Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Cardiac Care Technology Degree Examination – 13-May-2025

Time: Three Hours **Max. Marks: 100**

INTRODUCTION TO CARDIAC CARE TECHNOLOGY (RS2)
Q.P. CODE: 1245

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. Explain the views and window in Transthoracic Echocardiography and write a note on Doppler Echocardiography
2. Explain Bundle branch blocks and various bundle branch blocks in detail
3. Explain Indications, Contraindications, Procedure and Complication of Transesophageal Echocardiography

SHORT ESSAYS (Answer any Twelve) **12 x 5 = 60 Marks**

4. Explain Contrast echocardiography
5. Write a note on Contraindications of TMT
6. Explain the properties of ultrasound waves
7. Define Doppler effect
8. Identifications of ventricular echocardiographic segments in detail
9. Which are the types of transducers and their uses?
10. Which are the various ECG leads and its placement?
11. Define hemiblocks
12. What are the reasons for termination of stress test?
13. ECG features of RVH
14. Which are the various 2D echo views used routinely and mention special views?
    Or
    Add a brief note on TEE views
15. Explain Electrical axis of heart
16. What is high risk TMT?
17. Write a note on TMT protocols

SHORT ANSWERS (Answer any Ten) **10 x 2 = 20 Marks**

18. Identification of IVC in echocardiogram
19. Placement of transducer in all views
20. Explain PLAX view
21. ECG findings in Atrial enlargements
22. Pulse wave doppler
23. Holter monitor
    Or
    X-ray Hazards
24. Q.T. interval
25. Etiology of right axis deviation
26. ECG findings in STEMI
27. Identification of pulmonary artery in echo
28. Laminar and Non-laminar flow in echo
29. Define METS

Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Allied Health Sciences Degree Examination - 08-May-2025

Time: Three Hours **Max. Marks: 100**

APPLIED PHARMACOLOGY (RS-3)

(Cardiac Care Technology and Perfusion Technology)

Q.P. CODE: 3269

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. Classify Local Anaesthetics. Discuss the mechanism of action of Lignocaine. Enumerate the various technique of Local Anaesthetics

2. Classify opioid analgesics. Discuss the therapeutic uses and contraindications of Morphine
   OR
   Define Bioavailability. Discuss the various factors affecting drug bioavailability

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

3. Mechanism of action and therapeutic uses of ACE inhibitors
4. Therapeutic uses and adverse effects of Glucocorticoids
5. Cardioplegic drugs
   OR
   Heparin
6. Therapeutic uses and adverse effects of aspirin
7. Antianginal drugs
8. Drug synergism
9. Classify types of shock. Write their management
10. Mannitol
    OR
    Second generation antihistamines
11. Ondansetron
12. Halothane

SHORT ANSWER **10 x 3 = 30 Marks**

13. Mention three uses of α blockers
14. Mention three uses of diazepam
15. Name three Antitussives
16. Define prodrug. Give two examples
17. Mention three uses of Thiazide diuretics
18. Superinfection
19. Name any three Anti TB drugs
20. Name three Thrombolytics
21. Mention any three uses of calcium channel blockers
22. Mention three uses of Pilocarpine

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. Cardiac Care Technology Degree Examination – 13-May-2025

Time: Three Hours **Max. Marks: 100**

INTRODUCTION TO CARDIAC CARE TECHNOLOGY (RS-3)

Q.P. CODE: 3274

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 echo examination of a patient in detail
2. Discuss indications, contra indications and procedure of conducting TMT test
   OR
   Principle of Piezo electricity and tissue doppler

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

3. RBBB and LBBB pattern
4. Emergency equipment, drip and other drugs for Treadmill test (TMT)
   Or
   Describe the protocols for TMT. Add a note on Emergency drugs used in TMT
5. How to calculate axis on ECG and its interpretation?
   OR
   Describe the 17 segments of left ventricle on echo
6. How to calculate heart rate in ECG normal sinus rhythm?
7. Ventricular tachycardia ECG changes
   Or
   Tachy-arrhythmia on ECG
8. Informed consent for TMT
   Or
   Describe the procedure of TMT
9. Indications and contra indication for TMT
10. LA enlargement on ECG
    OR
    methodology of contrast echo
11. Discuss various transducers used in echo and its uses
12. Hazards of radiation and radiation protection

SHORT ANSWER **10 x 3 = 30 Marks**

13. Indication for contrast echo
14. Difference between right ventricle and left ventricle in morphology on echo
15. Doppler color flow uses
16. How to image mitral valve?
17. How differentiate between right and left atrial enlargement in echo?
18. Use of M mode in echo
19. 3rd degree AV block
20. Defibrillation
    Or
    Morris Index
21. Right atrial enlargement
22. Left anterior hemi block and left posterior hemi block on ECG

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Cardiac Care Technology Degree Examination – 15-May-2025

Time: Three Hours **Max. Marks: 80 Marks**

MEDICINE RELEVANT TO CARDIAC CARE TECHNOLOGY (RS2)
Q.P. CODE: 1246

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. Cyanotic congenital heart diseases. Add a note on Eisenmenger syndrome
2. Acute coronary syndromes types, diagnosis, treatment
3. Dilated, hypertrophic and restrictive cardiomyopathy

SHORT ESSAYS (Answer any Eight) **8 x 5 = 40 Marks**

4. Atrial septal defect
5. Obstructive airway disease
6. Laboratory tests for anemia
7. Hemodialysis
8. Rheumatic mitral valve disease
9. Aortic aneurysms
10. Emergency cardiac procedures in the neonate / infant
11. Aortic valve in the elderly
12. Diabetes mellitus and its effect on the heart
13. Hypertensive emergency

SHORT ANSWERS (Answer any Ten) **10 x 2 = 20 Marks**

14. Thromboangitis obliterans
15. Acute decompensated heart failure
16. Hemophilia
17. Contrast induced nephropathy
18. Sympathetic outflow tract
19. Body mass index
20. Glycosylated hemoglobin
21. Peripheral edema vs pulmonary edema
22. Obesity paradox
23. Blood transfusion
24. Coronary ectasia
25. Parkinsonism

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Cardiac Care Technology Degree Examination – 15-May-2025

Time: Three Hours **Max. Marks: 100**

Medicine Relevant to Cardiac Care Technology (RS-3)

Q.P. CODE: 3275

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 types, hemodynamic, investigations and management of Atrial septal defects
2. Discuss the causes, diagnosis and management of cardiac tamponade
   OR
   Discuss the causes, investigations and management of acute renal failure

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

3. Discuss the causes and management of stroke
4. **Discuss the cause, risk factors and management of peripheral vascular diseases**
5. A brief note on causes and management of hypertension
   OR
   Discuss diagnosis and management of mitral stenosis
6. A brief note on management of bleeding disorders
7. Mention the complications of acute and chronic myocardial infarction
8. Explain pathogenesis of atherosclerosis with neat labeled diagram
9. Classify cyanotic and acyanotic congenital heart diseases
10. Write a note on management of heart failure
    OR
    Write a note on hypertrophic cardiomyopathy
11. What are the indications for renal transplant and describe its importance in renal failure?
12. What is cardiopulmonary resuscitation? A note on Basic Life Support

SHORT ANSWER **10 x 3 = 30 Marks**

13. Mention any four drugs used to treat Brady arrhythmias
14. What is cyanosis?
15. Define hypertension and mention normal range of systolic and diastolic blood pressure
16. List various pulmonary function tests
17. List the risk factors for atherosclerosis
18. Mention any four drugs used to control of diabetes mellitus
19. List the complications of anemia
20. Mention any three drugs used in stroke
21. Mention complications of diabetes mellitus
22. Mention any four indications for dialysis

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. Allied Health Sciences Degree Examination - 26-May-2025

Time: Three Hours **Max. Marks: 50 Marks**

APPLIED PATHOLOGY (RS-3)

(Cardiac Care Technology and Perfusion Technology)

Q.P. CODE: 3266

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

(Note: Both QP Codes 3266 and 3267 are to be answered within total duration of 3 hours)

LONG ESSAYS **1 x 10 = 10 Marks**

1. Describe the risk factors, pathogenesis and complications of myocardial infarction.

SHORT ESSAYS (Question No. 4 choice) **5 x 5 = 25 Marks**

2. Chronic bronchitis.
3. Define hypertension. What are the types and effects of hypertension?
4. Acute tubular necrosis.
   OR
   Define leukemia. Give a brief classification of leukemia.
5. What are the causes of pleural effusion? Write the differences between exudate and Transudate.
6. Role of dialysis in end stage renal disease.

SHORT ANSWER (Question No.9 choice) **5 x 3 = 15 Marks**

7. Prothrombin time (PT).
8. Mention the characteristics of Nephritic syndrome.
9. Define anemia. List the causes of Iron deficiency anemia.
   OR
   Asbestosis.
10. Mention the types of Cardiomyopathy.
11. Causes of pulmonary edema.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. Allied Health Sciences Degree Examination - 26-May-2025

Time: Three Hours **Max. Marks: 50 Marks**

APPLIED MICROBIOLOGY (RS-3)
(Cardiac Care Technology and Perfusion Technology)

Q.P. CODE: 3267

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary
(Note: Both QP Codes 3266 and 3267 are to be answered within total duration of 3 hours)

LONG ESSAYS **1 x 10 = 10 Marks**

1. Enumerate the viruses that are transmitted by blood and body fluids. Describe in detail laboratory diagnosis of HIV infection. Add a note on preventive measures.

SHORT ESSAYS (Question No. 4 choice) **5 x 5 = 25 Marks**

2. Air sampling.
3. Disinfection of OT.
4. Ventilator Associated Pneumonia.
   OR
   Describe working principle and uses of Hot air oven.
5. Explain in detail Hepatitis B vaccine.
6. Infection control measures in ICU.

SHORT ANSWER (Question No.9 choice) **5 x 3 = 15 Marks**

7. List three diseases caused by Staphylococcus aureus.
8. Morphology of Moraxella catarrhalis.
9. Biomedical waste segregation.
   OR
   Needle stick injury.
10. Three Bacteria causing catheter associated UTI.
11. Structure of Hepatitis A virus.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. Allied Health Sciences Degree Examination - 28-Oct-2025

Time: Three Hours **Max. Marks: 50 Marks**

APPLIED PATHOLOGY (RS-3)

(Cardiac Care Technology and Perfusion Technology)

Q.P. CODE: 3266

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary
(Note: Both QP Codes 3266 and 3267 are to be answered within total duration of 3 hours)

LONG ESSAYS **1 x 10 = 10 Marks**

1. Define and classify bleeding disorder. Briefly explain the various laboratory tests used to diagnose bleeding disorders.

SHORT ESSAYS (Question No. 4 choice) **5 x 5 = 25 Marks**

2. End stage renal disease.
3. Classification of Acute Myeloid Leukemia.
4. Describe Aneurysms. Add a note on its complications.
   OR
   Describe pulmonary edema and its pathophysiology.
5. Define Emphysema. Discuss the pathogenesis of emphysema.
6. Describe the causes and pathology of valvular heart diseases. Add a note on complications of artificial valves.

SHORT ANSWER (Question No.9 choice) **5 x 3 = 15 Marks**

7. Estimation of bleeding time and clotting time.
8. Renal calculi.
9. Causes and effects of pleural effusion.
   OR
   List three types of Pneumoconiosis.
10. Polycythaemia Vera.
11. Differences between Transudate and Exudate.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. Allied Health Sciences Degree Examination - 28-Oct-2025

Time: Three Hours **Max. Marks: 50 Marks**

APPLIED MICROBIOLOGY (RS-3)
(Cardiac Care Technology and Perfusion Technology)

Q.P. CODE: 3267

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary
(Note: Both QP Codes 3266 and 3267 are to be answered within total duration of 3 hours)

LONG ESSAYS **1 x 10 = 10 Marks**

1. Discuss in detail the infection control measures employed in the intensive care units.

SHORT ESSAYS (Question No. 4 choice) **5 x 5 = 25 Marks**

2. Disinfection of instruments used in patient care.
3. Modes of transmission and prevention of varicella zoster virus.
4. Gaseous sterilization.
   OR
   Air sampling techniques.
5. Vancomycin resistant enterococci detection and prevention.
6. Prevention of Human immunodeficiency virus infection.

SHORT ANSWER (Question No.9 choice) **5 x 3 = 15 Marks**

7. Prevention of Methicillin Resistant Staphylococcus aureus infections.
8. Morphology of Hepatitis B virus.
9. Mode of prevention of tuberculosis.
   OR
   Pathogenesis of Haemophilus influenzae.
10. List three infections spread by contact.
11. Name three moist heat sterilization methods.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Allied Health Sciences Degree Examination - 30-Oct-2025

Time: Three Hours **Max. Marks: 100**

APPLIED PHARMACOLOGY (RS-3)

(Cardiac Care Technology and Perfusion Technology)

Q.P. CODE: 3269

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. Classify antihypertensive drugs. Discuss the therapeutic uses and adverse effects of ACE inhibitors
2. Classify General Anesthetics. Discuss the advantages and disadvantages of Halothane as a general anesthetic

   OR

   Classify Diuretics. Discuss the mechanism of action, therapeutic uses and adverse effects of Furosemide

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

3. Therapeutic uses and adverse effects of Atropine
4. Amiodarone
5. Cardioplegic drugs

   OR

   Digoxin
6. Low molecular weight heparins
7. Diazepam
8. Therapeutic uses and adverse effects of Glucorticoids
9. β blockers
10. Statins

    OR

    Diclofenac
11. Domperidone
12. Drug therapy of status asthamaticus

SHORT ANSWER **10 x 3 = 30 Marks**

13. Name three centrally acting skeletal muscle relaxants
14. Name three proton pump inhibitors
15. Mention three uses of Thrombolytics
16. **Rationale of combining lignocaine with adrenaline**
17. Drug synergism
18. Name three adverse effects of aminoglycosides
19. Mention three therapeutic uses of Alcohol
20. **Rationale of using N-Acetyl Cysteine in paracetamol in poisoning**
21. Mention three important uses of nitroglycerine
22. Mention three contraindications for morphine

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Allied Health Sciences Degree Examination – 06-Nov-2025

Time: Three Hours **Max. Marks: 100 Marks**

Medicine Relevant to OT Technology (RS-3)
(Anaesthesia Technology and Operation Technology)
Q.P. CODE: 3270

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

LONG ESSAYS (Question No.2 Choice) **2 x 10 = 20 Marks**

1. Classify Arrythmias and discuss about their management.
2. Explain in detail about coronary heart diseases.
   OR
   Discuss in detail about non-invasive and invasive monitoring in the operation theatre.

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

3. Bronchial asthma.
4. Inotropic agents.
5. Precautions during intra hospital transfer of patients.
   OR
   Urinary tract infections.
6. Intra operative anaesthesia record.
7. MALLAMPATTI grading of the Airway.
8. Management of intra-operative hypotension.
9. **List the cause of anemia and write three indications and complications of blood transfusion**
10. Renal failure.
    OR
    Glascow coma scale.
11. Septic shock.
12. **List the physiological changes in Pregnancy**

SHORT ANSWER (Question No. 15 & 20 choice) **10 x 3 = 30 Marks**

13. Challenges of anaesthesia in elderly patients.
14. **Name three causes of pleural effusion**
15. Adult respiratory distress syndrome.
    OR
    Cardiomyopathy.
16. Hypertensive emergencies.
17. Parts of laryngoscope.
18. Propofol.
19. Succinyl choline.
20. Physiological changes in obesity.
    OR
    Airway problems in obese patients.
21. Endotracheal tubes.
22. Diabetic nephropathy.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Cardiac Care Technology Degree Examination – 04-Nov-2025

Time: Three Hours **Max. Marks: 100**

INTRODUCTION TO CARDIAC CARE TECHNOLOGY (RS2)
Q.P. CODE: 1245

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. Explain basic principles of ECG, waves, axis and uses of ECG
2. Define TMT, Protocols, Procedure, Positive and negative criteria
3. Discuss in detail about transesophageal echocardiogram with its modalities

SHORT ESSAYS (Answer any Twelve) **12 x 5 = 60 Marks**

4. Explain Doppler Echo
5. Explain precordial leads in ECG
6. ECG Changes in LAE and RAE
7. ECG findings in Bundle branch block
8. Explain Indications and uses of Holter monitoring
9. Explain M-mode in ECHO
10. Explain various transducer used in echo
11. Write a note on stress echo
12. Explain radiation hazards and prevention in cathlab
13. What is patient position and placement of transducer in echocardiogram
14. Explain Contrast Echocardiography
15. ECG findings in LVH. Write two ECG criteria of LVH
16. Explain Color doppler flow imaging
17. Abnormalities of ST segment and its importance

SHORT ANSWERS (Answer any Ten) **10 x 2 = 20 Marks**

18. Tissue Doppler
19. QT segment importance and abnormalities
20. Unipolar limb leads
21. ST Segments
22. ECG findings in tachycardia and bradycardia
23. Electrical access of heart
24. Leading edge and trailing edge
25. B-mode Echocardiography
26. Position of the patient for echo examination
27. False positive TMT
28. Suprasternal view
29. Hemiblocks

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Cardiac Care Technology Degree Examination – 06-Nov-2025

Time: Three Hours **Max. Marks: 80 Marks**

MEDICINE RELEVANT TO CARDIAC CARE TECHNOLOGY (RS2)
Q.P. CODE: 1246

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. Explain in detail about pathogenesis and classification of Hypertension. Describe its management.
2. Classify cardiomyopathy. Describe any one cardiomyopathy in detail.
3. Discuss on renal diseases and its management.

SHORT ESSAYS (Answer any Eight) **8 x 5 = 40 Marks**

4. Write a note on DORV (Double Outlet Right Ventricle).
5. IHD.
6. Renal failure – etiology, pathophysiology and management.
7. COPD.
8. PFT.
9. CNS diseases – classification and management.
10. Antiarrhythmic drugs.
11. Write a note on pulmonary edema.
12. Describe heart failure.
13. How do you diagnose diabetes mellitus and describe its management.

SHORT ANSWERS (Answer any Ten) **10 x 2 = 20 Marks**

14. Describe the lifestyle changes in coronary artery disease.
15. Mention two risk factors of renal diseases.
16. Mention causes of aortic dissection.
17. Classify aortic diseases.
18. What are the causes for peripheral vascular diseases?
19. Mention any four acyanotic CHD’s.
20. Define type 1 diabetes mellitus and its management.
21. Describe the causes for acute renal failure.
22. Define bleeding disorders. Mention any two disorders you know.
23. Angina.
24. Syncope.
25. Mention any two drugs used in Tachycardia.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Cardiac Care Technology Degree Examination – 06-Nov-2025

Time: Three Hours **Max. Marks: 100**

Medicine Relevant to Cardiac Care Technology (RS-3)

Q.P. CODE: 3275

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. Classify Cyanotic congenital heart diseases. Discuss types, clinical features, investigations and management of any one type of acyanotic heart disease
2. Classify anemia. Add a note on Iron deficiency anemia with its management
   OR
   Discuss pathogenesis, risk factors and complications of atherosclerosis

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

3. Discuss types, investigations and management of aortic aneurysms
4. Causes and management of hypertension
5. Brief note on acute pulmonary embolism and its management strategies
   OR
   A brief note on parasympathetic nervous system
6. Complications of bleeding disorders and its management
7. Causes and management of chronic renal failure
8. Describe various laboratory tests used in bleeding disorders
9. Causes and management of dilated Cardiomyopathy
10. Role of dialysis in renal disorders
    OR
    A brief note on chronic obstructive pulmonary diseases with its management
11. Discuss most common neurological problems in elderly and its management
12. A brief note on management of heart failure

SHORT ANSWER **10 x 3 = 30 Marks**

13. Draw a neat labelled diagram of coronary circulation of heart
14. List the causes of stroke
15. Mention causes of acute heart failure
16. **List any three drugs used in the management in angina**
17. Risk factors of diabetes mellitus
18. Mention causes of cardiac tamponade
19. Mention complications of hypertension
20. List the complications of acute myocardial infarction
21. List the branches of right coronary artery
22. List the indications for renal transplant

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