SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2022 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

Time : 3 Hrs. **[Max. Marks : 100]**

Cardiac Perfusion Technology Clinical

Q.P Code : J5841

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

Long essay **10 Marks x 2=20 Marks**

1. Explain in detail changes in pharmacokinetics & pharmacodynamics of drugs during CPB
2. Explain in detail conduct of CPB

Short Essay (Answer any 10) **5 Marks x 10 = 50 Marks**

3. Advantages of Pulsatile perfusion
4. What are the checklist for Pre-bypass?
5. Describe the steps involved in initiating CPB
6. Causes of poor venous return during CPB and corrective measures
7. What are the various monitoring methods during CPB?
8. Diuretics and its uses
9. Explain the Principles of venous drainage & causes of less venous return to reservoir
10. Left SVC and its management during Cardiopulmonary bypass
11. Effect of pulsatile perfusion on kidneys and cerebral system
12. Explain measures to determine adequacy of arterial flow rates
13. Factors affecting Arterial pressures during CPB
14. A 40 Kg Female patient with height 145 cms was posted for a cardiac procedure. Her hemoglobin was 11gm/dl. (Blood volume of the patient is 65ml/kg). The priming volume used for the CPB circuit is 1250ml. Calculate the following
    a) BSA b) patient blood volume c) Flow for 1.6, 2.0, 2.2 and 2.4 Lt/Min/Sq.mt Flow rate
    d) Predicted hematocrit

Short answers (Answer any 10) **3 Marks x 10= 30 Marks**

15. List the challenges in Pulsatile Perfusion
16. Determinants of adequacy of Perfusion
17. Neurological problems associated with CPB
18. List the ionotropic drugs
19. Tubing's and connectors
20. Venting of the heart and sites of venting
21. Disadvantages of using too much suction during CPB
22. Mechanism of action of heparin
23. Side effects of heparin
24. Name any 3 cardiac ionotropic drugs
25. Basic approaches of venous cannulation
26. Formula for calculating estimated hematocrit

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

September 2022 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

Time : 3 Hrs. **[Max. Marks : 100]**

Cardiac Perfusion Technology Applied

Q.P Code : J5842

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

Long Essay **10x 2=20 Marks**

1. Explain hemofiltration with following points a) Definition & type (**2 marks**)
   b) Mechanism of action (5 **marks**) c) Indications (3 **marks**)

2. What is SIRS (2 **marks**) & Explain it with following points a) contact activation (2 **marks**) b) initiation of SIRS on CPB (2 **marks**) c) Hyperglycaemia on CPB (4 **marks**)

Short Essay (Answer any 10) **5x 10 = 50 Marks**

3. Different test to evaluate coagulation abnormalities.
4. Complications of blood transfusion
5. Arterial blood filters
6. Initiation of systemic inflammatory response after CPB.
7. Platelet adhesion & aggression.
8. Ultrafiltration.
9. Protamine.
10. Effects of CPB on cellular components of blood
11. MUF.
12. Effects of heparinisation, Hemodilution & hypothermia on hemostasis
13. Effects of CPB on RBCs.
14. Heparin resistance and alternatives of Haparin.

Short answer (Answer any 10) **3x 10= 30 Marks**

15. Contact activation.
16. Diagram of MUF circuit.
17. Enlist different filters in CPB.
18. Alternatives to Heparin.
19. Platelet related causes to bleeding after CPB.
20. Effect of CPB on kidneys.
21. Effects of CPB on vascular endothelium
22. Control of post op bleeding.
23. Effects of Heparinisation on hemostasis.
24. Prevention of platelet dysfunction on CPB.
25. Heparin protamine neutralization
26. Complications of platelet dysfunction on CPB

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

September 2022 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

Time : 3 Hrs. **[Max. Marks : 100]**

Cardiac Perfusion Technology Advanced

Q.P Code : J5843

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

Long essay (No Choice) **10 Marks x 2=20 Marks**

1 What is ECMO. Explain VA & VV ECMO in detail with circuit diagram
2. Explain monitoring of patient on ECMO in detail

Short essay (Answer any 10) **5 Marks x 10 = 50 Marks**

3. DHCA in pediatric Perfusion
4. Blood gas strategy in Paediatric Perfusion
5. Gas exchange in ECMO
6. Harlequin syndrome
7. Complications of ECMO
8. VV ECMO specific Complications
9. What are the indications of ECMO?
10. Advantages and disadvantages of Central versus peripheral cannulation in ECMO
11. Difference between adult CPB circuit and paediatric CPB circuit
12. What are the causes of harmful effects due to CPB among paediatric population?
13. Pulmonary embolectomy
14. Blood gas strategies used in DHCA

Short answers (Answer any 10) **3 Marks x 10= 30 Marks**

15 Difference between ECMO & CPB
16 Heparinisation in Paediatric CPB
17 Tubing's used in Paediatric CPB
18 Oxygenators used in Paediatric CPB
19 Pump flow rates in paediatrics according to patient's weight
20 Define & draw circuit diagram of MUF
21 Explain monitoring of patient on ECMO l
22 Use of MUF & CUF in Paediatric CPB
23 Venous cannulation in Paediatric CPB
24 MUF
25 Advantages of hypothermia
26 List the results of Hemodilution during CPB