

D.M. Examination
Branch VI : Cardiac Anaesthesia
Paper-I
(Applied Basic Sciences)

Date : 02-07-2019, Tuesday]
[Time : 3 Hours

[Max. Marks : 100

- Instructions :** (1) Figure to the right indicates marks.
(2) Draw diagram wherever necessary.
(3) Write legibly.

1. Describe the anatomy of aortic root including aortic valve. What are the different mechanisms of aortic regurgitation? (20)
 2. Which haemodynamic parameters and oxygenation-related parameters are obtained using a thermodilution pulmonary artery catheter? Explain the clinical utility of these parameters in critical care. (20)
 3. What is postoperative pulmonary hypertensive crisis occurring in acyanotic children undergoing surgery for left-to-right cardiac shunt lesions? Discuss the pharmacology of agents used for its treatment. (20)
 4. Draw diagrams and explain proper positioning of ECG Bipolar leads, Augmented Unipolar leads, and Precordial leads. How will you diagnose right axis deviation and left axis deviation from a 12-lead ECG? (20)
 5. What are the methods used for non-invasive measurement of cardiac output? Describe the principles of pulse contour analysis, its indications and limitations. (20)
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D.M. Examination
Branch VI : Cardiac Anaesthesia
Paper-II
(Speciality)

Date : 05-07-2019, Friday]
[Time : 3 Hours

[Max. Marks : 100

- Instructions :** (1) Figure to the right indicates marks.
(2) Draw diagram wherever necessary.
(3) Write legibly.

1. Describe the hemodynamic and metabolic changes associated with aortic clamping and declamping during surgery for supra-renal aortic aneurysms. Discuss the therapeutic strategies used to deal with adverse effects associated with aortic clamping and declamping. (20)
 2. What are the perfusion-related emergencies associated with the initiation and conduct of cardiopulmonary bypass? (20)
 3. Discuss the pathophysiology of Ebstein's anomaly. Illustrate using appropriate diagrams, the utility of intraoperative transesophageal echocardiography during surgery for the Ebstein's anomaly. (20)
 4. What are the advantages and disadvantages of conducting carotid artery surgery under regional anesthesia in an awake patient? Discuss the issues related to conduct of left carotid endarterectomy under regional anesthesia. (20)
 5. Describe the indications, contra-indications, insertion techniques, timing, weaning, and complications of Intra-aortic Balloon Pump Counterpulsation. Draw and label the arterial waveform seen during IABP assist. (20)
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D.M. Examination
Branch VI : Cardiac Anaesthesia
Paper-III
(Speciality)

Date : 08-07-2019, Monday]
[Time : 3 Hours

[Max. Marks : 100

- Instructions :** (1) Figure to the right indicates marks.
(2) Draw diagram wherever necessary.
(3) Write legibly.

1. What are the potential complications associated with Trans-catheter Aortic Valve Replacement? Describe the anaesthetic management and utility of echocardiography during the procedure. (20)
 2. Illustrate different techniques of regional anesthesia practiced during adult cardiac surgery. (20)
 3. A 48-year-old female patient, weighing 55 kg, a diagnosed case of aortic valve stenosis was anesthetized for aortic valve replacement. Preoperative echocardiography showed aortic annulus diameter of 17 mm. What will be the course of the surgery for this patient? How will you evaluate surgical results in the post-CPB period using transesophageal echocardiography? (20)
 4. Describe classification of atrial fibrillation. What are the perioperative issues associated with atrial fibrillation in a patient undergoing mitral valve replacement? (20)
 5. What are the complications of myocardial infarction? Describe possible perioperative problems in a patient subjected to coronary artery bypass grafting, who had myocardial infarction 3 months ago. (20)
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D.M. Examination
Branch VI : Cardiac Anaesthesia
(Modern Trends & Advances)
Paper-IV

Date : 10-07-2019, Wednesday]
[Time : 3 Hours

[Max. Marks : 100

Instructions : (1) Figure to the right indicates marks.
(2) Draw diagram wherever necessary.
(3) Write legibly.

1. Describe the expanded role of anaesthesiologist for cardiac surgery using port access cardio-pulmonary bypass. Draw a diagram depicting cannulations used in patient for minimally invasive cardiac surgery using port access CPB. (20)
 2. Discuss separately the first generation, second generation, and third generation Ventricular Assist Devices (20)
 3. What are the methods of measurement of cerebral oxygenation during cardiac surgery? What are the causes of fall in cerebral oxygenation measured on near infrared spectroscopy during cardiopulmonary bypass? How will you treat it? (20)
 4. Describe the role of intraoperative real-time 3D echocardiography during mitral valve repair. What additional information is provided by the real-time 3D echocardiography compared to the 2D echocardiography? (20)
 5. Describe the Anaesthetic management, intraoperative care, indications for cardiopulmonary bypass, postoperative management, and postoperative care of patients undergoing lung transplant. (20)
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