



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

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 : K3705

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. Classify leucocytes. Describe microscopic morphology of leucocytes with a diagram
3. Pathophysiology of left heart failure
4. Classify hemolytic anemia and write a note on its characteristic features

SHORT ANSWERS

5 X 3 = 15 Marks

5. Sudden cardiac death
6. Causes for aortic stenosis
7. Causes for restrictive cardiomyopathy
8. What is Leukemoid reaction and 3 causes
9. Name the clotting factors

Section – B

Applied Microbiology (40 Marks)

Q.P Code : K3706

(Use separate answer booklet for Section-B)

LONG ESSAY

1 X 10 = 10 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)

SHORT ESSAY

3 X 5 = 15 Marks

2. Define surgical site infection, its risk factors and infection control practices
3. Enumerate the types of Personal protective equipment's and its uses
4. Describe the Biomedical waste management

SHORT ANSWERS

5 X 3 = 15 Marks

5. List three modes of transmission of HIV infection
6. Mention three important elements of Standard precautions
7. List the Sources and modes of transmission of infection acquired by health care worker
8. Mention three diseases that spread by respiratory route
9. Mention the steps of hand hygiene



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

Paper –II

[Max. Marks : 80]

Introduction to Cardiac Perfusion Technology

Q.P Code: K3710

Your answers should be specific to the questions asked.

Draw neat, labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain Hemostatic and Hemodynamic monitoring during CPB
2. Write about components of ECC.

SHORT ESSAY

6 X 5 = 30 Marks

3. Name the equipment used during Cardiac surgery and its uses
4. What are the uses of the following components of Cardiopulmonary Bypass?
a) Pumps b) Heat Exchanger c) Arterial line filter d) Vents and suckers e) bubble detector
5. Write note on Azygous flow technique
6. Heparin- its dose and uses
7. Explain acid base balance during CPB.
8. Arterial and venous cannulation in cardiopulmonary bypass and the various sites of cannulation

SHORT ANSWERS

10 X 3 = 30 Marks

9. Normal arterial blood gas values
10. Augmented venous drainage.
11. Uses of bubble detector
12. Types of pumps used during CPB
13. Activated clotting time and its importance in CPB
14. What is cardioplegia and its uses
15. Defibrillator and its uses
16. Fibrillators and its uses
17. Metabolic acidosis.
18. Cardioplegia.

*** * ***

(2021 -22 BATCH ONLY)

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)



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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: K3720

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

Long essay

1x10=10 Marks

1. Classify cholinergic blocking drugs. Explain mechanism of action, uses and adverse effects of Atropine.

Short essay

3 x 5 = 15 Marks

2. Explain the mechanism, uses and adverse effects of thiazides
3. List the advantages and disadvantages of intravenous route.
4. Explain the mechanism, uses and adverse effects of ergot alkaloids

Short answer

5 x 3 = 15 Marks

5. Explain mechanism of action, and uses of streptokinase.
6. Write the treatment of anaphylactic shock
7. List three antiplatelet agents and write three uses
8. Mention three uses of pancuronium.
9. Mention three factors affecting bioavailability



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

Paper –IV

[Max. Marks: 80]

Medicine Relevant to Cardiac Perfusion Technology

Q.P Code: K3730

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

LONG ESSAY

2 X 10 = 20 Marks

1. Explain Congenital heart disease.
2. Briefly explain transposition of great arteries in detail

SHORT ESSAY

6 X 5 = 30 Marks

3. Cardiogenic pulmonary edema
4. Classification and pathophysiology of HCM
5. Etiology and pathophysiology of DCM
6. Clinical manifestations in RHD
7. Pathophysiology of TAPVC in detail
8. Hypertension and its management.

SHORT ANSWERS

10 X 3 = 30 Marks

9. Pathophysiology of pulmonary edema
10. Risk factors of PVD
11. Write a short note on PDA
12. Write a short note on truncus arteriosus
13. Pulmonary function test
14. Diagnosis of RHD
15. What are stages of normal coagulation?
16. Clinical presentation of anemia
17. Describe cyanotic and acyanotic CHD with example
18. Describe LVH in HTN patients

*** * ***



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

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 : KA3135

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. Classify leucocytes. Describe microscopic morphology of leucocytes with a diagram
3. Pathophysiology of left heart failure
4. Classify hemolytic anemia and write a note on its characteristic features

SHORT ANSWERS

5 X 3 = 15 Marks

5. Sudden cardiac death
6. Causes for aortic stenosis
7. Causes for restrictive cardiomyopathy
8. What is Leukemoid reaction and 3 causes
9. Name the clotting factors

Section – B

Applied Microbiology (40 Marks)

Q.P Code : KA3136

(Use separate answer booklet for Section-B)

LONG ESSAY

1 X 10 = 10 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)

SHORT ESSAY

3 X 5 = 15 Marks

2. Define surgical site infection, its risk factors and infection control practices
3. Enumerate the types of Personal protective equipment's and its uses
4. Describe the Biomedical waste management

SHORT ANSWERS

5 X 3 = 15 Marks

5. List three modes of transmission of HIV infection
6. Mention three important elements of Standard precautions
7. List the Sources and modes of transmission of infection acquired by health care worker
8. Mention three diseases that spread by respiratory route
9. Mention the steps of hand hygiene



Sri Devaraj Urs ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)

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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time : 2.30 Hrs.

[Max. Marks : 80]

Introduction to Cardiac Perfusion Technology

Q.P Code: KA3140

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

LONG ESSAY

2 X 10 = 20 Marks

1. Explain hemostatic monitoring.
2. Explain principles of: a) bubble oxygenator, b) membrane oxygenator c) heat exchanger d) centrifugal pump d) venous drainage (2+2+2+2+2)

SHORT ESSAY

6 X 5 = 30 Marks

3. Write a note on pH imbalance.
4. Explain function, principle, material used and blood-bath gradient of Extracorporeal heat exchanger.
5. List the causes of poor venous drainage.
6. Write a note on roller pumps.
7. Compare membrane and bubble oxygenators.
8. What are the sites of arterial, venous and cardioplegia cannulation?

SHORT ANSWERS

10 X 3 = 30 Marks

9. Formula used to calculate BSA, Normal flows and cardioplegia dosage.
10. Write a short note on flow meters.
11. Name various neurological monitoring used in cardiac surgeries.
12. PTT
13. What is the normal ACT value for cannulation, to start internal suction and to initiate CPB?
14. What is occlusion setting in roller pump?
15. What is ECG? Draw a neat labelled diagram of normal sinus rhythm.
16. What is VAVD?
17. What are the delivery pressure of ante grade aortic root, ante grade ostial and retrograde cardioplegia?
18. Write the composition of del Nido cardioplegia.

* * *



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: KA3150

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

Long essay

1x10=10 Marks

1. Classify cholinergic blocking drugs. Explain mechanism of action, uses and adverse effects of Atropine.

Short essay

3 x 5 = 15 Marks

2. Explain the mechanism, uses and adverse effects of thiazides
3. List the advantages and disadvantages of intravenous route.
4. Explain the mechanism, uses and adverse effects of ergot alkaloids

Short answer

5 x 3 = 15 Marks

5. Explain mechanism of action, and uses of streptokinase.
6. Write the treatment of anaphylactic shock
7. List three antiplatelet agents and write three uses
8. Mention three uses of pancuronium.
9. Mention three factors affecting bioavailability



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

[Max. Marks: 80]

Paper – IV

Applied Anatomy & Physiology

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 Anatomy (40 Marks)

Q.P Code: KA3165

LONG ESSAY

1×10=10 Marks

1. Describe the heart under following headings (6+3+1)
 - a) External and internal features of right ventricle
 - b) Blood supply
 - c) applied anatomy

SHORT ESSAY

3×5=15 Marks

2. Describe the external features and lobes of prostate gland
3. Explain thoracic duct
4. Explain Root of the lung

SHORT ANSWERS

5×3=15 Marks

5. Classify nervous system
6. Name the Recesses of pleura
7. Name 3 veins which do not have valves in their lumen
8. Type of anastomoses
9. Dextrocardia

Section – B

Applied Physiology (40 Marks)

Q.P Code: KA3166

(Use separate answer booklet for Section-B)

Long essay

1x10=10 Marks

1. Define GFR. Give the normal value and name the substance used to measure it? List five factors influencing GFR and explain any 2 (3+7)

Short essay

3x5=15 Marks

2. Explain the role of Renin Angiotensin mechanism in regulation of blood pressure
3. Define Anaemia, Tachycardia, stroke volume, blood pressure and thrombocytopenia
4. List the differences between the cortical and juxta glomerular nephron

Short answer

5x3=15 Marks

5. List three functions of platelets
6. Give the values partial pressure of oxygen in the inspired air in the alveoli arteries and capillaries.
7. List the function of blood
8. Name the conducting system of heart
9. What is P50 and its significance