SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

March 2023 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

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

Subject: 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 **2x 10=20 Marks**

1. Explain cannulation technique during CPB with following points a) Venous drainage b) Different sites of arterial cannulation c) Cardiotomy suction d) Methods & purpose of venting e) Connectors & tubing's.
2. Explain Changes in drug pharmacokinetics & Changes in drug pharmacodynamics due to CPB.

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

3. A 45 Kg male patient with height 170 cms was posted for a cardiac procedure. His hemoglobin was 11gm/dl. (Blood volume of the patient is 70ml/kg). The priming volume used for the CPB circuit is 1250ml. Calculate the following
   a) BSAb) patient blood volume c) Flow for 1.6, 2.0, 2.2 and 2.4 Lt/Min/sq. mt. flow rate
   d) Predicted hematocrit
4. Principles of venous drainage & causes of less venous return to reservoir.
5. Pre-bypass checklist.
6. Factors which affect adequacy of perfusion.
7. Steps involved in initiation of CPB
8. Left SVC and its management.
9. Metabolic effects of pulsatile perfusion
10. Pulsatile perfusion.
11. Anesthetics drugs used during CPB
12. Intermittent monitoring during CPB & causes of less urine output during CPB.
13. Diuretics drugs on CPB
14. Explain steps in initiation of CPB

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

15. What is "Rewarming"
16. Augmented venous drainage
17. Phenylephrine.
18. Causes of less urine output on CPB.
19. Enlist positive inotropic drugs.
20. Cardiac index.
21. Occlusion methods used on pump
22. Enlist anesthetic drugs given during CPB.
23. Types of venous cannulas
24. Arterial cannulation sites.
25. Sites of venting the heart.
26. Cardiotomy suction

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March 2023 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

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

Subject: 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 **2 x 10=20 Marks**

1. What is ultrafiltration and explain Mechanism of action, Indications, and types of ultrafiltration (2+8)
2. What is Systemic Inflammatory Response Syndrome & Explain in details its effect on various organ system (2+8)

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

3. What are the Effects of CPB on lungs
4. What is Plasmapheresis.Explain briefly steps involved in it
5. What is Thrombocytopenia? What are the causes of it
6. Explain briefly Monitoring Heparin effect.
7. Briefly explain different test to evaluate coagulation abnormalities.
8. What are the Complications of blood transfusion
9. What are Arterial blood filters and its advantages
10. What are the various Contributors to bleeding after CPB
11. Briefly explain Modified ultrafiltration
12. What are the Complications and prevention of platelet dysfunction in CPB.
13. What are the causes and how do we Control post op bleeding.
14. Briefly explain Protamine.

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

15. What is autologous blood transfusion?
16. What is Seldinger Technique?
17. What causes Platelet disorders?
18. What are the effects of heparin during CPB.
19. Trans membrane Pressure
20. Activated clotting time.
21. What are the Doses and source of Heparin?
22. What are the Effects of Hypothermia on Hemostasis?
23. Write short note on autologous blood priming
24. Sieving coefficient and its importance
25. Diagram of Modified Ultra Filtration circuit
26. What are the Alternatives to Heparin?

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

March 2023 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

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

Subject: 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) **2 x10=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) **10 x 5 = 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 sites 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 answers (Answer any 10) **10 x 3= 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