Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 16-May-2023

Time: Three Hours | Max. Marks: 100 Marks

Clinical Cardiac Care Technology – I

Paper – I (RS2)

Q.P. CODE: 2920

Your answers should be specific to the questions asked.

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Describe in detail about ECG in MI, localization of MI.
2. Discuss the Echo features of any three acyanotic CHD's.
3. Explain about TOF in detail.

SHORT ESSAYS (Answer any Ten) 10 x 5 = 50 Marks

4. Prosthetic heart valves.
5. Congenital AS.
6. LV aneurysm.
7. Mitral valve prolapse
8. Cardiac tamponade vs constrictive pericarditis.
9. Seldinger technique.
10. Coronary balloons.
11. Classify coronary stents.
12. Describe contrast agents used in angiography.
13. Sterilization techniques used in the Cathlab.
14. How do you manage a mercury spill in the cardiology labs?
15. Describe the dustbin color codes in the labs.
16. Discuss about crash cart/emergency kit in Cathlab.
17. Describe any three coronary Angio views

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

18. Mention any two drugs used during coronary angiography.
19. Describe any two indications for peripheral Doppler.
20. ECG features of old MI.
21. Echo features of LA myxoma.
22. Describe any two diseases of Aorta.
23. Differentiate LA and RA morphology.
24. Describe LV anatomy.
25. Mention four guiding catheters.
26. Mention four causes for step up of O2 saturation in RA.
27. Describe embryology of semilunar valve formation.
28. Describe any two C-arm movements.
29. Why is table movement important in the Cathlab?

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (Allied Health sciences) Examination – 18-May-2023

Time: Three Hours Max. Marks: 100 Marks

CARDIAC CARE TECHNOLOGY
APPLIED TECHNOLOGY PAPER – II (RS2)
Q.P. CODE: 2921

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Discuss the basic ECG features seen in WPW **syndrome**. Name the potential sites of bypass tracts.
2. Discuss the ECG features seen in Acute MI and old MI.
3. Define the criteria for diagnosis of bundle branch block by ECG. Discuss the mechanism of ECG changes seen in RBBB and LBBB.

SHORT ESSAYS (Answer any Ten) 10 x 5 = 50 Marks

4. Complications during coronary angioplasty
5. Procedure of coronary angioplasty
6. ECG in Severe MS
7. Mechanism of ECG changes seen in acute MI
8. Indication of peripheral Doppler
9. Indications of primary PTCA
10. Coronary anatomy
11. Determination of the dominance of the circulation by CAG
12. Sokolow and Lyon index
13. RVMI
14. Complications of STEMI
15. **IABP**
16. ECG in coarctation of Aorta
17. ECG in limb lead error

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

18. Technical aspects of fetal Echo
19. Precaution during stress echo
20. TEE in assessment of prosthetic aortic valve
21. ECG in biventricular hypertrophy
22. ECG in Situs solitus with Dextrocardia
23. ECG in Non-sustained VT
24. Hardwares while conducting CAG
25. ECG in Eisenmengers VSD
26. ECG changes in ASD
27. Usefulness of TEE in MR
28. TEE in assessment of prosthetic mitral valve
29. Materials required for Stress Echo

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 20-May-2023

Time: Three Hours | Max. Marks: 100 Marks

ADVANCED CARDIAC CARE TECHNOLOGY – III (RS2)

Q.P. CODE: 2922

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Describe the indications, contradictions of treadmill test and the management of complications that may occur in the treadmill room
2. Discuss the causes of sudden Cardiac death and describe the management of cardiac anist
3. Describe the procedure and materials used for the closure of atrial septal defect

SHORT ESSAYS (Answer any Ten) 10 x 5 = 50 Marks

4. Causes of ventricular fibrillation
5. Balloon mitral valvuloplosty
6. Purpose of cardiac monitoring
7. Electrocrdiographic recording
8. Complications of defibrillation
9. Procedure of myocardial perfusion scan
10. Usefulness of holter monitoring
11. Normal and abnormal values in oxymetry
12. Precautions followed during pregnancy
13. Patient imaging techniques in nuclear cardiology
14. Describe electrophysiological studies in heart
15. Aortic valve balloon dilatation – indication, procedure and complications in brief

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

16. Aortic dissection
17. Deep vein thrombosis
18. Types of angina
19. Pulmonary embolism
20. VERAPAMIL
21. Nitrates – mode of action and routes of administration
22. Spontaneous echo contrast
23. Hyperkalemia
24. Complete heart block
25. Cyanosis – types
26. Closure of PDA
27. METOPROLOL

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 16-May-2023

Time: Three Hours | Max. Marks: 100 Marks

CARDIAC CARE TECHNOLOGY - CLINICAL - PAPER – I (RS-3)

Q.P. CODE: 3276

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. What are the causes and corresponding echo features of aortic stenosis and aortic regurgitation?
2. Mention the various steps of right heart catheterization and the various tests done during right heart catheterization?
   OR
   Classification of congenital heart disease with brief note on each.

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. How do you differentiate ischemic MR and Rheumatic MR?
4. What are the methods to assess LV systolic function?
5. What are the echo features of various types of ASD?
   OR
   Complications of Myocardial Infarction.
6. What are the views in coronary angiogram and which arteries are well visualized in each view?
7. What are the side effects of radiation on human body?
8. What are the contraindications for angiogram?
9. How do you evaluate prosthetic valve function? Mention echo features of prosthetic valve dysfunction?
10. What are the various methods to calculate the pulmonary artery pressure on echo?
    OR
    Echo features of cardiac tamponade.
11. What are the causes of MR and echo features of the same?
12. What are the echo changes in mitral stenosis?

SHORT ANSWER 10 x 3 = 30 Marks

13. What are the echo features of pericardial diseases?
14. What are the hardwares used during rotablation?
15. Mention the types of balloons used in angioplasty.
16. What are the echo features of cardiac tamponade?
17. What are the echo features of pulmonary stenosis?
18. What are the echo features of dextrocardia?
19. Mention any three complications of myocardial infarction and their echo features.
20. Mention the steps in coronary angioplasty procedure.
21. What are the three types of contrast used in Cathlab?
22. What are the Echo features of RHD ?

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 18-May-2023

Time: Three Hours Max. Marks: 100 Marks

CARDIAC CARE TECHNOLOGY – APPLIED- PAPER-II (RS-3)

Q.P. CODE: 3277

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. What are the ECG features of various types of myocardial infarction?
2. Mention the steps and the hardware used in coronary angioplasty. Briefly describe complications and their management
   OR
   Brief note on TEE, stress ECHO and foetal Echocardiography.

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. What are the instruments used to measure blood pressure? Mention the normal values of blood pressure in various age groups.
4. What are the ECG features of Tetralogy of Fallot?
5. Mention the types of bundle branch blocks and what are the causes?
   OR
   ECG findings in atrial enlargement.
6. What are the uses of contrast echo?
7. What are the indications for Transesophageal echo?
8. ECG features of aortic stenosis and aortic regurgitation?
9. WPW syndrome – clinical features, ECG manifestations and management.
10. ECG criteria for **Atrial Fibrillation**
    OR
    Note on peripheral Doppler.
11. What are the indications, contraindications and complications of IABP (Intra Aortic Ballon Pump?
12. Brief note on TEE, stress ECHO and fetal Echocardiography.

SHORT ANSWER 10 x 3 = 30 Marks

13. What are the indications and protocols in stress echo?
14. What are the hardwares used in rotablation?
15. Mention two types of intravascular imaging.
16. What are the indications of doing peripheral arterial Doppler?
17. Mention two indications for venous Doppler.
18. Diabetic middle aged patient comes with breathlessness on exertion and heaviness of chest since one day. What are the tests you would recommend to rule out coronary artery disease?
19. A 15-year old girl comes with giddiness and recurrent palpitations. What are the cardiac tests you would recommend to rule out cardiac arrhythmias?
20. What are the routine blood tests you get done before angiogram and angioplasty?
21. What is renal angioplasty? Mention the indications.
22. How do you evaluate coarctation of aorta?

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 20-May-2023

Time: Three Hours Max. Marks: 100

CARDIAC CARE TECHNOLOGY – ADVANCED- PAPER-III (RS-3)

Q.P. CODE: 3278

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Describe the hardware used in PTMC, indications, contraindications for PTMC; describe the procedure and its complications
2. Uses of defibrillator – indications, procedure of using, complications and management
   OR
   Describe ECG changes in electrolyte abnormalities hyperkalemia and hypokalemia

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. Permanent Pacemaker – indications, types and brief steps of procedure
4. Drugs used during cardiac arrest
5. Precautions taken during cardiac catheterizations in pregnancy
   OR
   Holter monitoring – indications and uses
6. Oximetry at various levels
7. Myocardial perfusion scan
8. Device closure of the ASD, indications and contraindication
9. Indication and contraindication of TMT
10. Electrophysiology studies
    OR
    Temporary Pacemaker – indications and procedure
11. Positron emission tomography
12. Uses of NIH catheter

SHORT ANSWER 10 x 3 = 30 Marks

13. Cutting balloon
14. Advantages of radial artery CAG
15. Draw conduction system of heart with label
16. C arm
17. Indications of Cardiopulmonary Resuscitation (CPR)
18. Hardware uses of PDA closure
19. Types of VSD
20. Ambu Bag
21. Advantages of 3D echo
22. CD recording

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 24-Aug-2020

Time: Three Hours | Max. Marks: 100 Marks

Clinical Cardiac Care Technology – I

Paper – I (RS2)

Q.P. CODE: 2920

Your answers should be specific to the questions asked.

Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Echocardiographic evaluation of Cardiac tamponade
2. Brief note on morphological differences between right and left chambers of heart and how do you assess of LV function.
3. Echocardiographic evolution on (a) Hypertrophic cardiomyopathy (b) Restrictive cardiomyopathy.

SHORT ESSAYS (Answer any Ten) 10 x 5 = 50 Marks

4. Classify prosthetic valves in detail.
5. Indications and contraindications of coronary angiogram
6. Different types of catheters
7. Echocardiographic evaluation of Atrial Septal Defect (ASD)
8. Radiation hazards
9. Echo features of patent ductus arteriosus
10. Cardiac monitoring
11. Echo in coarctation of aorta
12. Wall motion scoring
13. ECHO in ST Elevation MI (STEMI)
14. Brief note on bundle branch blocks
15. Assessment of RV function
16. Echo features of TOF
17. Interpretation of normal ECG

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

18. Name some of contrast agents.
19. Material used in PTMC
20. Modes of cardiac imaging
21. Pacemaker – types
22. Echo features of AR
23. Importance of U wave
24. Echocardiographic features of Dextrocardia
25. Pacemaker contrast material
26. Echo features of mitral valve prolapse
27. Guide wires
28. Modified Simpson’s formula
29. ECHO in pericardial effusion

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (Allied Health sciences) Examination – 27-Nov-2023

Time: Three Hours | Max. Marks: 100 Marks

CARDIAC CARE TECHNOLOGY - APPLIED TECHNOLOGY PAPER – II (RS2)
Q.P. CODE: 2921
Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. ECG features in RHD.
2. Add a note on fetal Echocardiography.
3. Dobutamine stress Echo.

SHORT ESSAYS (Answer any Ten) 10 x 5 = 50 Marks

4. Indications and procedure – saline contrast Echo.
5. Complications of coronary angioplasty.
6. Describe any five TEE views.
7. Write a note on types of Transducers used in ultrasound labs.
8. Stepwise approach to any ECG.
9. Why is peripheral angiography required?
10. Antihypertensive drugs.
11. ECG features in Extensive anterior wall MI.
12. How to perform a peripheral Doppler?
13. Describe ECG in hypertension.
14. Discuss about stages of MI on ECG.
15. What are the indications for CAG?
16. What are the indications for TEE?
17. How to record a BP?

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

18. Define Syncope and Angina.
19. What is NYHA classification for angina?
20. Mention any two ECG features of WPW syndrome.
21. Mention any two complex CHD's.
22. Describe the classification of VSD.
23. What are the types of exercise testing?
24. Why is stress testing required.
25. Mention any two acquired heart diseases.
26. What is Myocardial Infarction?
27. Describe any two cardiovascular drugs and its uses.
28. Mention any two types of cardiomyopathy.
29. Mention the uses of peripheral Doppler.

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 29-Nov-2023

Time: Three Hours | Max. Marks: 100 Marks

ADVANCED CARDIAC CARE TECHNOLOGY – III (RS2)

Q.P. CODE: 2922

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Describe the indications, procedure in detail and complication of Balloon Mitral valvuloplasty
2. Describe in detail various modalities of management of cardiac arrest
3. Discuss in detail indications, contraindication and complications of Tread Mill Test

SHORT ESSAYS (Answer any Ten) 10 x 5 = 50 Marks

4. Usefulness of ICCU
5. Pulmonary Balloon Valvuloplasty
6. Criteria for negative TMT
7. Modified Bruce Protocol
8. Target Heart rate in TMT
9. Normal pressures in various chambers
10. Electro mechanical dissociation
11. Ventricular fibrillation
12. Sinus Arrythmia
13. VPC
14. ECG in Hyperkalemia
15. Holter monitoring – Indications and contraindications

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

16. Precautions during defibrillation
17. DC shock
18. Agents used in myocardial perfusion scan
19. Diltiazem
20. LV pressure tracing
21. Femoral artery pressure tracing
22. Right ventricular angiographic views
23. Indications for VSD device closure
24. Step up of oxygen saturation at RV level
25. ASD Balloon sizing
26. First degree heart block
27. Basics of EP study

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 20-May-2023

Time: Three Hours | Max. Marks: 100 Marks

ADVANCED CARDIAC CARE TECHNOLOGY – III (RS2)

Q.P. CODE: 2922

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Describe the indications, contradictions of treadmill test and the management of complications that may occur in the treadmill room
2. Discuss the causes of sudden Cardiac death and describe the management of cardiac anist
3. Describe the procedure and materials used for the closure of atrial septal defect

SHORT ESSAYS (Answer any Ten) 10 x 5 = 50 Marks

4. Causes of ventricular fibrillation
5. Balloon mitral valvuloplosty
6. Purpose of cardiac monitoring
7. Electrocrdiographic recording
8. Complications of defibrillation
9. Procedure of myocardial perfusion scan
10. Usefulness of holter monitoring
11. Normal and abnormal values in oxymetry
12. Precautions followed during pregnancy
13. Patient imaging techniques in nuclear cardiology
14. Describe electrophysiological studies in heart
15. Aortic valve balloon dilatation – indication, procedure and complications in brief

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

16. Aortic dissection
17. Deep vein thrombosis
18. Types of angina
19. Pulmonary embolism
20. VERAPAMIL
21. Nitrates – mode of action and routes of administration
22. Spontaneous echo contrast
23. Hyperkalemia
24. Complete heart block
25. Cyanosis – types
26. Closure of PDA
27. METOPROLOL

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 27-Nov-2023

Time: Three Hours Max. Marks: 100

CARDIAC CARE TECHNOLOGY – APPLIED- PAPER-II (RS-3)

Q.P. CODE: 3277

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Discuss trans-oesophageal echocardiogram – its indications, contraindications and complications
2. Describe in details indications, contraindications, hardware used, procedure and complications of coronary angioplasty
   OR
   ECG features of acute myocardial infarction with special note on anterior wall MI and inferior wall MI

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. ECG in mitral stenosis
4. ECG in AV blocks
5. Foetal echocardiogram
   OR
   Dobutamine stress echocardiogram – indications and procedure
6. ECG features of LVH
7. Contrast echocardiogram
8. ECG feature of dextrocardia
9. Peripheral doppler
10. FFR
    OR
    Define hypertension and its grading
11. Left bundle branch block
12. WPW syndrome

SHORT ANSWER 10 x 3 = 30 Marks

13. ECG in atrial fibrillation
14. Causes of ST elevation in ECG
15. Define pathological Q waves and its causes
16. ECG changes in left and right atrial enlargement
17. ECG in RVH
18. OCT
19. Causes of first degree AV block
20. Management of complete heart block
21. Ventricular tachycardia
22. Types of guiding catheters in PTCA

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. Cardiac Care Technology Degree Examination – 29-Nov-2023

Time: Three Hours Max. Marks: 100

CARDIAC CARE TECHNOLOGY – ADVANCED- PAPER-III (RS-3)

Q.P. CODE: 3278

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Uses of defibrillator, indications, how to use the defibrillator, complications during the use and its management
2. Device closure of PDA, procedure, indications and material used
   OR
   Describe mitral valvuloplasty in detail, procedure indications and complications

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. ECG in hyperkalemia
4. Temporary Pacemaker, indications and procedure
5. Uses of artificial respiration
   OR
   Holter Monitoring
6. **Oximetry in right heart catheterization**
7. Septal ablation therapy
8. Electrophysiology studies
9. Myocardial perfusion scan
10. Describe ICCU setup
    OR
    Device closure of ASD
11. FFR
12. RV pressure tracing

SHORT ANSWER 10 x 3 = 30 Marks

13. Name Hardwares used in PTMC
14. Drugs used in cardiac arrest
15. Types of ASD
16. NIH catheter
17. Indications for PTMC
18. Ablation therapy
19. Accessory pathways in WPW syndrome
20. Amiodarone
21. External cardiac massage
22. Complications of PTMC