SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

November 2024 Examination

B.Sc. Cardiac Perfusion Technology

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

Cardiac Perfusion Technology-Clinical

Q.P Code: J6841

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 termination of cardiopulmonary bypass. Its steps and process?
2. Explain Myocardial protection, and the different strategies employed in it.

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

3. Various types of Oxygenators.
4. Steps of termination of CPB.
5. What are the Differences between Membrane and Bubble oxygenator.
6. Priming fluids.
7. what are Heat exchangers and its principles?
8. Advantages of priming in cardiopulmonary bypass, what are the different types of prime used.
9. Uses of rewarming during termination of Cardiopulmonary bypass and what are the precautions to be taken during rewarming.
10. Principle of venous drainage during CPB. Augmented venous drainage.
11. Describe the need for Colloid priming solution and its advantages.
12. What are the Advantages of crystalloid prime over blood prime.
13. Effects of usage of excessive suction during CPB.
14. Problems encountered during weaning off CPB.

Short Answers (Answer any Ten) **10 X 3 = 30 Marks**

15. List the Steps involved in Termination of CPB.
16. Advantages of Del Nido Cardioplegia.
17. Name the three different forms of energy transfer.
18. Write the principle of gas exchange in membrane oxygenator.
19. different types of cardioplegia used and mention their Interval of redosing.
20. What are alternatives of blood prime.
21. Importance of TEE monitoring in cardiac surgery.
22. What are the ideal characteristics of an arterial filter?
23. materials used in oxygenator.
24. List out the Advantages of membrane oxygenator over bubble oxygenator.
25. Complications associated with heat exchangers.
26. Priming and what are its effect on hematocrit.

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

November 2024 Examination

B.Sc. Cardiac Perfusion Technology

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

Cardiac Perfusion Technology-Applied

Q.P Code: J6842

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

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

1. Explain different types of embolism and its prevention.
2. Explain in detail Intra-Aortic Balloon Pump.

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

3. Complications of gaseous emboli.
4. What are the types of inflation errors that occurs counter pulsation?
5. Monitoring during in IABP.
6. What are the principle and indications of IABP?
7. Contraindications of IABP.
8. Weaning from IABP Counter pulsation.
9. What are Pre-bypass filter and its uses?
10. Management of patient during IABP Support.
11. Inflation and deflation in IABP.
12. Write short notes on Ideal characteristics of arterial line filters.
13. Explain any 3 filters in CPB.
14. What is ventricular assist device? Write the indication and contraindications of VAD.

Short Answers (Answer any Ten) **10 X 3 = 30 Marks**

15. Gas filters and its uses.
16. List out the Complications of emboli.
17. What are the Complications of IABP?
18. Position of IABP and its implications.
19. Draw a normal balloon pressure waveform.
20. Uses of TEE Monitoring.
21. What are the various Sites of insertion in IABP?
22. Patient Monitoring during IABP.
23. List out the Benefits of IABP.
24. Helium gas and its advantages.
25. Principle of IABP.
26. Blood Transfusion filter.

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

November 2024 Examination

B.Sc. Cardiac Perfusion Technology

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

Cardiac Perfusion Technology-Advanced

Q.P Code: J6843

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

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

1. Explain Minimally Invasive cardiac surgery in detail.
2. Explain those conditions which require oxygenator change out. Steps of oxygenator change out.

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

3. Write a note on low prime volume CPB circuit.
4. Management of Systemic or coronary air embolism.
5. Arterial cannula malposition.
6. Explain Causes of clotted oxygenator. Recognizing clotted oxygenator and write its management.
7. What are the causes, recognition, and management of obstruction to venous return?
8. Recognizing and management of Arterial dissection during CPB.
9. Explain in brief all the safety devices used in CPB.
10. What is false blood group transfusion? How will u manage it.
11. What is Malignant hyperthermia? Write its management.
12. Write a note on augmented venous drainage
13. Additives and dosage of Delnido solution.
14. Various cannulation techniques in MICS.

Short Answers (Answer any Ten) **10 X 3 = 30 Marks**

15. Central gas failure.
16. Causes of obstruction to venous return.
17. How do you recognise gas failure?
18. Causes of pump tube rupture.
19. What are the Signs of arterial cannula malposition?
20. Methemoglobinemia and its management.
21. Complication of reversal of vent
22. Kinetic Assisted Venous Drainage.
23. Constituents of St. Thomas solution
24. Causes of distension of heart on bypass.
25. What causes venous air lock during CPB?
26. Inappropriate occlusion setting and its complications.

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

November 2024 Examination

B.Sc. Cardiac Perfusion Technology - Clinical

Time: 2.30 Hrs. **Paper – I** **[Max. Marks: 80]**

Q.P Code: K6781

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

LONG ESSAY **2 X 10 = 20 Marks**

1. Explain termination of CPB.
2. Write a note on extracorporeal heat exchangers.

SHORT ESSAY **6 X 5 = 30 Marks**

3. Explain the principle of membrane oxygenator.
4. List the difference between bubble and membrane oxygenator.
5. Uses of TEE in termination of CPB.
6. What are the commonly encountered difficulties while weaning off CPB. Write the management.
7. Write the steps of termination.
8. Write the effects and management of hemodilution.

SHORT ANSWERS **10 X 3 = 30 Marks**

9. Non cardioplegic methods of CPB.
10. Rewarming.
11. List the cardioplegia additives.
12. Write a note on cardioplegia.
13. Write the principle of bubble oxygenator.
14. What is plasma leakage?
15. Write the working principle of membrane oxygenator.
16. Assessment of proper cardioplegia delivery.
17. Write the formula to calculate circulating HCT.
18 Steps to prevent hemodilution.

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

November 2024 Examination

Cardiac Perfusion Technology-Applied

Time: 2.30 Hrs. **Paper – II** **[Max. Marks: 80]**

Q.P Code: K6782

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

LONG ESSAY — 2 X 10 = 20 Marks

1. Write a note on ventricular assist devices.
2. Write a note on micro pore filtration. Compare screen and depth filter.

SHORT ESSAY — 6 X 5 = 30 Marks

3. What is screen filter, what is the mechanism of action of screen filter?
4. What are the physiological effects of an emboli?
5. Draw a neat labelled circuit diagram showing the position of arterial line filter.
6. Write a note on triggers of IABP.
7. Discuss trouble shootings in IABP
8. Draw a neat diagram of arterial waveform and balloon waveform.

SHORT ANSWERS — 10 X 3 = 30 Marks

9. What are the effects of early inflation?
10. Second generation VADS
11. What is the position of IABP in the Aorta?
12. What is the pore size of a screen filter used in bubble trap and arterial filter?
13. Write the steps involved in insertion of IABP.
14. Bubble traps.
15. What are complications of IABP?
16. What are the different modes of IABP?
17. Heart mate II
18 Name 3 first generation VADs.

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

November 2024 Examination

Cardiac Perfusion Technology

Time: 2.30 Hrs. **[Max. Marks: 80]**

Cardiac Perfusion Technology-Advanced

Q.P Code: K6783

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

LONG ESSAY — 2 X 10 = 20 Marks

1. List the accidents during CPB and explain the steps involved in Oxygenator change out.
2. Elaborate Minimally invasive cardiac surgeries.

SHORT ESSAY — 6 X 5 = 30 Marks

3. Water to blood leak.
4. Write a note on Endo Aortic clamps.
5. Draw a neat labelled diagram of CPB circuit.
6. How do you manage Gross air embolism.
7. Pre bypass checklist.
8. What are strategies for minimally invasive AVR?

SHORT ANSWERS — 10 X 3 = 30 Marks

9. What is fast track anesthesia?
10. Heparin induced thrombocytopenia.
11. Mini bypass CPB.
12. Vacuum assist venous Drainage.
13. Integrated arterial filters.
14. What is malignant hyperthermia?
15. What are causes of hemolysis?
16. List the safety devices in CPB.
17. Write a note on hand crank.
18 Bubble detectors.

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