



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

April 2023 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 :J3755

LONG ESSAY

2 X 10 = 20 Marks

1. Classify congenital heart diseases and describe the etiology and morphology of atrial septal defect ?
2. Define ischemic heart disease and describe the etiopathogenesis and effects of myocardial ischemia ?

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

3. Define heart failure and describe the etiopathogenesis of heart failure
4. Describe the clinical features, etiology and laboratory findings in hemophilia
5. Describe the etiology and laboratory findings in sickle cell anemia
6. Describe the etiology, clinical features and laboratory findings in iron deficiency anemia
7. Describe the etiopathogenesis and clinical effects of atherosclerosis

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

8. Classify aneurysms
9. Describe the ECG changes and cardiac markers used in Myocardial infarction
10. List 06 causes of leucocytosis
11. List the RBC indices and their utility
12. List 06 valvular heart diseases
13. Classify cardiomyopathy
14. Classify Acute Lymphoid Leukemia

Section – B

Applied Microbiology (50 Marks)

Q.P Code : J3756

(Use separate answer booklet for Section-B)

LONG ESSAY

2 X 10 = 20 Marks

1. Define biomedical waste; what are the categories of biomedical waste? How will you segregate biomedical waste at source? Add a note on the importance of biomedical waste management. (2+3+3+2)
2. Define and enumerate the various causative agents of catheter associated urinary tract infection. Discuss in detail the predisposing factors and infection control and preventive measures of Catheter associated urinary tract infection (2+2+3+3)

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

3. Risk factors and preventive measures of HIV infection in health care settings
4. What are the precautions to be taken while providing care to a patient on ventilator?
5. How is air quality assessed by active surveillance?
6. List the sources for hospital acquired infections.
7. Role of health care worker in preventing transmission of infection

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

8. Name three PPE
9. Five moments of hand hygiene
10. Mention the source and mode of transmission of Ventilator associated pneumonia
11. Do's and Don'ts in discarding and disposing the sharps in the hospital
12. List three infections transmitted through direct contact
13. Name three types of health care associated infection
14. What is MRSA? Mention one infection control practice to prevent its cross transmission



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

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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 : J3760

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

Long Essay

2 X 10 = 20 Marks

1. Explain the absolute and relative indications or the termination of TMT and briefly explain protocols used in TMT
2. Explain phases of cardiac cycle in detail

Short Essay (Any ten)

10 X 5 = 50 Marks

3. Explain coronary artery anatomy with neat labelled diagram
4. Explain the components of cardiac conduction system and their blood supply
5. Sokolow Lyon and Rohmilt Estes score system in the diagnosis of LVH
6. ECG manifestations in different types AV block
7. Absolute and relative contra indications of TMT
8. Explain non-ECG observation and Duke score in TMT
9. Explain the ACC/AHA guidelines for exercise stress testing in the diagnostic use of exercise stress Test.
10. Explain the development of IAS with neat labelled diagram
11. List the components of heart tube
12. Explain ECG lead system in TMT
13. Explain the fate of pharyngeal arch arteries in detail
14. Explain the structure and function of pericardium in detail

Short Answers (Any ten)

10 X 3 = 30 Marks

15. Write normal value of the following
 - a. P wave duration,
 - b. QRS duration,
 - c. PR interval,
 - d. QT interval,
 - e. P wave amplitude
16. Define
 - a. Rate pressure product,
 - b. Metabolic equivalent,
 - c. Myocardial oxygen consumption
17. What are the changes that occur in heart after child birth?
18. Write a note on Fossa ovalis
19. Write a note on Morris index
20. Explain the structures of RA in detail
21. ECG criteria of RVH
22. ECG criteria of LAFB and LPFB
23. ECG criteria of LAE
24. ECG criteria of Dextrocardia and how do you differentiate True and technical dextrocardia in ECG
25. ECG criteria of complete LBBB
26. Pretest preparation in ECG

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

April 2023 Examination

B.Sc. Cardiac Care Technology

Time : 2 Hrs.

[Max. Marks : 40]

Subject : Applied Pharmacology

Q.P Code : J3770

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

LONG ESSAY

1 X 10 = 10 Marks

1. List sympathomimetics. Explain the uses and adverse effects of any three drugs
(2.5+2.5+2.5+2.5)

SHORT ESSAY (Answer any three)

3 X 5 = 15 Marks

2. Explain the mechanism of action, uses and adverse effects of neostigmine (2+2+1)
3. Explain the mechanism of action uses and adverse effects of frusemide (1+2+2)
4. Explain mechanism of action, uses and adverse effects of heparin (1.5+2+1.5)
5. List the properties of ideal plasma expander and write the uses of crystalloids (3+2)

SHORT ANSWERS (Answer any five)

5 X 3 = 15 Marks

6. List three uses and three adverse effects of losartan
7. Write the treatment for organophosphorus compound poisoning
8. List three uses and three adverse effects of nitrates
9. Write the treatment for myocardial infarction
10. Define bioavailability and plasma half-life with examples
11. List three differences between oral and intravenous route of drug administration



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B.Sc. Allied Health Sciences Second Year (Semester-III)
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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 : J3780

Your answers should be specific to the questions asked.

Long Essay

2X10=20 Marks

1. a) Explain congenital Heart disease?
b) Describe Tetralogy of Fallot in detail
2. a) what is Pulmonary Edema
b) Explain Pathophysiology, Classification, Clinical manifestation, complications and treatment methods of Pulmonary Edema

Short Essay (Answer any Six)

6X5=30 Marks

3. What is ASD? Types of ASD and treatment of ASD
4. Causes and Risk factors of Hypertension
5. what is anemia and explain its causes
6. Explain pathophysiology and clinical manifestations of peripheral vascular disease
7. Briefly explain cardiogenic Pulmonary edema
8. Pathogenesis of Coronary artery disease
9. Signs, Symptoms and complications of Chronic obstructive pulmonary disease
10. Treatment for Aortic aneurysm

Short Answers (Answer any ten)

10X3=30 Marks

11. Complications of Dilated cardiomyopathy
12. what is cardiomyopathy and its types
13. Patent ductus arteriosus and its treatment
14. Jones criteria for the diagnosis of Rheumatic fever
15. Angina Pectoris
16. Acyanotic heart disease with examples
17. causes and prevention of varicose veins
18. Staging of Pulmonary edema
19. Treatment of anemia
20. Diagnosis of COPD
21. Pathophysiology of RHD
22. clinical manifestation of Arteriosclerosis obliterans



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Time: 2.30 Hrs.

Paper – I

[Max. Marks: 80]

Applied Pathology & Microbiology

(Use separate answer booklet for Section A & B)

Section – A

Applied Pathology (40 Marks)

Q.P Code : K3615

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

LONG ESSAY

1 X 10 = 10 Marks

1. Define cardiomyopathy-Definition, types, causes and its pathophysiology

SHORT ESSAY

3X 5 = 15 Marks

2. Aneurysm – Definition, classification and pathophysiology
3. Classify leucocytes. Describe microscopic morphology of leucocytes with a diagram
4. Pathophysiology of left heart failure

SHORT ANSWERS

5 X 3 = 15 Marks

5. Causes for mitral valve prolapse
6. Classify hypertension
7. Write three causes for lymphocytosis
8. What is Leukemoid reaction and 3 causes
9. Name the clotting factors

Section – B

Applied Microbiology (40 Marks)

Q.P Code : K3616

(Use separate answer booklet for Section-B)

LONG ESSAY

1 X 10 = 10 Marks

1. Enumerate the microorganisms, risk factors and infection control practices to prevent the infection in health care workers through respiratory route (3+3+4)

SHORT ESSAY

3 X 5 = 15 Marks

2. Discuss the importance of infection control in ICU
3. List five moments and steps in hand washing
4. Indications and methods of microbiological surveillance and sampling of high-risk areas in health care settings

SHORT ANSWERS

5 X 3 = 15 Marks

5. Name any three infections transmitted through body fluids
6. Name three multidrug resistant organism
7. Name three infections transmitted through direct contact
8. Mention the Colour coded bins used in biomedical waste management
9. Name three vaccines recommended for health care worker



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B.Sc. Cardiac care Technology (CCT)

Time : 2.30 Hrs.

Paper – II

[Max. Marks : 80]

Introduction to Cardiac care Technology

Q.P Code : K3620

Your answers should be specific to the questions asked.

Draw neat labelled diagrams wherever necessary.

Long Essay

2 X 10= 20 Marks

1. Discuss Normal Electrocardiogram
2. Exercise test – protocols and its clinical importance in the assessment of ischemic heart disease

Short Essay

6 X 5= 30 Marks

3. Indications and contraindications of treadmill test
4. Types of heart block
5. ECG criteria of hemiblocks (Fascicular blocks)
6. Indications for stopping Exercise testing
7. Electrical field of Heart
8. ST segment response in treadmill test

Short Answers

10 X 3= 30 Marks

9. Importance of ST segment
10. "P" wave
11. Calculation of heart rate by ECG
12. ECG in Sinus arrhythmia
13. Signs of atrial enlargement on ECG
14. QRS complex
15. PR interval
16. Q-T interval
17. Pathological Q waves
18. Unipolar limb leads

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

April 2023 Examination

B.Sc. Cardiac Care Technology

Time : 2 Hrs.

[Max. Marks : 40]

Subject : Applied Pharmacology

Q.P Code : K3630

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

Long essay

1x10=10 Marks

1. Classify drugs used in hypertension, Explain mechanism of action, uses and adverse effects of angiotensin converting enzyme (ACE)

Short essay

3 x 5 = 15 Marks

2. Explain mechanism of action, uses and adverse effects of nitrates.
3. Explain mechanism of action, uses and adverse effects of amlodipine
4. Explain the mechanism and uses of Low molecular weight Heparin

Short answer

5 x 3 = 15 Marks

5. Explain mechanism of action, and uses of streptokinase.
6. Mention three anti-cholinesterase drugs
7. Mention three inhalational anesthetic drugs and their adverse effects
8. Mention three antiplatelet agents with their uses
9. Write the treatment of organophosphate poisoning



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Time : 2.30 Hrs.

[Max. Marks : 80]

PAPER-IV

Medicine Relevant to Cardiac care Technology

Q.P Code : K3640

Your answers should be specific to the questions asked.

Long Essay

2 X 10= 20 Marks

1. Discuss signs, symptoms, diagnosis and treatment of ischemic heart disease
2. Classification of congenital heart disease. Discuss about ventricular septal defect

Short Essay

6 X 5= 30 Marks

3. Diagnosis and management of ASD
4. Mitral stenosis- definition, aetiology and diagnosis
5. Write a short note on PDA
6. Pulmonary function test
7. Obstructive versus restrictive pulmonary disease
8. Management of hypertension

Short Answers

10 X 3= 30 Marks

9. Define coarctation of Aorta
10. Types of cardiomyopathy
11. TOF- clinical and diagnostic features
12. Write a note on Bleeding time
13. Eisenmenger's syndrome
14. Aortic aneurysm
15. Ebstein's anomaly
16. Risk factors of coronary artery disease
17. Sinus bradycardia
18. Define TAPVC
