



**SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH**

**(A DEEMED TO BE UNIVERSITY)**

**B.Sc. Allied Health Sciences Third year (Semester-V)**

**March 2025 Examination**

**B.Sc. Cardiac Perfusion Technology**

**Time: 2 Hrs 30 mins.**

**Paper – I**

**[Max. Marks: 80]**

**Cardiac Perfusion Technology (Clinical)**

**Q.P Code: K5771**

*Your answers should be specific to the questions asked.*

*Draw neat labelled diagrams wherever necessary.*

**LONG ESSAY**

**2 X 10 = 20 Marks**

1. Adequacy of Perfusion. Name the monitoring devices used during CPB
2. Explain cannulation techniques during CPB.

**SHORT ESSAY**

**6 X 5 = 30 Marks**

3. Pulsatile perfusion.
4. Difference between occlusive and non-occlusive pumps.
5. Pre bypass checklist.
6. Sites of arterial cannulation.
7. Routes of CPG delivery. Explain the retrograde cardioplegia delivery.
8. Contraindications of aortic cannulation.

**SHORT ANSWERS**

**10 X 3 = 30 Marks**

9. Compare blood and crystalloid cardioplegia.
10. Difference between pulsatile and non-pulsatile perfusion
11. Write the material used in the following,
  - a) Membrane oxygenator
  - b) Venous cannula
12. Protamine alternative.
13. Advantages of pulsatile perfusion
14. How do you manage low venous drainage?
15. Draw a neat labelled diagram of CPB circuit.
16. Sites of cannulation
  - a) Retrograde cardioplegia
  - b) Antegrade cardioplegia.
17. Complications of CPB.
18. What is chattering. How do you overcome chattering?

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**B.Sc. Cardiac Perfusion Technology**

**Time : 2.30 Hrs.**

**[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.*

**LONG ESSAY**

**2 X 10 = 20 Marks**

1. Anti-coagulation during cardiac surgery. The strategies to prevent bleeding post-surgery.
2. What is SIRS? The strategies to reduce the effect of SIRS.

**SHORT ESSAY**

**6 X 5 = 30 Marks**

3. Ischemic reperfusion injury.
4. Cell salvaging system.
5. Haemolysis- causes and strategies to reduce.
6. Haemodilution- effects, causes and preventive strategies.
7. Hemoconcentrator.
8. Complications of CPB.

**SHORT ANSWERS**

**10 X 3 = 30 Marks**

9. Heparin induced thrombocytopenia.
10. Anticoagulation monitoring.
11. Platelet activation.
12. Roller pumps.
13. Types of hemofiltration.
14. Corticosteroids
15. Name the oxygen free radical scavengers.
16. Write the normal Haematocrit on CPB. What happens if the haematocrit on bypass is too High.
17. Name the Activators used in ACT machine.
18. Metabolic alkalosis.



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**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.*

**LONG ESSAY**

**2 X 10 = 20 Marks**

1. ECMO.
2. Paediatric cardiac surgery.

**SHORT ESSAY**

**6 X 5 = 30 Marks**

3. Selection criteria of a patient for ECMO.
4. Blood conservation measures in paediatric perfusion.
5. Accidental hypothermia. Explain the physiological changes of accidental hypothermia.
6. Compare roller pump and centrifugal pump.
7. Retrograde cardioplegia delivery.
8. Indications of ECMO.

**SHORT ANSWERS**

**10 X 3 = 30 Marks**

9. Indications to use haemoconcentrator.
10. North-south syndrome.
11. DelNido cardioplegia.
12. Safety devices during CPB.
13. CPB in liver transplants
14. Heparin alternatives
15. Calculate BSA height 84 cm and weight 16 kg.
16. Contraindications ECMO
17. Cannulation in VV ECMO
18. Strategies to reduce the effect of SIRS