



**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 Perfusion 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: 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. 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 complications 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: KA3136

(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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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.

I. LONG ESSAY

2 X 10 = 20 Marks

1. what is Cardiopulmonary bypass. Describe the following components of Cardiopulmonary bypass.
a) Pumps b) Heat Exchanger c) Arterial line filter d) Vents and suckers e) safety Alarms
2. Explain in detail about Haemodynamic monitoring during CPB

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Write a note on hemostatic monitoring during CPB.
4. what are the different equipment's used in Cardiac surgery along with its uses
5. Explain the different chambers of the heart
6. Uses of Heparin, its dose and monitoring during CPB
7. Aseptic technique.
8. Draw a neat labelled diagram of CPB circuit.

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. Acid Base status and its monitoring
10. Alarm systems used in CPB
11. Heater Cooler machine and its uses
12. Uses of bubble detector
13. Uses of angiography
14. what is ABG and its uses
15. what is protamine sulphate and its uses
16. Name the filters used in CPB.
17. Name the valves of Heart.
18. Sites of left heart venting.

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Time: 2.00 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: K3720

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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Time : 2.30 Hrs.

Paper –IV

[Max. Marks : 80]

Medicine Relevant Cardiac Perfusion Technology

Q.P Code : K3730

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. LONG ESSAY

2 X 10 = 20 Marks

1. a) what is Pulmonary Edema (2)
b) Explain Pathophysiology, Classification, Clinical manifestation, complications and treatment methods of Pulmonary Edema (8)
2. a) Explain congenital heart disease? (5)
b) Describe Tetralogy of Fallot in detail. (5)

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Treatment for Aortic aneurysm
4. Signs, Symptoms and complications of Chronic obstructive pulmonary disease
5. Pathogenesis of Coronary artery disease
6. Briefly explain cardiogenic Pulmonary edema
7. Explain pathophysiology and clinical manifestations of peripheral vascular disease
8. what is anemia and explain its causes

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. clinical manifestation of IHD
10. Pathophysiology of RHD
11. Diagnosis of COPD
12. Treatment of anemia
13. Staging of Pulmonary edema
14. causes and prevention of varicose veins
15. Acyanotic heart disease with examples
16. Angina Pectoris
17. Jones criteria for the diagnosis of Rheumatic fever
18. Patent ductus arteriosus and its treatment

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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.

I. 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)

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Write a note 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.

III. 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 antegrade aortic root, antegrade ostial and retrograde cardioplegia.
18. Write the composition of del Nido cardioplegia.

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Time: 2.00 Hrs.

[Max. Marks: 40]

Applied Pharmacology

Q.P Code: KA3150

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. Allied Health Sciences Second Year (Semester-III)

March/April 2026 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

[Max. Marks: 80]

Paper – I

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

I. Long Essay

1X10=10 Marks

1. Describe the heart under following headings (4+4+2)
a) External features b) Blood supply c) Applied anatomy

II. Short Essay

3X5=15 Marks

2. Trigone of urinary bladder
3. Explain bronchopulmonary segments
4. Describe classification of arteries

III. Short Answers

5X3=15 Marks

5. Structures passing through the hilum of kidney
6. Carotid body
7. Name the layers of artery
8. Example of myelinated and non-myelinated nerve fibres
9. Difference between capillaries and sinusoids

Section – B

Applied Physiology (40 Marks)

Q.P Code: KA3166

I. Long Essay

1X10=10 Marks

1. Define Hemostasis and explain the extrinsic and intrinsic mechanism of blood coagulation in a flow chart (2+8)

II. Short Essay (answer any 3)

3X5=15 Marks

2. Draw a neat labelled diagram of the nephron and list the function of each component
3. Define Landsteiner's law and mention the limitations
4. Define autoregulation? Name the other organs which has this mechanism and list the theories of autoregulation

III. Short Answer

5X3=15 Marks

5. Draw a neat labelled diagram of ECG
6. Define GFR and give the normal value
7. Name three different blood group systems
8. Define Blood pressure and give normal value
9. List three non-respiratory functions of respiratory system

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