis, interpretation of MRI data for diagnosis and management of the cardiac diseases
- 5.6 Cardiac CT Scan
 - 5.6.1 Basics of Cardiac CT, its Indications and Contraindications
 - 5.6.2 To have a basic understanding of procedures, Image Analysis, interpretation of Cardiac CT data for diagnosis and management of the cardiac diseases

6. Research and Recent Advances in cardiology

(15 Marks)

- 6.1 Importance of research in cardiology
- 6.2 To be able to define the research in health and diseases
- 6.3 To be able to do the independent research.
 - 6.3.1 Research proposal writing
 - 6.3.2 Research methodology
 - 6.3.3 Types of researches
 - 6.3.4 Clinical trials
 - 6.3.5 Case and control study
 - 6.3.6 Sampling
 - 6.3.7 Different methods of data collection
 - 6.3.8 Data processing, tabulation and analysis
 - 6.3.9 Final Report writing
- 6.4 Recent Advances in cardiology
 - 6.4.1 To be able to do the safe and up to date cardiology practice according to the latest recommendation
 - 6.4.2 Recent trend and advances in the field of cardiology, and the latest recommendation in global scenario
 - 6.4.2.1 ACC/AHA guidelines and their updates
 - 6.4.2.2 European society of cardiology recommendation
 - 6.4.2.3 National recommendation
 - 6.4.2.4 Any ongoing major trials and meta-analysis
