



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2025 Examination

B.Sc. Cardiac Care Technology

Time: 3 Hrs.

[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)

Section – A

Applied Pathology (50 Marks)

Q.P Code :J4755

Long Essay

2 X 10 = 20 Marks

1. List the lesion in chronic obstructive pulmonary disease (COPD). Describe The etiopathogenesis, clinical features, morphology of chronic bronchitis.
2. Write the clinical manifestations of renal diseases. Define Acute renal failure. Write its etiopathogenesis and clinical features.

Short Essay (Answer any three)

3 X 5 = 15 Marks

3. Describe etiopathogenesis, clinical features, morphology, and treatment of anthracosis.
4. End stage renal disease- discuss the causes and effects.
5. Write the difference between obstructive and restrictive lung disease.
6. Briefly describe obstructive uropathy.
7. Write causes and effects and diagnosis of pulmonary congestion.

Short Answers (Answer any Five)

5 X 3 = 15 Marks

8. Complications of dialysis
9. Briefly describe pleural effusion
10. Write about casts and crystals in urine
11. List the various lesions under pneumoconiosis.
12. Briefly describe chronic glomerulonephritis
13. Gross and microscopic findings of emphysema.
14. Briefly describe chronic pyelonephritis

Section – B

Applied Microbiology (50 Marks)

Q.P Code : J4756

(Use separate answer booklet for Section-B)

LONG ESSAY

2x10= 20marks

1. Define the terms Sterilization and Disinfection. Classify Disinfectants and describe the working principle, uses, advantages, disadvantages of Ethylene Oxide Sterilization and add a note on its sterilization control (1+1+6+2)
2. Define Central Sterile Supply Department. Enumerate the objectives and describe the work practice of Central Sterile Supply Department in detail (2+2+6)

SHORT ESSAYS (Answer any three).

3X5=15 marks

3. Describe the Spaulding's classification and mention the appropriate methods of disinfection
4. Describe the method of packing the various instruments, uses and sterilization control of Autoclave
5. Describe various methods of fumigation in OT
6. Describe the care bundle approach to prevent Central line associated blood stream infection in ICU
7. Describe different methods of cold sterilization with examples

SHORT ANSWERS (Answer any five).

5X3=15 marks

8. Define and name two antiseptics
9. Mention any six factors contributing to infection in ICU setup
10. Mention three uses of sodium hypochlorite solution
11. Mention the disinfectants used to sterilize bed pan, thermometer and endoscope
12. Name three chemical sterilant
13. Mention three disinfectants used in laboratory
14. Mention three indications of microbiological surveillance in OT

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2025 Examination

B.Sc. Cardiac care Technology (CCT)

Time: 3 Hrs.

[Max. Marks: 100]

Introduction to Cardiac care Technology

Q.P Code: J4760

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. Long Essay (no choice)

2×10=20Marks

1. Discuss the identification of various Echocardiography segments of left ventricle with labelled diagram.
2. Trans Esophageal Echo (TEE)- indications, contraindications and views in TEE

II. Short Essay (Answer any 10)

10×5=50Marks

3. Explain transducer with neat labelled diagram
4. Explain the principle of Doppler ultrasound
5. Write a note on optimization of Doppler signals
6. Importance of gain in echocardiography
7. Doppler artifacts in detail
8. Explain systemic and pulmonary circulation of heart
9. Write the applications of PLAX view
10. Draw neat labelled diagram of m mode at MV
11. Draw neat labelled diagram of m mode at AV
12. Explain Aliasing effect
13. Parasternal short axis views with appropriate diagrams
14. Define
 - a. Doppler shift
 - b. Nyquist limit
 - c. Pulse repetition frequency
 - d. Spectral analysis
 - e. Attenuation

III. Short Answer (Answer any 10)

10×3=30Marks

15. What are the assessment that can be done in suprasternal view
16. Application of Apical 4 chamber view
17. Write a note on limitation and safety in contrast echocardiography
18. LV opacification by contrast echocardiography
19. Write a short note on Doppler shift
20. Complications of Trans esophageal echocardiography
21. Draw neat labelled diagram of subcostal view
22. Apical 2 chamber view
23. What is the advantage of continuous wave TDI over Pulse wave TDI
24. Types of resolution
25. List few contra indications of contrast echocardiography
26. Laminar and non-laminar flow pattern in Doppler





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

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

September 2025 Examination

B.Sc. Cardiac Care Technology

Time: 2 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: J4770

LONG ESSAY

1 X 10 = 10 Marks

1. Classify drugs used in bronchial asthma. Explain mechanism of action, uses of salbutamol. (3+5+2)

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

2. Explain mechanism of action, uses and adverse effects of diclofenac
3. Explain mechanism of action, uses and adverse effects of Tetracyclines
4. Explain mechanism of action, uses and adverse effects of antitubercular drugs
5. Explain mechanism of action, uses and adverse effects of Furosemide

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

6. Explain about Penicillin.
7. List opioid antagonist with their uses
8. List three uses and three adverse effects of metronidazole
9. List the advantages of second generation antihistamines over first generation antihistamines
10. Explain about Insulin
11. List three pharyngeal demulcents write their mechanism of action

*** * ***



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2025 Examination

B.Sc. Cardiac Care Technology (CCT)

Time: 2hrs 30 mins

[Max Marks: 80]

Medicine Relevant to Cardiac Care Technology

Q.P Code: J4780

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

Long Essay

2 X 10= 20 Marks

1. Define obesity. What are its causes and briefly explain the effects of obesity on cardiovascular system
2. Define acute renal failure. Briefly explain its pathophysiology, clinical features, diagnosis and management

Short Essay (any six)

6 X 5= 30 Marks

3. Diagnosis and management of chronic renal failure
4. Describe DM. write its clinical features and aetiology
5. Indications and contraindications of kidney transplantation
6. What are the normal physiologic changes that occur during pregnancy
7. Difference between haemodialysis and peritoneal dialysis
8. Explain foetal circulation.
9. Define TOF, ASD, Tricuspid atresia, transposition of great arteries and VSD
10. Definition, classification and risk factors of hypertension

Short Answers (any ten)

10 X 3= 30 Marks

11. Parasympathetic nervous system
12. Classification of peripheral nervous system
13. Definition and risk factors of acute renal failure.
14. Diagnosis of diabetes mellitus.
15. Complications during haemodialysis
16. Complications during renal transplantation
17. Aetiology of chronic renal failure
18. Treatment of Diabetes Mellitus
19. Modifiable and non-modifiable risk factors of obesity
20. Sympathetic nervous system
21. Management of chronic kidney disease
22. Three modalities of Renal Replacement Therapy



SRI DEVARAJ URS ACA-DEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2025 Examination

B.Sc. Cardiac Care Technology (CCT)

Time: 2.30 Hrs.

[Max. Marks:80]

Applied Pathology & Microbiology

(Use Separate answer booklet for Section A & B)

(SECTION A)

APPLIED PATHOLOGY (40 Marks)

Q.P Code: KA4055

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

Long Essay

1 X 10 = 10 Marks

1. List the lesion in chronic obstructive pulmonary disease (COPD). Describe The etiopathogenesis, clinical features, morphology of Emphysema.

Short Essay

3 X 5 = 15 Marks

2. Define End stage renal disease, Describe the etiology, effects and role of dialysis and renal transplantation in its management.
3. Describe the etiology, pathogenesis, morphology and clinical features of pulmonary edema
4. Define chronic renal failure (CRF), write the stages, etiology and clinical features of CRF

Short Answers

5 X 3 = 15 Marks

5. Define chronic glomerulonephritis
6. Write 3 points to differentiate restrictive from obstructive lung diseases
7. Name the common symptoms of Kidney diseases.
8. Write the histopathological findings in silicosis.
9. Causes of obstructive uropathy

Sec-B

Applied Microbiology(40 Marks)

Q.P Code:KA4056

LONG ESSAY

1 X 10 = 10 Marks

1. Define Central Sterile Supply Department. Enumerate the objectives and describe the work practice of the Central Sterile Supply Department in detail.

SHORT ESSAY

3 X 5 = 15 Marks

2. Discuss the mechanism of action, advantages, disadvantages and sterilisation control of Ethylene oxide sterilisation.
3. Describe different methods of cold sterilisation with examples.
4. Classification of patient care units based on the risk involved and the appropriate methods of disinfection

SHORT ANSWERS

5 X 3 = 15 Marks

5. Name three types of patient care items in Spaulding's classification with examples.
6. Enumerate three uses of Glutaraldehyde.
7. Define and name two antiseptics.
8. Mention the holding temperature and time for sterilisation by hot air oven.
9. Name three types of healthcare-associated infections in the ICU.

* * *



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2025 Examination

B.Sc. Cardiac Care Technology

Time: 2hrs 30mins

[Max. Marks: 80]

Basics of Echocardiography and its clinical applications

Q.P Code: KA4060

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Draw a neat labelled diagram of different views of Transthoracic Echocardiography.
2. Dobutamine Stress Echo-Indications to terminate & Procedure.

SHORT ESSAY

6 X 5 = 30 Marks

3. Contraindications of TMT.
4. Write in detail about the different types of resolution?
5. Briefly explain about the applications of M-mode at LV Cavity with the neat labelled diagram.
6. Transesophageal Echo-Indications, Contraindications.
7. Explain Piezoelectric effect.
8. Difference between Continuous Wave doppler and Pulsed Wave doppler.

SHORT ANSWERS

10 X 3 = 30 Marks

9. Applications of Transducer.
10. Define Frequency & Wavelength.
11. Uses of Color Doppler.
12. Which ECG Changes are Considered significant during TMT?
13. Define Nyquist Limit.
14. Components of Transducer.
15. List few doppler artifacts.
16. Define Hypokinesia & Akinesia.
17. Indications for TMT.
18. Properties of Ideal Contrast agent.

* * *



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2025 Examination

B.Sc. Cardiac Care Technology

Time: 2.30 Hrs.

[Max. Marks: 80]

Advanced ECG & Basics of Cardiac Cath

Q.P Code: KA4070

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain about Holter monitoring in detail.
2. ECG Changes: 1. Atrial Flutter
2. Ventricular Tachycardia

SHORT ESSAY

6 X 5 = 30 Marks

3. Discuss about ECG Changes in WPW Syndrome.
4. Normal Oxygen Saturation of SVC, IVC, RA&RV.
5. Difference between Guide and Diagnostic Catheter.
6. ECG Findings in Atrial Fibrillation.
7. Pressure tracings of RA, RV, and PA with normal values.
8. ECG Changes: 1. Hypocalcemia
2. Hyperkalemia

SHORT ANSWERS

10 X 3 = 30 Marks

9. Cardioversion.
10. OTW Balloon catheter.
11. Compliant and Non Compliant Balloons.
12. Indications for Permanent Pacemaker Implantation.
13. Different Patterns of Ventricular premature complex.
14. Conduction system of heart.
15. Normal Sinus Rhythm.
16. Seldinger's Technique.
17. Ideal Characteristics of catheters.
18. How to calculate HR in ECG?

* * *