



3SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2023 Examination

B.Sc. Cardiac Perfusion Technology(CPT)

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. Describe Termination of CPB? List the checklist before coming off CPB.
2. What is myocardial protection. What are the different strategies of myocardial protection?

Short Essay (Answer any Ten)

10 X 5 = 50 Marks

3. What are the steps involved in separation of CPB?
4. principle and modes of heat transfer in heat exchanger.
5. TEE monitoring in Cardiac surgery.
6. Briefly explain types of cardioplegia.
7. myocardial protection in off pump CABG.
8. What are the types of priming solution. Advantages and disadvantages of blood prime.
9. Benefits of blood prime.
10. What are the advantages and disadvantages of collapsible bag and hard-shell reservoir ?
11. factors affecting HCT during CPB.
12. What are the additives of Delnido cardioplegia and mention the uses of each.
13. Mention the differences between bubble oxygenator and membrane oxygenator.
14. principle of gases exchange in bubble oxygenator.

Short Answers (Answer any Ten)

10 X 3 = 30 Marks

15. Left ventricular failure.
16. Hemodynamic monitoring during termination of CPB.
17. post CPB hypertension.
18. Delivery pressures in antegrade and retrograde Cardioplegia.
19. Hypoxemia.
20. Assessment of proper cardioplegia delivery.
21. Commonly used colloids in prime.
22. heat exchanger and its uses.
23. Venting and sites of venting.
24. Ideal characteristics of Membrane oxygenator.
25. Additives of St Thomas cardioplegia.
26. Modes of delivery of cardioplegia.



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September 2023 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. What are the different Filters used in Cardiopulmonary Bypass and explain any 3 filters.
2. Explain in detail about Counter pulsation? What are commonly used triggering modes. Draw a labelled diagram of IABP wave form.

Short Essay (Answer any Ten)

10 X 5 = 50 Marks

3. *What is Arterial line filter and its Ideal characteristics .*
4. *Explain different categories of Emboli. How can you prevent it.*
5. *Complications of IABP.*
6. *Describe the steps in Insertion of IABP.*
7. *Various Frequencies and its importance in IABP.*
8. *Labelled diagram of Arterial pressure waveform during IABP.*
9. *LVAD.*
10. *Cardioplegia filters.*
11. *What are the different inflation and deflation Timing errors in Intra-Aortic Balloon Pump.*
12. *What are the Contraindications of IABP.*
13. *Screen filters and Depth filters.*
14. *Briefly explain the Physiologic effects of IABP.*

Short Answers (Answer any Ten)

10 X 3 = 30 Marks

15. *Physiological effect of early deflation.*
16. *Pre-bypass filter and its uses.*
17. *Position of balloon catheter.*
18. *Draw a Labelled diagram of late inflation.*
19. *Complications of blood borne biologic emboli.*
20. *Examples of foreign materials.*
21. *Seldinger technique.*
22. *Magnitude of physiological effects of Intra-Aortic Balloon Counter Pulsation.*
23. *Cardiotomy filters.*
24. *Blood filters and their uses.*
25. *Diagram of Wave form characteristics of late deflation.*
26. *Principle of IABP.*



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 in detail change out of oxygenators and what are the situations where you need to change an oxygenator?

Short Essay (Answer any Ten)

10 X 5 = 50 Marks

3. What is aortic occlusion and cardioplegia in MICS?
4. Short notes on ex-vivo lung perfusion?
5. Explain Perfusion management during MICS?
6. What is inadequate venous drainage, its Causes, management, and prevention?
7. What are the causes of gross air embolism and explain its managements?
8. What is Oxygenator failure and how do you manage it?
9. What is arterial dissection and its management?
10. What is False blood group transfusion and its management?
11. What are the different Incisional approaches for aortic valve surgeries in MICS?
12. Venous drainage in MICS.
13. What is clotted oxygenator, recognition and management?
14. Anaesthesia management during minimally invasive cardiac surgery?

Short Answers (Answer any Ten)

10 X 3 = 30 Marks

15. Vacuum Assisted venous drainage.
16. Write any 6 Perfusion emergencies.
17. What is water to blood leak in oxygenator. How is it managed.?
18. Uses of TEE Monitoring in MICS.
19. Contraindication of PACS.
20. Kinetic assisted venous drainage.
21. What is Pump creep.
22. Inadequate blood flow.
23. Causes of Clotted Oxygenator.
24. What are the causes of inadequate venous return.
25. What is Minimal extracorporeal circuit.
26. Causes of high line pressure.