

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS OF COMPETITIVE EXAMINATION FOR THE POST OF ASSISTANT PROFESSOR (Super Speciality) Pediatric Cardiothoracic and Vascular Surgery MEDICAL EDUCATION DEPARTMENT

A. Basics of physiology related to CTVS

1. Respiration, gas exchange
2. Pulmonary function tests, assisted ventilation
3. Heart sounds, murmurs
4. Cardiac cycle
5. Regional circulation
6. Cardiac metabolism
7. Acid base as well as fluid and electrolyte balance
8. Extra corporeal circulation
9. Hypothermia

B. Basic Embryology

1. Development of the heart tube.
2. Development of great arteries
3. Development of the Ventricles and Atria
4. Cardiac Septation and Interventricular and Interatrial septum
5. Development of the Conotruncus
6. Basics of lung development, bronchial tree
7. Development of aorta and branches.

C. Basic Cardiac Anatomy

1. Anatomy of the Ventricles
2. Anatomy of the Atria
3. Anatomy of the Conotruncus
4. Anatomy of the aorta and Branches
5. The coronary arteries anatomy
6. Anatomy of lungs and bronchopulmonary segments
7. Anatomy of Mediastinum.

D. Preoperative/Intraoperative Care

1. Preoperative Evaluation for Cardiac Surgery
2. Basics of Cardiac Anesthesia
3. Transfusion Therapy and Blood Conservation
4. Deep Hypothermic Circulatory Arrest
5. Myocardial protection
6. Postoperative Care of Cardiac Surgery Patients
7. Cardiopulmonary Resuscitation.

E. Diagnosis and Imaging

1. Clinical diagnosis
2. Interpretation of Chest Radiographs
3. Interpretation of ECG
4. Interpretation of Echocardiograms
5. Interpretation of Cardiac CT and MRI
6. Interpretation of Cardiac Catheterization and Angiograms.

F. Risk Stratification and counselling and assessing Co morbidity

G. Cardiovascular Engineering

1. Concept of flow
2. Pressure gradient
3. Heart as pump
4. Prosthetic heart valves
5. Extracorporeal circulation
6. Biocompatibility
7. Materials in cardiovascular application
8. Medical physics
9. Electronics
10. Transducers
11. Clinical monitoring
12. Medical imaging.

H. Cardiopulmonary bypass

1. History
2. Equipment
3. Physiology and pathology
4. Hematology
5. Clinical applications
6. Cardiopulmonary bypass in neonates, infants and children.
7. Myocardial Protection

I. Immunobiology of Heart and Heart-lung transplantation for pediatric patients

J. Biostatistics:

1. Methodology and design of clinical research
2. Statistical Inference
3. Biostatistics for clinical Research-sample size
4. Statistical approach
5. Statistical significance
6. Sensitivity, and specificity
7. Univariate and multivariate analysis
8. Actuarial survival

K. Questions on Surgical aspects

1. Atrial Septal Defect and Partial Anomalous Pulmonary Venous Connection
2. Total Anomalous Pulmonary Venous Connection
3. Cor Triatriatum
4. Unroofed Coronary Sinus Syndrome
5. Atrioventricular Septal Defect
6. Ventricular Septal Defect
7. Congenital Sinus of Valsalva Aneurysm
8. Aortico-Left Ventricular Tunnel
9. Patent Ductus Arteriosus,
10. Ventricular Septal Defect with Pulmonary Stenosis or Atresia
11. Pulmonary Stenosis or Atresia and Intact Ventricular Septum
12. Tricuspid Atresia and Management of Single-Ventricle Physiology, Ebstein Anomaly
13. Truncus Arteriosus.
14. Aortopulmonary Window
15. Origin of Right or Left Pulmonary Artery from Ascending Aorta
16. Anomalies of the Coronary Arteries, Congenital Aortic Stenosis
17. Coarctation of the Aorta and Interrupted Aortic Arch
18. Aortic Atresia and Other Forms of Hypoplastic Left Heart
19. Congenital Mitral Valve Disease
20. Vascular Ring and Sling
21. Complete Transposition of the Great Arteries
22. Double Outlet Right or Left Ventricle
23. Congenitally Corrected Transposition of the Great Arteries and Other forms of Atrioventricular Discordant Connection.
24. Double Inlet Ventricle and Atretic Atrioventricular Valve.
25. Anatomically Corrected Malposition of the Great Arteries, Atrial Isomerism, Critical Care
26. Valvular Heart Diseases
27. Adult Congenital Heart Diseases.
28. Basic Surgeries of Lung and Media

Pattern of Question Papers:

1. Objective Type Paper
2. Maximum Marks: 150
3. Number of Questions: 150
4. Duration of Paper: Two Hours & Thirty Minutes
5. All Questions carry equal marks
6. There will be Negative Marking