

**B.Sc. CARDIAC TECHNOLOGY
THIRD YEAR
PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED**

Q.P. Code : 801522

Time: Three hours

Maximum: 100 Marks

Answer ALL questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe the indications for aortic root, arch and abdominal aortogram. Describe the angiographic angulation and catheters that are required. . Briefly enumerate the complications of the procedure.
2. Enumerate the complications of Percutaneous coronary interventions and their management
3. Describe the steps in device closure of ventricular septal defect by different approaches. Enumerate the complications and their management.

II. Write Notes on:

(8 x 5 = 40)

1. Vascular access for catheterisation in children
2. Enumerate the nonionic contrasts. What are the advantages over ionic contrast?
3. Steps in puncture of interatrial septum
4. What are all the parameters to be checked in pacemaker follow up?
5. Endovascular repair of aortic aneurysm
6. Precautions in doing catheterisation procedures in a cyanotic child
7. Contrast induced nephropathy
8. Distal coronary protection devices

III. Write Notes on:

(10 x 3 = 30)

1. Hepato clavicular view
2. Angiographic projections for Tetralogy of Fallot
3. Angiographic projections for Patent ductus arteriosus
4. Amplatz coronary guiding catheter
5. Multipurpose catheter
6. Principle behind intra aortic balloon counter pulsation
7. Indications for IABP in Cardiac catheterisation Laboratory
8. Briefly describe the steps in deployment of IVC filter
9. Catheters used in Electrophysiology study
10. Indications for Radiofrequency ablation

**B.Sc. CARDIAC TECHNOLOGY
THIRD YEAR
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Q.P. Code : 801522

Time: Three hours

Maximum: 100 Marks

Answer ALL questions

I. Elaborate on:

(3 x 10 = 30)

1. List the complications of percutaneous coronary interventions and describe their management.
2. Complications during and after temporary and permanent pacing. Role of cardiovascular technician in identification and management of those complications.
3. Describe the steps in device closure of ventricular septal defect by different approaches – List the complications.

II. Write Notes on:

(8 x 5 = 40)

1. Mention the indications of arch aortogram. Describe the angiographic setting, catheters and contrast injector adjustment.
2. Vascular access for catheterisation in children.
3. Contrast induced nephropathy.
4. Enumerate five common guiding catheters, their utility and their limitations.
5. Acute stent thrombosis.
6. What are covered stents and describe their uses?
7. Steps of pulmonary valvuloplasty and enumerate the complications.
8. Intravascular ultrasound.

III. Write Notes on:

(10 x 3 = 30)

1. Techniques atrial septal puncture.
2. Hardware used in balloon pulmonary valvuloplasty.
3. Management of cardiac tamponade.
4. Self expanding stent.
5. Indications for Intra aortic balloon pump in cardiac catheterization laboratory.
6. Indications for IVC filter.
7. Intra arterial thrombolysis.
8. Identification of AC interruption in EP signal.
9. Rheobase potential.
10. Causes of high impedance during ablation.

[LG 0215]

FEBRUARY 2015

Sub.Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code : 801522

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe the structure of guide wire. Enumerate different types of guide wires and their uses.
2. List the complications during electrophysiology and radiofrequency ablation – Describe the role of cardiovascular technician in identification and management of above problems.
3. Enumerate the steps in device closure of atrial septal defect and list their complications.

II. Write Notes on:

(8 x 5 = 40)

1. Carbondioxide angiography.
2. Precautions in doing catheterisation procedures in a cyanotic child.
3. Side effects of contrast agents.
4. What are all the types of intracoronary stents? Describe with illustration the different components of drug eluting stents.
5. Coronary perforation.
6. What are self expanding stents and mention their uses?
7. Steps in percutaneous treatment of aortic coarctation.
8. Rotablation.

III. Write Notes on:

(10 x 3 = 30)

1. Complications of balloon mitral valvuloplasty.
2. Recording of trans mitral pressure gradient.
3. Hepatoclavicular view.
4. Indications for Intra aortic balloon pump.
5. Adjusting counter pulsation timing in Intra aortic balloon pump.
6. Types of IVC filter.
7. Intra arterial thrombolysis.
8. Draw the position of pacing lead in RV apex in RAO.
9. Draw the intracardiac pacing of complete AV block.
10. Draw the tracing of VA block during ablation.

[LH 0815]

AUGUST 2015

Sub.Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code : 801522

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions

I. Elaborate on:

(3 x 10 = 30)

1. Hardwares used of Peripheral angiography and interventions.
2. Hardwares and techniques used for Balloon Mitral Valvuloplasty.
3. Theory of IABP.

II. Write Notes on:

(8 x 5 = 40)

1. Indication and techniques of Temporary pacing.
2. Technique and equipment used for transeptal puncture.
3. Equipment techniques used in peripheral intervention.
4. Device closure of VSD.
5. Intracardiac pressure recording.
6. Angioplasty of Coarctation of aorta.
7. Indications for IABP.
8. Follow up of pacemaker patients.

III. Short Notes on:

(10 x 3 = 30)

1. Indications for Permanent Pacemaker Implantation.
2. Management and Dissection during PTCA.
3. Management of Cardiac Tamponade.
4. ASD shunt calculation.
5. Types of Non-ionic agents.
6. Prevention of contrast used in Nephropathy.
7. Slow / No flow in PTCA.
8. Guiding catheters in PTCA.
9. Management of perforation during Coronary interventions
10. Describe about covered stent.

[LI 0216]

FEBRUARY 2016

Sub.Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code : 801522

Time: Three Hours

Maximum: 100 Marks

Answer ALL questions

I. Elaborate on:

(3 x 10 = 30)

1. Catheterization and Angiography in children with congenital heart disease.
2. Device closure of PDA, ASD, VSD.
3. Technique and equipment used for transeptal puncture.

II. Write Notes on:

(8 x 5 = 40)

1. Management of Cardiac tamponade.
2. Self expanding stents, covered stents.
3. Aortic and Pulmonary valvuloplasty.
4. Follow-up of pacemaker patients.
5. Balloons in PTCA.
6. Guiding catheters in PTCA.
7. Contrast Nephropathy.
8. Endovascular Management of aneurysm.

III. Short Notes on:

(10 x 3 = 30)

1. Management of Perforation in PCI.
2. Setting up the laboratory for PTCA.
3. Measure to reduce contrast Nephropathy.
4. Equipments in peripheral interventions.
5. Pacemaker parameter checking.
6. Setting up the Laboratory for Permanent pacing.
7. Indications for IABP.
8. Manual Thrombus aspiration catheter.
9. Indication of IVC filter.
10. Types of Non-ionic agents.

**B.Sc. CARDIAC TECHNOLOGY
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Q.P. Code: 801522

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. How will you prepare a cath lab for Balloon mitral valvuloplasty?
2. Percutaneous Transluminal coronary angioplasty (PTCA) – indications, contra indications and hard wares used.
3. Intra aortic balloon pump – Basic mechanism, indications, contra indications and complications.

II. Write notes on:

(8 x 5 = 40)

1. Carbon dioxide angiography.
2. What are the advantages of non ionic contrast agents?
3. Complications of PTCA.
4. Non complaint balloon.
5. Acute stent thrombosis.
6. Hard wares for balloon mitral valvuloplasty.
7. Indications for permanent pace maker insertion.
8. Drugs used for slow flow.

III. Short answers on:

(10 x 3 = 30)

1. Disadvantage of ionic contrast.
2. Intra coronary thrombus.
3. Indications for pulmonary valvuloplasty.
4. Contra indications for aortography.
5. What are the contra indication for venacaval filters?
6. Indication for pericardial fluid aspiration.
7. Mention few complications of permanent pace makers.
8. Indications for renal artery stenting.
9. What are the types stent thrombosis?
10. How will you choose balloon size for pulmonary valvuloplasty?

**B.Sc. CARDIAC TECHNOLOGY
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Q.P. Code: 801522

Time: Three Hours**Maximum: 100 Marks**

Answer all questions

I. Elaborate on:**(3 x 10 = 30)**

1. Describe the angiographic views for performing the septal puncture. Describe the Brockenbrough needle and the uses for the same. Briefly mention how gradients are measured in a case of mitral stenosis?
2. Mention the various types of contrast. Discuss the advantages and disadvantages of different types of contrast agents. What precautions can be taken to prevent contrast-induced nephropathy?
3. Describe the various catheters used for an electrophysiology study. Mention the normal AH and HV intervals. List the complications, which are commonly encountered during a radiofrequency ablation procedure?

II. Write notes on:**(8 x 5 = 40)**

1. Describe the angiographic views for imaging a peri-membranous ventricular septal defect. Detail the steps involved in performing a device closure of the ventricular septal defect.
2. Role of covered stents in aortic diseases. List the conditions and the indications for use of the same.
3. Embolic protection devices in carotid angioplasty.
4. What is the importance of therapeutic activated clotting time (ACT) during an interventional procedure?
5. Detail the emergency management of cardiac tamponade.
6. Describe the procedure of (Intra-aortic balloon pump) IABP insertion. Name few indications for usage of IABP.
7. What is a DDDR pacemaker? Where are the leads placed? Name some conditions where this pacemaker is used?
8. Management of coronary perforation in the catheterization laboratory.

III. Short answers on:**(10 x 3 = 30)**

1. Use of Fractional flow reserve (FFR) in coronary angioplasty.
2. Indications for rotablation in coronary angioplasty. Briefly describe the burr used for rotablation.
3. Closure devices for hemostasis.
4. What are the different types of balloon catheters used for balloon angioplasty?
5. What are self-expanding stents? List their uses in peripheral angioplasty.
6. Optical Coherence tomography.
7. Management of coronary air embolism.
8. What is slow flow, no-flow phenomenon?
9. What are the different guidewires used during coronary angioplasty?
10. List the uses of intravascular ultrasound in coronary angioplasty.

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Q.P. Code: 801522

Time: Three Hours**Maximum: 100 Marks**

Answer all questions

I. Elaborate on:**(3 x 10 = 30)**

1. Describe the hardware and the technique for performing a Balloon Mitral Valvotomy procedure. List the intra-operative complications, which can be encountered during the balloon mitral valvotomy procedure.
2. List the various access sites used for temporary transvenous pacing catheter insertion. Describe how the various parameters assessed and the optimal measurements of each parameter? List the complications related to temporary tranvenous pacemakers.
3. Describe the catheters used for radiofrequency ablation. Briefly mention how A-H and H-V intervals are studied in the EP lab? List the complications which can be encountered during a radio-frequency ablation procedure?

II. Write notes on:**(8 x 5 = 40)**

1. Uses of Fractional flow reserve in coronary angioplasty. List the agents used for achieving coronary hyperemia.
2. Describe the use of intravascular ultrasound in coronary angioplasty.
3. Mention the indications and describe the equipment for performing rotablation during coronary angioplasty.
4. List the indications and describe the procedure of implanting an Inferior vena cava (IVC) filter.
5. Describe the angiographic views for imaging Patent ductus arteriosus (PDA). Briefly describe the device used to close the PDA.
6. Describe the various types of stents used in peripheral angioplasty.
7. Management of cardiac tamponade.
8. Describe the hardware used and the procedure for performing an endomyocardial biopsy.

III. Short answers on:**(10 x 3 = 30)**

1. Identification of coronary perforation in the catheterization laboratory.
2. Contrast Induced Nephropathy.
3. Management of acute stent thrombosis.
4. Closure devices for achieving hemostasis.
5. List the various balloons used for performing Balloon mitral valvotomy.
6. Cutting balloon angioplasty.
7. Mention the different guide wires used in coronary angioplasty.
8. Emergency management of ventricular fibrillation.
9. List the used of Carbon di-oxide in the catheterization laboratory.
10. Uses of coronary snares.

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Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe the indications for aortic root, arch and abdominal aortogram. Describe the angiographic angulations and catheters that are required. List the complications of the procedure.
2. Describe the steps in device closure of Patent Ductus Arteriosus. List the complications and their management.
3. Indications and complications of IABP (Intra-aortic balloon pump) insertion. What are its physiological effects? Discuss the various trigger modes.

II. Write notes on:

(8 x 5 = 40)

1. Closure devices for hemostasis.
2. Embolic protection devices in carotid angioplasty.
3. Management of coronary air embolism.
4. Vena caval filters.
5. Stent thrombosis.
6. Contrast Nephropathy.
7. Coarctoplasty.
8. Self-expanding stents.

III. Short answers on:

(10 x 3 = 30)

1. Hepato clavicular view.
2. Tetralogy of Fallot.
3. Steps in the puncture of interatrial septum.
4. Types of permanent pacemaker.
5. Intravascular imaging.
6. Instantaneous wave-free ratio.
7. Rotational atherectomy.
8. Guidewires used during coronary angioplasty.
9. Management of coronary perforation in the catheterization laboratory.
10. Pericardiocentesis.

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR

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Q.P. Code: 801522

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Hardwares used for peripheral angiography and interventions.
2. Describe the steps in device closure of muscular ventricular septal defect.
List the complications and their management.
3. Technique and equipment used for trans-septal puncture

II. Write notes on:

(8 x 5 = 40)

1. Coil closure of patent ductus arteriosus.
2. Radiofrequency ablation of atrial fibrillation.
3. Hemodynamic changes in aortic stenosis.
4. Chronic total occlusion.
5. Mechanical thrombectomy.
6. Atherectomy devices.
7. DDDR Pacemaker
8. Stent designs.

III. Short answers on:

(10 x 3 = 30)

1. Transcatheter aortic valve implantation.
2. In-stent restenosis.
3. Carbon dioxide angiography.
4. Setting up the laboratory for temporary transvenous pacing.
5. IABP trigger modes.
6. Balloon pulmonary valvuloplasty.
7. Rotational atherectomy.
8. Cournand catheter.
9. Complications of permanent pacemaker implantation.
10. Indications for pericardiocentesis.

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code: 801522

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. ASD – Device Closure – Indications, Procedure and Complications.
2. Endomyocardial biopsy – Indication/Contra indication/Approaches/ Procedure and Complication.
3. EP Study – procedure/Complication.

II. Write notes on:

(8 x 5 = 40)

1. Contrast Induced Nephropathy.
2. Temporary Pacemaker.
3. Complication of Coronary Angiogram.
4. Air embolism in Cath Lab.
5. IABP – Indications.
6. Hepatoclavicular view.
7. IVUS.
8. Fontan's Physiology.

III. Short answers on:

(10 x 3 = 30)

1. Iso osmolar contrast agents.
2. Allen's test.
3. Sone's catheter.
4. Co-arctation of aorta.
5. Conus artery.
6. Acute stent thrombosis.
7. Covered stents.
8. Intra cardiac pressure recording.
9. Brocken – borrough needle.
10. Radial artery.

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code: 801522

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on: (3 x 10 = 30)

1. Balloon mitral valvulotomy – Indication, procedure and complication.
2. Complication of PTCA and its management.
3. IABP – Indication/Procedure/Complications.

II. Write notes on: (8 x 5 = 40)

1. Coronary artery anatomy and common anomalies.
2. Types of permanent pacemaker.
3. Contrast agents.
4. EP Study indications.
5. OCT.
6. Graft angiogram.
7. LV angiogram.
8. Femoral artery cannulation.

III. Short answers on: (10 x 3 = 30)

1. Amplatz catheter.
2. Types of LAD.
3. Stent thrombosis.
4. Endo myocardial biopsy.
5. Types of VSD.
6. Guide wires.
7. Cardiac resynchronisation therapy.
8. Radiation protection.
9. Coronary artery dissection.
10. Coronary flow reserve.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LR 1220]

**DECEMBER 2020
(AUGUST 2020 EXAM SESSION)**

Sub. Code: 1522

**BACHELOR IN CARDIAC TECHNOLOGY
THIRD YEAR – (Regulation from 2010-2011 & 2014-2015)
PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED
Q.P. Code: 801522**

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. VSD – Device Closure.
2. PTCA – Indication / Procedure and Complications.
3. Right Heart Catheterization in TOF.

II. Write notes on:

(8 x 5 = 40)

1. Embolic Protection Devices.
2. FFR – Indications, Hardwares and Complications.
3. Pulmonary Valvuloplasty.
4. Coronary No-flow/Slow flow – management.
5. Oxymetry findings in ASD.
6. Air embolism in Cath Lab.
7. TAVI – Indications / Procedure.
8. Fontan's Physiology.

III. Short answers on:

(10 x 3 = 30)

1. GP IIb/IIIa Inhibitors in Cath Lab.
2. RV angiogram.
3. IVC filters – Indication.
4. Contrast Induced Nephropathy.
5. Rotablation.
6. Swan-Ganz catheter.
7. Coronary Flow Reserve.
8. Trans septal Puncture.
9. Hepato claviclar View.
10. Cardiac Resynchronisation Therapy.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0122]

JANUARY 2022

Sub. Code: 1522

(FEBRUARY 2021 & AUGUST 2021 EXAM SESSION)

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR – (Regulation from 2010-2011 & 2014-2015)

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code: 801522

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

- 1) Setting up of cath lab for coronary angiography
- 2) Guiding Vs diagnostic catheters and methods of sterilizing them
- 3) Left ventriculography – Catheters, views, use of injections.

II. Write notes on:

(8 x 5 = 40)

- 1) RAO caudal view
- 2) Radiation safety
- 3) Manifold preparation and use
- 4) Oximetry in VSD
- 5) Specific indication for amplatz catheters
- 6) Image play back system and applications
- 7) LV angiogram catheters and views
- 8) Ventricular pressure tracing and pullback in aortic stenosis

III. Short answers on:

(10 x 3 = 30)

- 1) Oxygen dilution method
- 2) Ficks Principle
- 3) Balloon floatation catheters
- 4) Aortic Root angiogram,
- 5) Swan Ganz catheter
- 6) Branches of RCA
- 7) Types of LAD on angiogram
- 8) Multipurpose catheter
- 9) Catheters for bypass graft cannulation and angiography
- 10) 3 Vascular closure devices

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0922]

SEPTEMBER 2022

Sub. Code: 1522

(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR – (Regulations from 2010-2011 & 2014-2015)

PAPER I – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code: 801522

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. List the complications of percutaneous coronary interventions and describe their management.
2. Complications during and after permanent pacing. Role of cardiovascular technician in identification and management of those complications.
3. How will you prepare a cath lab for Balloon mitral valvuloplasty? Discuss the Techniques and Hardwares used in Balloon mitral valvuloplasty.

II. Write notes on:

(8 x 5 = 40)

1. Vascular access for catheterisation in children.
2. Contrast induced nephropathy.
3. Distal coronary protection devices.
4. Enumerate five common guiding catheters, their utility and their limitations.
5. Steps of pulmonary valvuloplasty and enumerate the complications.
6. Rotablation.
7. Indication and techniques of Temporary pacing.
8. Aortic Angiography.

III. Short answers on:

(10 x 3 = 30)

1. Angiographic projections for Tetralogy of Fallot.
2. Principles of fractional flow reserve.
3. Indications for Radiofrequency ablation.
4. Indications for IVC filter.
5. Intra arterial thrombolysis.
6. Setting up the Laboratory for Permanent pacing.
7. Indication for pericardial fluid aspiration.
8. What is slow flow, no-flow phenomenon?
9. Optical Coherence tomography.
10. Management of coronary air embolism.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0423]

APRIL 2023

Sub. Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR – (Regulations 2010-2011, 2014-2015, 2018-2019 & 2020-2021 onwards)

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code: 801522

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. Describe the structure of Guide wire. Enumerate different types of Guide wires and their uses.
2. Theory of IABP, Indications and Complications.
3. Mention the various types of Contrast. Discuss the advantages and disadvantages of different types of Contrast agents. What precautions can be taken to prevent Contrast Induced Nephropathy?

II. Write notes on:

(8 x 5 = 40)

1. What are all the parameters to be checked in pacemaker follow up?
2. Steps in puncture of Interatrial septum.
3. Acute stent thrombosis.
4. Intravascular ultrasound.
5. Cutting balloons.
6. Coronary perforation.
7. Closure devices for achieving hemostasis.
8. Oximetry in VSD.

III. Short answers on:

(10 x 3 = 30)

1. Angiographic projections for Patent Ductus Arteriosus.
2. Indications for Cardiac Resynchronization therapy.
3. Indications of Renal artery stenting.
4. Self expanding stent.
5. Causes of high impedance during ablation.
6. Indications for IVC filter.
7. Complications of Balloon Mitral Valvuloplasty.
8. Uses of Microcatheter.
9. Catheters used in Electrophysiology.
10. Mention few complications of permanent pace makers.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1123]

NOVEMBER 2023

Sub. Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR – (Regulations 2010-2011, 2014-2015, 2018-2019 & 2020-2021 onwards)

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code: 801522

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. ASD – Device Closure – Indications, Procedure and Complications.
2. Endomyocardial biopsy – Indications, Contra indications, Approaches, Procedure and Complications.
3. EP Study – Procedures and Complications.

II. Write notes on:

(8 x 5 = 40)

1. Contrast Induced Nephropathy.
2. Temporary Pacemaker.
3. Complications of Coronary Angiogram.
4. Cardiac Tamponade in Cath Lab.
5. IABP – Indications.
6. Hepatoclavicular view.
7. IVUS.
8. Stent Designs.

III. Short answers on:

(10 x 3 = 30)

1. Iso osmolar contrast agents.
2. Allen's test.
3. Sone's catheter.
4. Co-arcuation of Aorta.
5. Conus artery.
6. Acute stent Thrombosis.
7. Covered stents.
8. Intra Cardiac Pressure recording.
9. Brocken – borrough needle.
10. Radial artery.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0424]

APRIL 2024

Sub. Code: 1522

B.Sc. CARDIAC TECHNOLOGY

**THIRD YEAR – (Regulation 2010-2011, 2014-2015 & 2020-2021 onwards)
PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED
Q.P. Code: 801522**

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on: (3 x 10 = 30)

1. Define PCI. What are the types of PCI and explain in detail about the procedure.
2. What are the interventions available in Congenital Heart diseases and explain anyone in detail.
3. Type of Pacemakers and types of Pacemaker leads and indications of Pacemakers.

II. Write notes on: (8 x 5 = 40)

1. Thrombus Aspiration Catheters.
2. Image archival system and compact disc writing.
3. Types of PTCA wire and describe in detail.
4. Pressure recording system, Catheters used in pressure tracing.
5. Equipment used in Arrhythmia induction and RFA.
6. Thrombolytic agents.
7. Cardiac ventriculography.
8. Pericardiocentesis and its complications.

III. Short answers on: (10 x 3 = 30)

1. Define CPR.
2. PDA, ASD, VSD Devices.
3. Name Hardwares used in BMV.
4. Acute stent thrombosis.
5. Coronary perforation.
6. How do you classify coronary lesion?
7. How do you place ECG leads and define STEMI?
8. Types of Stents.
9. Define slow flow and how do you treat it.
10. Cath study and its use.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0125]

JANUARY 2025

Sub. Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR – (Regulation 2010-2011, 2014-2015 & 2020-2021 onwards)
PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED
Q.P. Code: 801522

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on: **(3 x 10 = 30)**

1. Ballon Mitral Valvulotomy – Indications, Procedure and Complications.
2. Complications of PTCA and its management.
3. IABP – Indication, Procedure and Complications.

II. Write notes on: **(8 x 5 = 40)**

1. Coil closure for Patent Ductus Arteriosus.
2. Types of Permanent Pacemaker.
3. Contrast agents.
4. Electrophysiology (EP) study indications.
5. OCT (Optical Coherence Tomography).
6. Graft Angiogram.
7. Self-expanding stents.
8. Femoral Artery Canulation.

III. Short answers on: **(10 x 3 = 30)**

1. Amplatz Catheter.
2. Types of LAD.
3. Stent Thrombosis.
4. Endo Myocardial Biopsy.
5. Types of VSD.
6. Guide wires.
7. Intra Cardiac Pressure Recording.
8. Radiation Protection.
9. Coronary Artery Dissection.
10. Pericardiocentesis.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0425]

APRIL 2025

Sub. Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR – (Regulation 2010-2011, 2014-2015 & 2020-2021 onwards)
PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED
Q.P. Code: 801522

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on: **(3 x 10 = 30)**

1. Describe Hardware and Techniques used for Balloon Mitral Valvotomy (BMV).
2. Describe Catheters used in Electro Physiology (EP) study. Briefly discuss AH and HV intervals and list out complications which can be encountered during Radio Frequency Ablation (RFA).
3. Discuss in detail Mechanism, Indications, Contraindications and Complications of Intra-aortic Balloon Pump (IABP).

II. Write notes on: **(8 x 5 = 40)**

1. VSD device closure.
2. Dual-Chamber Rate Modulated (DDDR) pacemaker.
3. Coarctoplasty.
4. Uses of Fractional Flow Reserve (FFR) in CAG. Advantages and disadvantages of FFR.
5. Embolic protection devices in Carotid Angioplasty.
6. Hardwares and complications of Percutaneous Transluminal Coronary Angioplasty (PTCA).
7. Management of Cardiac tamponade.
8. What are the types of Stents? List out the components used in Drug eluting stents.

III. Short answers on: **(10 x 3 = 30)**

1. Angiographic projection for Trans Septal Puncture.
2. Indications for IVC filter.
3. Slow flow no flow in PTCA.
4. Management of Perforation in Percutaneous Coronary Intervention (PCI).
5. Types of Non-ionic agents.
6. Manual Thrombus Aspiration Catheter.
7. Optical coherence Tomography (OCT).
8. Uses of Coronary snares.
9. Fontan's Physiology.
10. Types of Guidewires.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[AHS 1125]

NOVEMBER 2025

Sub. Code: 1522

B.Sc. CARDIAC TECHNOLOGY

THIRD YEAR – (Regulations 2010-2011, 2014-2015, 2018-2019 & 2020-2021 onwards)

PAPER II – CARDIAC CATHETERIZATION LABORATORY ADVANCED

Q.P. Code: 801522

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. Describe the indications for aortic root, arch and abdominal aortogram. Describe the angiographic angulation and catheters that are required. . Briefly enumerate the complications of the procedure.
2. Complications during and after temporary and permanent pacing. Role of cardiovascular technician in identification and management of those complications.
3. Enumerate the steps in device closure of atrial septal defect and list their complications.

II. Write notes on:

(8 x 5 = 40)

1. Techniques used in Bag-Mask Ventilation (BMV).
2. Setting up a laboratory for Percutaneous Transluminal Coronary Angioplasty (PTCA).
3. Co-arctation angioplasty and stenting.
4. Contrast Nephropathy.
5. Acute stent thrombosis.
6. Techniques of Thrombolysis.
7. Radiofrequency ablation.
8. Catheters used in Electrophysiology (EP) study.

III. Short answers on:

(10 x 3 = 30)

1. Image archival systems.
2. Use of venacaval filters.
3. Catheters used in Thrombus aspiration systems.
4. Device closure of PDA.
5. Stents used in Cardiac Cath labs.
6. Cutting Balloons.
7. Hepatoclavicular view.
8. ASD shunt calculation.
9. Slow / No flow in PTCA.
10. Types of Non-ionic agents
