



**SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)**

B.Sc. Allied Health Sciences Second Year Semester-III

March 2026 Examination

B.Sc. Cardiac Care Technology

Time: 3 Hrs.

Paper –I

[Max. Marks: 100]

Applied Pathology & Microbiology

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

(Use separate answer booklet for Section A & B)

Applied Pathology Section – A (50 Marks)

Q.P Code :J3755

LONG ESSAY

2 X 10 = 20 Marks

1. Describe the etiopathogenesis, clinical features, morphology of heart and laboratory findings in Myocardial Infarction
2. Define and Classify cardiomyopathies. Describe the findings in primary cardiomyopathies

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

3. Classify aneurysms and describe the findings in dissecting aneurysm
4. Describe the FAB Classification of Acute Myeloid Leukemia
5. Describe the etiopathogenesis and laboratory findings in thalassemia
6. Describe the etiopathogenesis and morphology in atherosclerosis
7. Describe the types and effects of aortic stenosis

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

8. Define heart failure and describe the etiology of heart failure
9. List the four features of tetralogy of fallot
10. List 03 causes each for right and left ventricular hypertrophy
11. Describe the laboratory findings in hemophila
12. Describe the laboratory findings in iron deficiency anemia
13. List the normal range of hemoglobin in adult male and 03 causes of anemia
14. List the normal range of prothrombin time and its utility

Applied Microbiology Section – B (50 Marks)

Q.P Code : J3756

(Use separate answer booklet for Section-B)

LONG ESSAY

2 X 10 = 20 Marks

1. Enumerate the types of health care associated infection. Discuss in detail the risk factors and infection control practices to prevent catheter associated blood stream infection (3+3+4)
2. Mention the various routes of transmission of infection in Health care workers. Discuss in detail blood borne infection in Health care workers, its risk factors and preventive measures (2+4+4)

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

3. Care bundle approach in Ventilator associated pneumonia
4. Biomedical waste management
5. Indications and methods of microbiological surveillance and sampling
6. Define surgical site infection, its risk factors and infection control practices
7. Personal protective equipment's and its uses

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

8. Mention five moments of hand hygiene
9. Mention three risk factors for infection due to multidrug resistant organism
10. Name three infections transmitted through body fluids
11. Name three infection transmitted through direct contact
12. Three risk factors for catheter associated urinary tract infection
13. Name three multidrug resistant organism
14. Three important elements of Standard precautions



B.Sc. Allied Health Sciences Second Year (Semester-III)

March/April 2026 Examination

B.Sc. Cardiac care Technology (CCT)

Time : 3 Hrs.

Paper – II

[Max. Marks : 100]

Introduction to Cardiac care Technology

Q.P Code : J3760

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. LONG ESSAY

2 X 10 = 20 Marks

1. Write a note on indications and protocols of TMT .Explain complications which you encounter during exercise stress test
2. Einthoven triangle, limb leads and their axes, Electrode placement for standard ECG and for Treadmill test

II. SHORT ESSAY (Any ten)

10 X 5 = 50 Marks

3. Describe Sokolow Lyon and Romhilt estes score in the diagnosis of LVH
4. Explain the anatomy of cardiac conduction system with neat labelled diagram
5. Describe the ECG changes in RBBB and their clinical significance
- 6 Genesis of QRS complex
7. Principles of electrocardiogram
8. Waves and intervals in normal electrocardiogram
9. ECG manifestations of Incomplete LBBB
10. ECG criteria for right ventricular hypertrophy
11. When do you terminate TMT?
12. Explain the lead system in TMT
13. Write a short note on ECG paper
14. Explain the ECG manifestations in LAE and RAE

III. SHORT ANSWERS (Any ten)

10 X 3 = 30 Marks

15. What is the difference between true and technical dextrocardia in ECG
16. Write normal values of the following
 - a). P wave duration, b). QRS duration, c). PR interval, d). QT interval, e). P wave amplitude
17. Mention ECG criteria of LAFB and LPFB
18. Describe Morris index in ECG
19. Explain Duke score in TMT
20. What are the ECG criteria of complete LBBB
21. Describe adult pulmonary circulation
22. List any 4 absolute contra indication of TMT
23. Explain the anatomical structure of RA
24. What are the changes that occur in heart after the birth of baby?
25. R-R interval
26. SA Node



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B.Sc. Allied Health Sciences Second Year Semester-III

March/April 2026 Examination

B.Sc. Cardiac Care Technology

Time: 2 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: J3770

I. LONG ESSAY

1 X 10 = 10 Marks

1. Define and classify anti emetics. Explain mechanism of action, uses and adverse effects of any one drug of it

II. SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

2. Explain the mechanism of action , uses and adverse effects of thiazide
3. Explain the mechanism of action and uses of low molecular weight heparin
4. Explain the mechanism of action, uses and adverse effects of Prazosin
5. Define pharmacokinetics. Write the factors affecting drug absorption

III. SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

6. Define and classify analgesics with examples
7. Write the mechanism of action and uses of streptokinase
8. Mention three inhalational anesthetic drugs and their adverse effects
9. Mention three uses and adverse effects of calcium channel blockers
10. Mention three anti-platelet agents with their uses
11. Define bioavailability and plasma half life

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**B.Sc. Allied Health Sciences Second Year Semester-III
March/April 2026 Examination**

B.Sc. Cardiac care Technology (CCT)

Time: 2.30 Hrs.

[Max. Marks: 80]

PAPER-IV

Medicine Relevant to Cardiac care Technology

Q.P Code: J3780

Your answers should be specific to the questions asked.

I. Long Essay

2X10=20 Marks

1. Explain the classification, pathophysiology, and treatment of choice for ASD, VSD and PDA
2. Discuss signs, symptoms, diagnosis and treatment of ischemic heart disease

II. Short Essay (Answer any Six)

6X5=30 Marks

3. Aortic Stenosis –Definition, etiology and diagnosis
4. Mitral regurgitation- definition, etiology and diagnosis
5. Aortic regurgitation- etiology and diagnosis
6. Explain the clinical presentation of RHD in detail
7. Describe the etiology and pathophysiology of aortic aneurysm
8. Explain the classification and pathophysiology of hypertensive cardiomyopathy in detail
9. Explain pulmonary edema in detail
10. Anemia- presentation, causes, investigations and diagnosis

III. Short Answers (Answer any ten)

10X3=30 Marks

11. Risk factors of IHD
12. Pulmonary function test
13. Hemophilia
14. Types of cardiomyopathy
15. Etiology of non-cardiogenic pulmonary edema
16. Classification of Congenital Heart Disease
17. Classification of truncus arteriosus
18. Classification of anemia based on morphology
19. Pathophysiology of RHD
20. Define coarctation of Aorta
21. Components of TOF
22. Etiology of dilated cardiomyopathy



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March/April 2026 Examination

B.Sc. Cardiac care Technology (CCT)

Time : 2.30 Hrs.

Paper – II

[Max. Marks : 80]

Introduction to Cardiac care Technology

Q.P Code : K3620

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. Long Essay

2 X 10= 20 Marks

1. Exercise stress testing protocols, observations and contraindications
2. Discuss the different types of waves and intervals in normal electrocardiogram

II. Short Essay

6 X 5= 30 Marks

3. Name the ECG leads and write how to place it
4. Types of heart block
5. Write about T wave and ST segment
6. Electrical axis deviation
7. ECG changes in RBBB and LBBB
8. Indications for stopping Exercise testing

III. Short Answers

10 X 3= 30 Marks

9. Draw and label Einthoven's triangle
10. Tall T wave and T wave inversions
11. ECG paper
12. U wave
13. Genesis of QRS complex
14. Preparation of patient for TMT
15. Various ST patterns described in Treadmill Test
16. Left atrial enlargement criteria in electrocardiogram
17. Heart Rate calculation in normal electrocardiogram
18. ECG in RA enlargement



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B.Sc. Allied Health Sciences Second Year Semester-III

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B.Sc. Cardiac Care Technology

Time: 2.00 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: K3630

I. LONG ESSAY

1 X 10 = 10 Marks

1. List drugs used in Hypertension. Explain the mechanism of action, uses and adverse effects of Beta Blockers

II. SHORT ESSAY

3 X 5 = 15 Marks

2. Explain the mechanism of action, uses and adverse effects of thiazides
3. Explain the mechanism of action, uses and contraindications of propranolol
4. Explain mechanism of action and Write two uses of pancuronium

III. SHORT ANSWERS

5 X 3 = 15 Marks

5. Explain mechanism of action, uses and adverse effects of morphine
6. Write three uses of ACE inhibitors
7. Mention the difference between nitrous oxide and halothane
8. Write three uses of adrenaline
9. Mention three uses of frusemide

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B.Sc. Cardiac care Technology (CCT)

Time: 2.30 Hrs.

[Max. Marks : 80]

PAPER-IV

Medicine Relevant to Cardiac care Technology

Q.P Code: K3640

Your answers should be specific to the questions asked.

I. Long Essay

2 X 10= 20 Marks

1. Define atherosclerosis. Risk factors, clinical significance and prevention
2. Classification of congenital heart disease. Discuss about ventricular septal defect

II. Short Essay

6 X 5= 30 Marks

3. Uses of pulmonary function tests
4. Management of hypertension
5. Hypertrophic cardiomyopathy
6. Rheumatic mitral valve disease
7. Aortic regurgitation- definition, etiology and diagnosis
8. Obstructive versus restrictive pulmonary disease

III. Short Answers

10 X 3= 30 Marks

9. Classification of VSD
10. Causes of pulmonary edema
11. Components of TOF
12. What is PDA
13. Rheumatic fever
14. Prothrombin time (PT)
15. Dissection of aorta
16. Bleeding time
17. Mitral stenosis
18. Clinical features of COPD



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B.Sc. Cardiac Care Technology

Time: 2 hrs 30 mins.

Paper – I

[Max. Marks: 80]

Applied Pathology & Microbiology

(Use separate answer booklet for Section A & B)

Section – A

Applied Pathology (40 Marks)

Q.P Code: KA3015

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

1 X 10 = 10 Marks

1. Define atherosclerosis, write briefly its risk factors, pathogenesis, morphology, clinical significance and prevention.

SHORT ESSAY

3X 5 = 15 Marks

2. Hypertension – Definition types, pathogenesis and its effects.
3. Classify hemolytic anemia and write a note on its characteristic features
4. Cardiac hypertrophy – causes and pathophysiology

SHORT ANSWERS

5 X 3 = 15 Marks

5. Name three causes for normocytic normochromic anemia
6. Write 3 causes for mitral stenosis
7. Write three complication of sickle cell anemia
8. Briefly describe congenital heart disease.
9. Write three causes for eosinophilia

Section – B

Applied Microbiology (40 Marks)

Q.P Code: KA3016

(Use separate answer booklet for Section-B)

LONG ESSAY

1 X 10 = 10 Marks

1. Define Ventilator associated pneumonia, its causative agents, risk factors and preventive measures (2+2+3+3)

SHORT ESSAY

3 X 5 = 15 Marks

2. Describe the clinical manifestations and laboratory diagnosis of Pneumococci.
3. Describe the risk factors and preventive measures of catheter associated blood stream infection
4. What is MRSA, mention the types of MRSA and its preventive measures

SHORT ANSWERS

5 X 3 = 15 Marks

5. Mention 3 indications for Microbiological surveillance of OT
6. Name three blood borne viruses
7. Routes of transmission of infection in the hospital
8. Name three multidrug resistant organism
9. Mention into which colour coded bag are masks, urobag and needle discarded

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Introduction to Cardiac Care Technology

Q.P Code: KA3020

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. LONG ESSAY

2 X 10 = 20 Marks

1. Explain in detail about the Arterial Supply of the heart.
2. Define Cardiac cycle. Different phases of cardiac cycle. Wigger's diagram. Events taking place in Cardiac cycle. (2+4+2+2)

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Describe Sokolow Lyon and Romhilt Estes score in the diagnosis of LVH.
4. Explain genesis of QRS complex.
5. Explain development of RA in detail.
6. Explain about ECG manifestations of Fascicular blocks.
7. Explain about vena cava and its branches.
8. Explain about Formation of IAS with a neat diagram .

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. Write about semilunar valves.
10. Explain about Wenckebach Phenomenon .
11. ECG Criteria for Batrial enlargement.
12. Write about Internodal Pathways.
13. Write about limb leads .
14. Write a note on Fibrous Skeleton of the heart.
15. Explain about Formation of Heart Tube.
16. Write about the following:
a) PR interval b) QT interval
17. Difference between RA and LA .
18. Define Preload and Afterload .

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Time: 2.00 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: KA3030

I. LONG ESSAY

1 X 10 = 10 Marks

1. List drugs used in Hypertension. Explain the mechanism of action, uses and adverse effects of Beta Blockers

II. SHORT ESSAY

3 X 5 = 15 Marks

2. Explain the mechanism of action, uses and adverse effects of thiazides
3. Explain the mechanism of action, uses and contraindications of propranolol
4. Explain mechanism of action and Write two uses of pancuronium

III. SHORT ANSWERS

5 X 3 = 15 Marks

5. Explain mechanism of action, uses and adverse effects of morphine
6. Write three uses of ACE inhibitors
7. Mention the difference between nitrous oxide and halothane
8. Write three uses of adrenaline
9. Mention three uses of frusemide

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Clinical Cardiology

Q.P Code: KA3040

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. LONG ESSAY

2 X 10 = 20 Marks

1. Discuss the cardiovascular and non-cardiovascular causes of chest pain, including their evaluation and diagnostic approaches.(2+2+3+3)
2. Define cyanosis, mechanism of cyanosis, investigation and treatment of cyanosis. (2+3+3+2)

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Describe the clinical presentation and diagnostic test of pulmonary arterial hypertension.
4. NYHA functional classification of Heart failure.
5. Explain about paroxysmal Nocturnal dyspnea and orthopnea in detail.
6. Write a short note on Systolic murmur.
7. Explain about symptoms and treatment of palpitation.
8. Define dyspnea, clinical evaluation and Investigation of it.

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. Write about Vasovagal syncope.
10. Differentiate between central and peripheral cyanosis.
11. MMRC Scale for Dyspnea.
12. Define hypertension and explain about management of it.
13. Define cardiomegaly and list one Chest X ray Finding.
14. Write about Prinzmetal angina.
15. ECG changes seen in SHTN.
16. Define arterial pulse and draw the waveform.
17. Define hypertensive urgency and emergency.
18. Write about the types, causes and risk factors of Angina.

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