



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 Perfusion Technology (CPT)

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: K4745

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. List out 2 criteria for chronic renal failure
8. Write the histopathological findings in silicosis.
9. Causes of obstructive uropathy

Sec-B

Applied Microbiology(40 Marks)

Q.P Code:K4746

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.

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September 2025 Examination

B.Sc. Cardiac Perfusion Technology

Time: 2hrs 30mins

[Max. Marks: 80]

Introduction to Cardiac Perfusion Technology

Q.P Code: K4750

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Write a note on a) arterial filter b) bubble trap c) venous reservoir d) axial pump e) connector
(2+2+2+2+2)
2. Explain Oxygenators.

SHORT ESSAY

6 X 5 = 30 Marks

3. Write the differences between bubble oxygenator and membrane oxygenator.
4. Augmented venous drainage.
5. Compare antegrade and retrograde routes of cardioplegia delivery.
6. List the sites of arterial cannulation.
7. Causes of poor venous drainage and its management.
8. What are the characteristics of the ideal blood pump?

SHORT ANSWERS

10 X 3 = 30 Marks

9. List the indications to use ostial cardioplegia cannulas.
10. What are the complications of excess suction?
11. Write the uses of Axial pumps.
12. Name the safety devices used during CPB.
13. What is chattering of venous line
14. Write the principle used in roller pump.
15. Explain the types of connectors.
16. Name the different types of Oxygenators used in cardiac surgery.
17. What are the types of flow meter? Explain
18. Write the formula used to calculate BSA, normal flows and circulating hematocrit.

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B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

[Max. Marks: 80]

Medicine Relevant to Cardiac Perfusion Technology

Q.P Code: K4760

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain autonomic nervous system. Effects of sympathetic and parasympathetic system on various organs.
2. Describe diabetes mellitus, its types, clinical features, Etiology, diagnosis and management.

SHORT ESSAY

6 X 5 = 30 Marks

3. Patient selection and evaluation for renal transplantation.
4. Epilepsy.
5. What are the Changes occurring in pregnant woman.
6. Renal failure.
7. Fetal response to CPB.
8. Indications and contraindications of renal transplantation.

SHORT ANSWERS

10 X 3 = 30 Marks

9. What are risk factors for Acute Kidney injury?
10. Complication during haemodialysis.
11. Myocardial protection of pregnant woman during CPB.
12. List out the physiological changes of heart with age.
13. Note on principle of dialysis.
14. Priming in paediatric patient.
15. What are the Complications of obesity?
16. List the receptors found in the autonomic nervous system.
17. Advantages of live donor transplantation.
18. Management of hypertension.

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B.Sc. Cardiac Perfusion Technology (CPT)

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: KA4175

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. List out 2 criteria for chronic renal failure
8. Write the histopathological findings in silicosis.
9. Causes of obstructive uropathy

Sec-B

Applied Microbiology(40 Marks)

Q.P Code:KA4176

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.
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B.Sc. Cardiac Perfusion Technology (CPT)

Time: 2hrs 30mins

[Max. Marks: 80]

Medicine Relevant To Cardiac Perfusion Technology

Q.P Code: KA4180

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Write a note on rheumatic heart disease.
2. Write a note on hypertension.

SHORT ESSAY

6 X 5 = 30 Marks

3. Obesity.
4. Renal dialysis.
5. IHD and its management.
6. Mitral stenosis
7. Restrictive cardiomyopathy.
8. Fetal circulation.

SHORT ANSWERS

10 X 3 = 30 Marks

9. Deep vein thrombosis.
10. Stages of chronic renal failure.
11. Components of TOF.
12. Pathophysiology of VSD.
13. Management of arterial embolism.
14. Risk factors of COPD.
15. Classification of aortic aneurysm.
16. Management of anemia.
17. Types of TAPVC.
18. What is the management of IHD?

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Time: 2.30 Hrs.

[Max. Marks: 80]

Congenital heart disease and management of pediatric perfusion

Q.P Code: KA4190

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

2 X 10 = 20 Marks

1. Explain the principles involved in components of ECC.
2. Explain cannulation techniques of extracorporeal circulation.

SHORT ESSAY

6 X 5 = 30 Marks

3. Draw a neat labelled aortic root cannula, write the site, contraindications, delivery pressure, and advantage of aortic root CPG cannula.
4. Write a note on oxygenators.
5. Write a note on connectors and tubing used in ECC.
6. Write a note pre bypass checklist.
7. Write a note on cannulation technique involved in peripheral cannulation.
8. Priming fluids.

SHORT ANSWERS

10 X 3 = 30 Marks

9. Activated clotting time. What is the normal ACT to initiate CPB.
10. Composition of St. Thomas cardioplegia.
11. List the difference between adult and pediatric patient.
12. Write a note on selection of arterial cannula.
13. Explain different routes of cardioplegia delivery
14. List indications of venting.
15. What are the complications of aortic cannulation?
16. List the drugs used on CPB with their action.
17. Indications of peripheral cannulation
18. Arterial supply, venous drainage and innervations of the heart.

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