

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)

B.Sc. Allied Health Sciences Second Year Semester-IV

September 2021 Examination

B.Sc. Cardiac Perfusion Technology

Paper – I

[Max. Marks: 100]

Time: 3 Hrs.

Applied Pathology & Microbiology

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

(Use separate answer booklet for Section A & B)

Section – A

Applied Pathology (50 Marks)

Q.P Code :J4805

LONG ESSAY

2 X 10 = 20 Marks

1. Classify renal diseases. Describe the etiopathogenesis, clinical features and morphology of membranous glomerulonephritis
2. Describe the findings in chronic obstructive pulmonary disease(COPD). Describe the etiopathogenesis, clinical features and morphology of any one of the COPD ?

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

3. Describe the etiopathogenesis, clinical features and morphology of urinary stones
4. Describe the etiopathogenesis, clinical features and morphology of pneumonia
5. Describe the etiopathogenesis, clinical features and morphology of post streptococcal glomerulonephritis
6. Describe the etiopathogenesis, clinical features and morphology of pulmonary edema
7. Describe the etiopathogenesis, clinical features and morphology of acute pyelonephritis

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

8. List 03 complications of pneumonia
9. List 03 types of pneumoconiosis with the etiology
10. List the renal function tests with the normal reference range
11. Describe the normal anatomy of lung
12. List the etiology and findings in nephrotic syndrome
13. List 06 causes of pleural effusion
14. Define azotemia and uremia

Section – B

Applied Microbiology (50 Marks)

Q.P Code : J4806

(Use separate answer booklet for Section-B)

LONG ESSAY

2x10= 20marks

1. Define sterilization, classify the physical method of sterilization with examples and describe the working principle, uses of Autoclave (2+3+3+2)
2. Enumerate the factors contributing to infection and describe in detail the infection control practices in ICU (4+6)

SHORT ESSAYS (Answer any three).

3X5=15 marks

3. Describe the major activities in different zones in Central Sterile Supply Department
4. Define decontamination and discuss the importance of cleaning and decontamination in sterilization
5. Describe the mechanism of action, uses, advantages and disadvantages of Sodium hypochlorite
6. Classification of patients care units based on the risk involved and the appropriate methods of disinfection
7. Describe different methods of cold sterilization with examples

SHORT ANSWERS (Answer any five).

5X3=15 marks

8. Mention three articles sterilized by Hot air oven
9. Mention the methods of sterilization of endoscope, surgical instruments and laryngeal blade
10. Name three methods of sterility testing in OT
11. List the factors affecting the effectiveness of chemical disinfectants
12. Name three methods used to sterilize single use devices
13. Mention three advantage of Ethylene oxide sterilization
14. Mention three indications of microbiological surveillance in OT

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B.Sc. Allied Health Sciences Second Year (Semester-IV)

September 2021 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

Time : 3 Hrs.

Paper – II

[Max. Marks : 100]

Introduction to Cardiac Perfusion Technology

Q.P Code : J4810

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 Principles of Extracorporeal circulation
2. Explain the different blood components and their uses

Short essay (Answer any 10)

5 Marks x 10 = 50 Marks

3. Draw diagram of aorta showing cannulation site of cardioplegia cannula, aortic cannula, cross clamp with proper labeling & narrate different types of arterial cannulas
4. Different types of oxygenators. What are the difference between membrane and bubble oxygenator
5. What is Cardioplegia? What are different methods of delivery and the sites of delivery of Cardioplegia
6. Principles of Venous drainage
7. Temperature monitoring during CPB
8. Explain the different types of venous cannulation
9. Describe different sites of arterial cannulation and its benefits
10. Explain the different sites of venous cannulation
11. Explain safety alarms in Cardiopulmonary bypass
12. Explain the principle of gas exchange in membrane oxygenator
13. Safety devices used in extracorporeal circulation
14. Filters used in cardiopulmonary bypass

Short answers (Answer any 10)

3 Marks x 10= 30 Marks

15. What is myocardial protection? Write note on cardioplegia
16. Explain the methods of applying suction in CPB
17. What are the Problems and risks associated with the use of augmented venous return methods
18. What are causes of low venous return and complications associated with achieving venous drainage
19. Briefly explain about various cannulation sites for arterial, venous and cardioplegia system
20. Describe working principle of roller pump
21. various safety devices used during Cardiopulmonary bypass
22. Explain the working principle of Centrifugal pump
23. What are flow meters and its application
24. Explain gas blender and its uses during CPB
25. Draw with diagram the location of arterial filter in CPB circuit
26. purpose of venting



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B.Sc. Allied Health Sciences Second Year (Semester-IV)

September 2021 Examination

B.Sc. Cardiac Perfusion Technology

Time : 2 Hrs.

Paper - III

[Max. Marks : 40]

Subject : Applied Pharmacology

Q.P Code : J4820

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

1 X 10 = 10 Marks

1. Classify Non Steroidal Antiinflammatory Drugs (NSAIDs). Explain mechanism of action, uses and adverse effects of diclofenac (3+2+3+2)

SHORT ESSAY (Answer any Three)

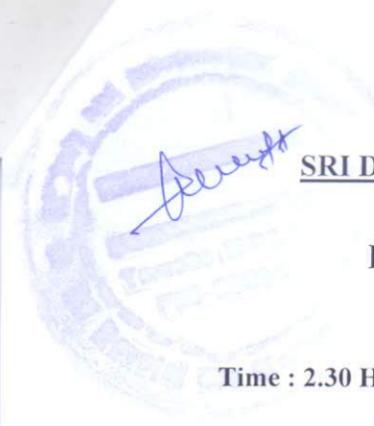
3X 5 = 15 Marks

2. Explain mechanism of action, uses, and adverse effects of Pancuronium (2+1.5+1.5)
3. Explain the mechanism of action, uses, route and adverse effects of salbutamol (2+1+1+1)
4. List their uses, adverse effects of prednisone (2.5+2.5)
5. List the general properties of aminoglycosides (5)

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

6. List advantages newer short acting insulin over Neutral Protamine Hagedorn (NPH)
7. List the advantages of second generation antihistaminics over first generation antihistaminics
8. Mention three uses and three adverse effects of Piperacillin
9. List three uses and three adverse effects of cyclosporine
10. List three techniques of administration of lignocaine with one procedure done for each
11. List three antitussives and write their mechanism of action


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B.Sc. Allied Health Sciences Second Year (Semester-IV)
September 2021 Examination

B.Sc. Cardiac Perfusion Technology (CPT)

Time : 2.30 Hrs.

[Max. Marks : 80]

PAPER-IV

Medicine Relevant to Cardiac Perfusion Technology

Q.P Code : J4830

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 are the physiological changes occurring in pregnant women? What are the foetal response to CPB?
2. Explain autonomic nervous system. Effects of sympathetic and parasympathetic system on various organs

Short essay (Answer any 6)

5 Marks x 6 = 30 Marks

3. Patient selection and evaluation for renal transplantation
4. What is obesity and what are the factors which cause obesity
5. What is diabetes mellitus? What are its effects on cardiovascular system
6. What are the divisions of nervous system? What are the characteristics of Autonomic nervous system?
7. Contraindications and complications of Renal transplantation
8. What is dialysis and its indications
9. Explain any one disorder of the Central nervous system
10. Explain the need for Blood prime in infants undergoing Cardiopulmonary bypass

Short answers (Answer any 10)

3 Marks x 10= 30 Marks

11. Disadvantage of diseased donor transplantation
12. Complications of diabetes mellitus
13. Advantages of Haemodialysis over Peritoneal dialysis
14. Risk factors for CKD
15. What are the physiological changes in heart with age?
16. Difference between adult and paediatric CPB
17. List the receptors found in the autonomic nervous system
18. Reason for adding blood in prime for CPB in infants
19. Name types of renal transplantation
20. Obesity and its complication
21. Advantages of live donor transplantation
22. Pre and post ganglionic neurons in Sympathetic and parasympathetic nervous system