SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 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. Describe connection of arterial and venous cannulation in detail. Write note on vacuum assisted venous drainage and its advantage
2. Explain in detail conduct of CPB

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

3. Pulsatile perfusion.
4. Principles of venous drainage & causes of less venous return to reservoir
5. Intermittent monitoring during CPB & causes of less urine output during CPB
6. What are the hemodynamic advantages of pulsatile perfusion?
7. Mannitol and its uses
8. What are the causes of high aortic line pressure during CPB?
9. Diuretics drugs on CPB
10. What are the causes of low venous return during CPB?
11. What are the checklists for Pre-bypass?
12. What are the various monitoring methods during CPB?
13. Left SVC and its management during Cardiopulmonary bypass
14. A 50 Kg Female patient with height 152 cms was posted for a cardiac procedure. Her hemoglobin was 10gm/dl. (Blood volume of the patient is 65ml/kg). The priming volume used for the CPB circuit is 1300ml. 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. Arterial cannulation sites.
16. Sites of venting the heart.
17. Phenylephrine.
18. Cardiotomy suction.
19. Sites of venting the heart
20. Vasodilation drugs.
21. Cardiotomy suction.
22. Sodium Bicarbonate and its uses during CPB
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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March 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 **10 Marks x 2=20 Marks**

1. Explain inflammatory response to CPB with following points a) Effects on RBCs b) Effects on neutrophils c) Effects on complement pathway d) Effects on kidneys e) Effects on cerebrum.

2. Explain anticoagulation on CPB with following points a) Monitoring b) Reversal of heparin c) Complications d) Heparin resistance e) Heparin less Bypass

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

3. Mechanism of action of ultrafiltration.
4. Plasmapheresis.
5. Thrombocytopenia.
6. Monitoring Heparin effect.
7. Hemolysis.
8. Hemostasis in arteries and in veins.
9. Indications for ultrafiltration.
10. Mechanism of action of Heparin.
11. Laboratory test done to evaluate coagulation abnormalities.
12. Clinical effects of blood cell trauma.
13. Hemodialysis.
14. Heparin resistance

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

15. SIRS.
16. Von Willebrand factor.
17. TMP.
18. ACT.
19. Test for coagulation mechanism.
20. Blood filters.
21. Autologous blood transfusion
22. Seldinger Technique.
23. Platelet disorders.
24. Hepatic effects of CPB.
25. Gas filter.
26. Dosage of protamine

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

March 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. Describe in detail ECMO with regard to types indications, cannulation, anticoagulation and complications
2. Explain Pediatric CPB in detail with respect to circuit, priming, cannulation, DHCA, Ultrafiltration and complications

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

3. Pulmonary embolectomy
4. Circuit diagram of VA ECMO
5. Malignant hypothermia
6. Difference between an adult and Paediatric Perfusion
7. Myocardial protection in pediatric patients
8. Use of MUF & CUF in Paediatric CPB
9. Blood gas strategy in Paediatric Perfusion
10. Gas exchange in ECMO
11. Different pressure monitoring sides in ECMO.
12. Harlequin syndrome
13. Advantages and disadvantages of Central versus peripheral cannulation in ECMO
14. What are the causes of harmful effects due to CPB among Paediatric Population?

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

15. Advantages of hypothermia
16. Heparinisation in Paediatric CPB.
17. pH Stat strategy
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. Tubing's used in Paediatric CPB
22. Principle of ECMO
23. What are the types of Ultrafiltration?
24. Effect of MUF in fluid status
25. Complications of MUF
26. Sieving coefficient