



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

B.Sc. Allied Health Sciences Third Year Semester- V
March/April 2026 Examination
B.Sc. Cardiac Perfusion Technology

Time: 3 Hrs.

Paper – II

[Max. Marks: 80]

Cardiac Perfusion Technology (Applied)
Q.P Code: K5772

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 the blood conservative techniques during cardiac surgery.
2. SIRS. Strategies to reduce the effect of SIRS

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Write the types of ultrafiltration.
4. Heparin resistance. Name the heparin alternatives.
5. Cell salvaging system.
6. Complications of CPB.
7. Modified ultrafiltration.
8. Physiological of CPB on various organ system in paediatrics.

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. TEG.
10. Activators used in ACT.
11. Haemodilution during CPB
12. Formula to calculate colloidal oncotic pressure.
13. Blood cell trauma.
14. Colloids used during CPB.
15. Name the oxygen free radical scavengers.
16. Protamine.
17. Complement activation.
18. Respiratory alkalosis during CPB.



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B.Sc. Allied Health Sciences Third Year Semester- V

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B.Sc. Cardiac Perfusion Technology

Time: 2.30 Hrs.

[Max. Marks: 80]

Paper – III

Cardiac Perfusion Technology -Advanced

Q.P Code: K5773

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. LONG ESSAY

2 X 10 = 20 Marks

1. Paediatric perfusion. Effects of CPB on various organ system.
2. Explain non cardiac CPB.

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Weaning of ECMO
4. Physiological effects of CPB on endocrine system.
5. Laboratory investigations during ECMO.
6. What are the cannulation sites for ECMO?
7. North and south syndrome.
8. Draw a neat labelled diagram of ECMO circuit.

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. Mannitol.
10. Explain VV ECMO.
11. Write the normal arterial blood gas values.
12. Cerebral monitoring devices during CPB.
13. Routes of cardioplegia. Explain advantages and disadvantages of each route.
14. Extracorporeal circuit for paediatric patient
15. Cannulation sites of VA ECMO.
16. Augmented venous drainage.
17. Write the difference between alpha stat and pH stat
18. Indications of ECMO



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B.Sc. Allied Health Sciences Third Year Semester-V

March 2026 Examination

B.Sc. CARDIAC PERFUSION TECHNOLOGY

Time: 2.30 Hrs.

[Max. Marks: 80]

Cardiac Perfusion Technology-Clinical

Q.P Code: KA5200

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 cannulation techniques during CPB
2. Discuss a) ischemic reperfusion injury b) types of CPG c) cardioplegia additive (5+3+2)

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Write the differences between blood and crystalloid cpg.
4. What is metabolic acidosis?
5. Name the components used in CPB along with their principles.
6. Bubble oxygenator.
7. Write a note on priming.
8. Explain the routes of cardioplegia.

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. Draw a neat labelled diagram of arterial filter and bubble trap.
10. Name the safety devices used in CPB.
11. Explain the principle of membrane oxygenator.
12. Write a note on non cardioplegic arrest.
13. Write the component of St. Thomas cardioplegia.
14. Calculate BSA, NF, HF and cHCT for the given values weight: 68 kg, height: 171 cm, HCT 42 %
15. Causes of poor venous drainage.
16. How do you assess proper CPG delivery?
17. Pulsatile perfusion.
18. Formula to calculate COP.

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March/April 2026 Examination

B.Sc. CARDIAC PERFUSION TECHNOLOGY

Time: 2.30 Hrs.

[Max. Marks: 80]

Cardiac Perfusion Technology - Applied

Q.P Code: KA5210

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 SIRS.
2. VADs.

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Write a note on insertion of IABP.
4. Write a note on micropore filtration.
5. What are the different modes of IABP.
6. Write note micro emboli.
7. Contact activation.
8. IRI

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. Triggers of IABP
10. Contraindication of VADs.
11. Protamine sulphate.
12. Direct thrombin inhibitors.
13. TEG
14. Measures to prevent SIRS.
15. Heparin resistance.
16. ACT
17. Arterial filter.
18. Pre bypass filters.

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B.Sc. CARDIAC PERFUSION TECHNOLOGY

Time: 2.30 Hrs.

[Max. Marks: 80]

Accidents during CPB, its Management & Safety

Q.P Code: KA5220

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 malignant hyperthermia.
2. Discuss oxygenator failure and its management.

II. SHORT ESSAY

6 X 5 = 30 Marks

3. Classification and management of protamine reaction.
4. Causes and management of gross air embolism.
5. Water to blood leak.
6. Transfusion reaction.
7. Prevention and management of bleeding.
8. What is clotted oxygenator?

III. SHORT ANSWERS

10 X 3 = 30 Marks

9. Tubing rupture.
10. What are signs of arterial dissection?
11. Management of runaway pump head.
12. What are filters used in CPB.
13. Name the components of blood used on CPB.
14. Bubble detector and its placement.
15. How do you prevent pump failure?
16. Management of decreased compressed air/ oxygen supply.
17. Methemoglobinemia.
18. Causes of oxygenator change out.

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