

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 Care Technology

Time: 3 Hrs.

Paper – I

[Max. Marks: 100]

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 :J4755

LONG ESSAY

2 X 10 = 20 Marks

1. Describe the etiology and gross findings of the kidney in obstructive uropathy. Write a note on urinary stones
2. Enumerate the differences between obstructive and restrictive pulmonary diseases. Describe the etiopathogenesis, clinical features and morphology in bronchial asthma

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

3. Describe the etiopathogenesis, clinical features and morphology of chronic kidney disease
4. Describe the etiopathogenesis, clinical features and morphology of lobar pneumonia
5. Describe the etiopathogenesis, clinical features and morphology of chronic pyelonephritis
6. Describe the etiopathogenesis, clinical features and morphology of pulmonary edema
7. Describe the etiopathogenesis, clinical features and morphology of emphysema

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

8. List 3 types with causes of pneumoconiosis
9. List 06 functions of kidney
10. Describe the gross anatomy of lung
11. Describe the findings in nephrotic syndrome
12. Describe the urinary findings in post streptococcal glomerulonephritis
13. Draw the histology of kidney
14. List 06 causes of pleural effusion

Section – B

Applied Microbiology (50 Marks)

Q.P Code : J4756

(Use separate answer booklet for Section-B)

LONG ESSAY

2x10= 20marks

1. Define Central Sterile Supply Department. Enumerate the objectives and describe the work practice of Central Sterile Supply Department in detail (2+2+6)
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. Discuss the Principle of Autoclave with a neat labelled diagram and mention the materials sterilized
4. Describe the methods of environmental cleaning and fogging in OT
5. Discuss the mechanism of action, advantages, disadvantages and sterilization control of Ethylene oxide sterilization
6. Describe the Spaulding's classification of devices and mention the appropriate methods of disinfection
7. Define decontamination and discuss the importance of cleaning and decontamination in sterilization

SHORT ANSWERS (Answer any five).

5X3=15 marks

8. Define and name two antiseptics
9. Mention the disinfectants used to disinfect Stethoscope, breathing circuit, cardiac catheter
10. Mention three articles sterilized by hot air oven
11. Mention three gaseous methods of sterilization
12. Mention three indications for Microbiological surveillance of OT
13. What is Cold sterilization? and give two examples.
14. Mention three uses of Sodium hypochlorite with their concentration

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B.Sc. Cardiac care Technology (CCT)

Time : 3 Hrs.

Paper – II

[Max. Marks : 100]

Introduction to Cardiac care Technology

Q.P Code : J4760

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

I. Long Essay (no choice)

2×10=20Marks

1. Explain hemodynamic principles of Doppler Echocardiography
2. Briefly explain the applications of m-mode at LV cavity with neat labelled diagram

II. Short Essay (Answer any 10)

10×5=50Marks

3. Explain
 - a. continuity equation in detail
 - b. Pressure Half time
 - c. dp/dt
4. Assessment of Intracardiac shunt by contrast echocardiography
5. Explain Aliasing effect
6. Aortic annulus and aortic root assessment by 2D Echocardiography
7. Write a note on assessment of stroke volume and cardiac output in Doppler echocardiography
8. Draw neat labelled diagram of Apical 5, 4, 3, 2 chamber view
9. Applications of transducer
10. Doppler artifacts
11. AV m mode echocardiography
12. Continuous wave and pulse wave TDI at mitral annulus
13. Indications for TTE
14. Define
 - a. Doppler shift
 - b. Nyquist limit
 - c. Pulse repetition frequency
 - d. High PRF color imaging
 - e. Spectral analysis

III. Short Answer (Answer any 10)

10×3=30Marks

15. High PRF color imaging
16. Write a short note on Bernoulli equation
17. Assessment of IVC
18. Write a note on continuous wave Doppler
19. List some properties of the ideal contrast agents
20. Diagnosis of persistent left SVC in contrast echocardiography
21. Draw neat labelled diagram of suprasternal view
22. Explain pulmonary circulation
23. Components of transducer
24. Write contra indications for Left contrast echocardiography
25. Define Vena contract and flow convergence
26. Properties of sound wave



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B.Sc. Cardiac Care Technology

Paper - III

[Max. Marks : 40]

Time : 2 Hrs.

Subject : Applied Pharmacology

Q.P Code : J4770

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

1 X 10 = 10 Marks

1. Classify of skeletal muscle relaxant. Explain mechanism of action, uses, and adverse effects of succinylcholine (3+2+3+2)

SHORT ESSAY (Answer any Three)

3X 5 = 15 Marks

2. Explain the mechanism of action, uses and adverse effects of theophylline (2+1+2)
3. Explain mechanism of action, uses and adverse effects of Amoxycillin (2+1.5+1.5)
4. Explain the uses and contraindications to Morphine (2.5+2.5)
5. List the uses, adverse effects and advantages of cetirizine (2+1.5+1.5)

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

6. List three mucolytics and write their mechanism of action
7. Mention three drugs used in anerobic infections and write their mechanism of action.
8. Write the mechanism of action and two uses of cyclosporine
9. List advantages newer long acting insulin over Neutral Protamine Hagedorn (NPH)
10. List three uses and three adverse effects of dexamethasone
11. List three drugs used as pre anesthetic medications and the write the reasons for the same.



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B.Sc. Cardiac Care Technology (CCT)

Time : 2.30 Hrs.

[Max. Marks : 80]

PAPER-IV

Medicine Relevant to Cardiac care Technology

Q.P Code : J4780

Your answers should be specific to the questions asked.

I. Long Essay (no choice)

2×10=20Marks

1. Define Obesity. What are its causes and briefly explain the effects of obesity on CVS.
2. Briefly explain the classification of ANS and its functions. What are the effects of ANS on CVS, Respiratory system, Urinary and Digestive system

II. Short Essay (Answer any 6)

6×5=30Marks

3. What are the normal physiological changes that occur during pregnancy?
4. Age related changes in the blood vessel
5. Define ANS dysfunction. Write its symptoms and its types
6. Fate of heart tube
7. Hemodynamic changes in RV and LV after birth
8. Etiology of AKI
9. Patients with CKD stage 3
10. Briefly explain the age related physiological changes in the CVS

III. Short Answer (Answer any 10)

10×3=30Marks

11. What are the medical complications of Obesity
12. Risk factors of obesity
13. Classification of Peripheral nervous system
14. Write a note on cardiac Invasive and noninvasive testing during Pregnancy
15. Age related ECG changes
16. Define Autonomic neuropathy and write its causes
17. Myocardial function in neonates
18. Definition and risk factors of AKI
19. CoA and pregnancy
20. Complications of ARF
21. Treatment of DM
22. Advantages of Hemodialysis