

शहीद गंगालाल राष्ट्रिय हृदय केन्द्र, पदपूर्ति समिति

पद : रजिष्ट्रार पिडियाट्रिक कार्डियोलोजी सेवा -प्राविधिक, समूह - मेडिकल, उप-समूह - पिडियाट्रिक कार्डियोलोजी) रा.प. द्वितीय (ख) को खुल्ला /आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम एवं परीक्षा योजना

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :- लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

प्रथम चरण (First Phase) : लिखित परीक्षा योजना (Written Examination Scheme)

Paper	Subject	Full Marks	Pass Marks	No. Questions & Weightage	Time Allowed
I	Technical Subject	100	40	(Objective Multiple Choice Questions) 50 × 2 = 100	1.00 hrs
II		100	40	(Subjective Descriptive Type) 6 × 10 = 60 (Long answer) 2 × 20 = 40 (Problem Solving)	3.00 hrs

द्वितीय चरण (Second Phase)

Subject	Full Marks	Examination
Interview	30	Oral

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथम र द्वितीय पत्रको विषयवस्तु एउटै हुनेछ । तर प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- परीक्षार्थीले वस्तुगत बहुवैकल्पिक प्रश्नको उत्तर लेख्दा अंग्रेजी ठूलो अक्षर (Capital letter) A, B, C, D मा लेख्नुपर्नेछ । सानो अक्षर (Small letter) a, b, c, d लेखेको वा अन्य कुनै सङ्केत गरेको भए सबै उत्तरपुस्तिका रद्द हुनेछ ।
- बहुवैकल्पिकप्रश्नहरू हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (Calculator) प्रयोग गर्न पाइने छैन ।
- विषयगत प्रश्नहरूको हकमा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
- विषयगत प्रश्नमा प्रत्येक पत्र/विषयका प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- द्वितीय पत्रमा तोकिएको पाठ्यक्रमबाट सम्बन्धित पदको लागि आवश्यक Competency मा आधारित कम्तीमा दुई वटा Competency Based प्रश्नहरू लिखित परीक्षामा सोधिनेछ ।
- यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भएतापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरू परीक्षाको मितिभन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागु मिति : : आ.व. २०७८/०७९ देखि

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कार्डियोलोजि) रा.प. द्वितीय (ख) को खुल्ला /आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

Paper I & II: - Technical Subject

Section (A): 60% Marks
For Paper I (30 MCQs ×2 marks) &
For Paper II (4×10 marks, 1×20 marks)

1. Paeditric Cardiology

1.1 Development of Cardiovascular System:

- 1.1.1 Development of myocardial structure and function.
- 1.1.2 Fetal and postnatal circulation.
- 1.1.3 Etiology of cardiovascular malformation.

1.2 Evaluation of Cardiac patients:

- 1.2.1 History taking and physical examination, ECG, chest roentgenography, Echocardiography, Foetal Echocardiography, Cardiac CT.

1.3 Pathology of Cardiovascular System:

- 1.3.1 Cardiac anatomy.
- 1.3.2 Classification and terminology of cardiovascular anomalies.

1.4 Chamber localization & Cardiac Malposition:

- 1.4.1 Chamber localization, Dextrocardia & Mesocardia.

1.5 Congenital Heart Defects:

- 1.5.1 **Left to right shunt lesions:** ASD, VSD, PDA, Atrioventricular Septal Defect, Aortopulmonary Window, Partial Anomalous Pulmonary Venous Connection.
- 1.5.2 **Obstructive lesions:** Pulmonary Stenosis, Aortic stenosis, Coarctation of aorta, Shone Complex, Interrupted aortic arch.
- 1.5.3 **Cyanotic congenital heart diseases:** TOF, TOF with Pulmonary Atresia, TOF with absent Pulmonary Valve, Transposition of Great Arteries, Congenitally Corrected TGA, Total Anomalous Pulmonary Venous Connection, Tricuspid Atresia, Pulmonary Atresia with Intact Ventricular Septum, Ebstein's Anomaly, Persistent Truncus Arteriosus, Hypoplastic Left Heart Syndrome, Single Ventricle, Double Outlet Right Ventricle, Persistent Pulmonary Hypertension of the Newborn, Heterotaxia.
- 1.5.4 **Miscellaneous Congenital Cardiac Conditions:** Arteriovenous Fistula: Coronary, Pulmonary, Systemic; Atrial Septal Aneurysm, Common Atrium, CorTriatriatum, Patent Foramen Ovale, Cleft Mitral Valve, Parachute Mitral Valve.

1.6 Acquired Heart Diseases:

- 1.6.1 **Myocardial diseases:** HCM, DCM, Restrictive Cardiomyopathy, Noncompaction Cardiomyopathy, Endomyocardial fibroelastosis, Right Ventricular Dysplasia.
- 1.6.2 **Cardiovascular infection:** Infective Endocarditis, Myocarditis, Pericarditis, Constrictive Pericarditis, Kawasaki's disease.

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- 1.6.3 **Acute Rheumatic Fever:** Prevalence, Etiology, Pathology, Clinical Manifestation, Diagnosis, Clinical course, Management, Prognosis, Prevention.
- 1.6.4 **Valvular Heart Diseases:** Mitral Stenosis, Mitral Regurgitation, Aortic Regurgitation, Aortic Stenosis.
- 1.6.5 **Cardiac Tumours:** Prevalence, Pathology, Clinical Manifestations, Treatment.

Section (B): 40% Marks

**For Paper I (20 MCQs ×2 marks) &
For Paper II (2×10 marks, 1×20 marks)**

2. Paeditric Cardiology (20%)

2.1 Cardiovascular involvement in Systemic Diseases.

2.2 Arrhythmias & Atrioventricular Conduction Disturbances:

2.2.1 Cardiac Arrhythmias.

2.2.2 Disturbances of Atrioventricular Conduction.

2.2.3 Cardiac Pacemakers & Implantable Cardioverter – Defibrillators in children.

2.3 Special Problems:

2.3.1 Congestive Heart Failure, Pulmonary Hypertension, Systemic Hypertension, Dyslipidemia in children, Child with Chest pain, Syncope, Palpitation, Sudden Cardiac Death, Congenital and acquired problems of Coronary Artery, Inflammatory Noninfectious Cardiovascular Diseases.

2.4 Therapeutic Methods:

2.4.1 Pharmacological therapy, Intensive care, current topics in Congenital Heart Surgery, surgery of Rheumatic Heart Disease.

2.5 Catheter based Intervention/ Cardiac Catheterization and Angiography:

2.5.1 Diagnostic Cardiac Catheterization and Angiography: Indications, Techniques, Right Heart Catheterization, Left Heart Catheterization, Angiography, Complications.

2.5.2 Therapeutic Cardiac Catheterization: Indication, Technique , complications of Balloon Aortic Valvuloplasty, Balloon Pulmonary Valvuloplasty, indications of Balloon Atrial Septostomy, PDA stenting

3. General Paediatric Part (20%)

3.1 **Normal growth and its disorder:** Somatic Growth, Assessment of physical growth and Disorders of growth, Abnormalities of head size and shape.

3.2 **Development:** Normal development, Behavioral disorders, Habit disorders and Tics.

3.3 Adolescent Health and Development:

3.3.1 Physical aspects, Cognitive and social development, Problems faced by adolescents, Role of health care provider.

3.4 Fluid and Electrolyte Disturbances:

3.4.1 Composition of body fluids, Deficit therapy.

3.4.2 Sodium, Potassium, Calcium and Magnesium; Acid-Base disorders.

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3.5 Nutrition:

3.5.1 Macronutrients, Normal diet, Undernutrition and management of Malnutrition.

3.6 Micronutrients in Health and Disease: Fat soluble vitamins, Water soluble vitamins, Minerals and trace elements.

3.7 Newborn infants:

3.7.1 Resuscitation of a newborn.

3.7.2 Routine care, Thermal protection.

3.7.3 Fluid and electrolyte management.

3.7.4 Care of low birth weight babies.

3.7.5 Infections in the Neonates.

3.7.6 Perinatal asphyxia, Respiratory distress.

3.7.7 Jaundice, Congenital malformations.

3.7.8 Followup of high risk neonates.

3.7.9 Metabolic disorders.

3.7.10 Effect of maternal conditions on fetus and neonates.

3.8 Immunization and Immunodeficiency:

3.8.1 Immunity, Primary immunodeficiency disorders.

3.8.2 Immunization, commonly used vaccines, Vaccine administration.

3.8.3 Immunization programs, immunization in special circumstances.

3.9 Infections and Infestations: Fever, Common viral infections, Viral Hepatitis, Human Immunodeficiency Virus (HIV), Common Bacterial Infections, Tuberculosis, Fungal infections, Protozoal infections, Congenital and perinatal infections, Helminthic infestations.

3.10 Diseases of Gastrointestinal System and Liver:

3.10.1 Gastrointestinal disorders, Acute diarrhea, persistent diarrhea, chronic diarrhea, Gastrointestinal bleeding.

3.10.2 Disorders of the hepatobiliary system, Acute viral hepatitis., Liver failure, chronic liver disease.

3.11 Hematological Disorders:

3.11.1 Anaemia, Approach to haemolytic anaemia, Approach to a bleeding child.

3.11.2 Thrombotic disorders, Leukocytosis, leucopenia.

3.12 Disorders of Respiratory System:

3.12.1 Common respiratory symptoms, Investigations for respiratory illness, Respiratory tract infections, Acute lower respiratory tract infections, Bronchial Asthma, foreign body aspiration, Lung abscess, Bronchiectasis.

3.12.2 Cystic fibrosis, Acute respiratory distress syndrome(ARDS)

3.13 Disorders of Kidney and Urinary Tract

3.13.1 Renal anatomy and physiology, Diagnostic evaluation.

3.13.2 Acute Glomerulonephritis, chronic Glomerulonephritis.

3.13.3 Nephrotic syndrome.

3.13.4 Urinary tract infections.

3.13.5 Acute kidney injury, Chronic kidney disease.

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- 3.13.6 Disorders of renal tubular transport.
- 3.13.7 Congenital abnormalities of kidney and urinary tract.
- 3.13.8 Cystic kidney diseases.
- 3.14 **Endocrine and Metabolic Disorders:**
 - 3.14.1 Disorders of Pituitary gland, Thyroid gland, Adrenal glands.
 - 3.14.2 Disorders of calcium metabolism.
 - 3.14.3 Disorders of the gonadal hormones.
 - 3.14.4 Obesity, Diabetes mellitus.
- 3.15 **Central Nervous System:**
 - 3.15.1 Approach to neurological diagnosis.
 - 3.15.2 Seizures, febrile convulsions, epilepsy, coma.
 - 3.15.3 Acute bacterial meningitis, tubercular meningitis.
 - 3.15.4 Encephalitis and encephalopathies.
 - 3.15.5 Intracranial space occupying lesions.
 - 3.15.6 Subdural effusion, hydrocephalus.
 - 3.15.7 Neural tube defects.
 - 3.15.8 Acute hemiplegia of childhood, paraplegia and quadriplegia.
 - 3.15.9 Ataxia, cerebral palsy, mental retardation, Neurocutaneous syndrome.
- 3.16 **Rheumatological Disorders:**
 - 3.16.1 Arthritis, Systemic Lupus Erythematosus, Juvenile dermatomyositis, Scleroderma, Mixed connective tissue diseases, vasculitis.
- 3.17 **Eye Disorders:** Congenital and developmental abnormalities.
- 3.18 **Poisonings, Injuries and Accidents:** Poisonings, common poisonings; Envenomation, injuries and accidents.
- 3.19 **Paediatric Critical Care:**
 - 3.19.1 Assessment and monitoring of a seriously ill child.
 - 3.19.2 Paediatric basic and advanced life support.
 - 3.19.3 Shock, mechanical ventilation.
 - 3.19.4 Nutrition in critically ill children.
 - 3.19.5 Sedation, analgesia and paralysis.
 - 3.19.6 Nosocomial infection in PICU.
 - 3.19.7 Transfusions.
- 3.20 **Common Medical Procedures:**
 - 3.20.1 Obtaining blood specimens, Nasogastric tube insertion, Venous catheterization, arterial catheterization, Lumber puncture, thoracocentesis, Catheterization of bladder.
- 3.21 **Rational Drug Therapy:**
- 3.22 **Integrated Management of Neonatal and Childhood Illnes:**
 - 3.22.1 IMNCI strategy.
 - 3.22.2 Outpatient management of young infants age upto 2 months.
 - 3.22.3 Outpatient management of sick child age 2 month upto 5 years.
 - 3.22.4 Revision in IMNCI guidelines.
- 3.23 **Rights and Children:** Child abuse and neglect, Adoption.