SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH
(A DEEMED TO BE UNIVERSITY)
B.Sc. Allied Health Sciences First Year Semester-II
September 2025 Examination

Time: 2hrs 30 mins **[Max. Marks: 80]**

BIOCHEMISTRY
Q.P Code: J2030

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 different types of glassware used in Biochemistry laboratory and its applications. Illustrate with suitable diagrams.
2. What is Quality Control? Add a note on pre analytical, analytical and post analytical variables.

SHORT ESSAY (Answer any 6) **6X 5 = 30 Marks**

3. Briefly discuss the precautions to be taken when working in Biochemistry Laboratory.
4. Write briefly on the segregation of Biomedical waste.
5. Write the principle, procedure, use and maintenance of pH meter.
6. Derive Henderson-Hasselbach's equation and its uses.
7. Explain any 2 theories of Acids and Bases with examples
8. What are Indicators? Give 2 examples. Give their mechanism of Action
9. Explain the Laboratory precautions, storage and handling of dangerous chemicals.
10. What are the components of a First Aid kit

SHORT ANSWERS (Answer any 10) **10 X 3 = 30 Marks**

11. Give the S.I units of Time, Mass, Length
12. Name 3 anticoagulants used for blood collection
13. Calculation of mean and standard deviation. Illustrate with example
14. Define buffer and pH
15. Describe any 3 chemical grades
16 Differentiate between Saturated and Super saturated solutions
17. Give the use of a) Water bath b) Hot air oven c) Distillation plant
18. Explain the terms solute, solvent and solution with suitable examples.
19. Draw 3 safety signs in a Laboratory
20. Name 3 different types of centrifuges
21. What is meant by Normality, Molarity and % concentration? Give examples
22. Define Accuracy and Precision

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PATHOLOGY

Q.P Code: J2050

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

LONG ESSAYS **2x10=20**

1. Define shock. what are the causes and types of shock. write the clinical features of shock.
2. Define neoplasia. discuss the differences between benign and malignant tumours with neat labelled diagram.

SHORT ESSAYS (Answer any Six) **6x5=30**

3. Describe pathogenesis and stages of pneumonia
4. Describe pathogenesis and types of urinary stones
5. Complications of thrombosis
6. Phagocytosis
7. Differentiate between hypertrophy and hyperplasia
8. Chemical mediators of inflammation.
9. Gall stones
10. Steps in Tissue processing

SHORT ANSWERS (Answer any Ten) **10x3=30**

11. List the types of urinary caliculi
12. What is pneumonia
13. List 3 causes for eosinophilia
14. What is thrombosis. List the conditions associated with thrombosis
15. Urine microscopy
16. Enumerate the tests for proteinuria
17. Landsteiner's law
18. Define Metaplasia
19. List the cardinal signs of inflammation
20. Draw the diagram of malignant cell
21. Name 3 causes for lung cancer.
22. Benedict's test

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BIOCHEMISTRY
Q.P Code: K2030

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

1. Define pH. Indicate with a diagram the different parts of pH meter. What are the various procedural steps in operating a pH meter
2. Explain in detail the various steps in collecting a venous blood sample including sites of venipuncture. Add a note on its transport and storage.

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

3. Define S.I Units. How are the following expressed in S.I. Units?
   a) Length b) Mass c) Time d) Amount of substance
4. Discuss First Aid in Clinical Laboratory for cuts, burns and electric shock
5. Explain 5 Code of ethics for a Laboratory Technician
6. Write a note on segregation and Disposal of Biomedical waste materials
7. Define Atomic weight, Molecular weight and Equivalent weight. Calculate Molecular weight and Equivalent weight of HNO_3 and $CuSO_4.5H_2O$.
8. Discuss storage and handling of dangerous chemicals with safety measures to be followed

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

9. What is de-ionized water? What is the difference between distilled water and de-ionized water?
10. Write the biological reference value in serum for: 1. ALP 2. Sodium (Na) 3. Random blood sugar.
11. Write any three important tests done with blood sample collected using EDTA Tubes
12. Coefficient of variance and its significance.
13. Define buffer and give its applications
14. List 3 commonly used indicators for titration with their range
15. Care and maintenance of water distillation plant
16. Differentiate between concentration and strength of an Acid
17. Draw and explain 3 safety signs
18. Prevention of electrical fire in a laboratory

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Time: 2hrs 30 mins **[Max. Marks: 80]**

MICROBIOLOGY

Q.P Code: K2040

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

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

1. Describe the source of infection, mode of transmission, clinical manifestations with mapping of lesions on human diagram and samples to be collected in Tuberculosis.
2. Define Sterilization and Disinfection. Classify Sterilization. Describe the principle of Autoclave and articles to be sterilized using Autoclave with a neat labeled diagram.

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

3. Classify Antibodies. Describe the structure and functions of IgG antibody.
4. Draw a map of human body and mark different lesions caused by Staphylococcus aureus and describe.
5. Describe source of infection, mode of transmission, clinical features and samples to be collected in Candida.
6. Draw a neat labelled diagram of Bacterial cell. Describe the different arrangement of flagella.
7. Describe source of infection, mode of transmission, clinical features and samples to be collected in Rabies.
8. Describe source of infection, mode of transmission, clinical features and samples to be collected in HIV.

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

9. List 3 modes of transmission of Hepatitis B virus.
10. Name three clinical manifestations caused by Corynebacterium Diphtheria
11. List the steps of Hand hygiene.
12. Enumerate 3 Disinfectants used in hospitals.
13. List 3 viral vaccines.
14. Describe clinical features of Mucor.
15. Name three diseases transmitted by mosquito.
16. Enumerate three clinical features of Hook worm.
17. Name three lesions caused by Syphilis.
18. Enumerate 3 parasites present in the intestine.

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PATHOLOGY
Q.P Code: K2050

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

LONG ESSAYS 2x10=20

1. Define cell injury. describe reversible and irreversible cell injury in detail
2. What is inflammation. write the cellular and vascular events of acute inflammation

SHORT ESSAYS 5x6=30

3. What is thrombosis. complications of thrombosis
4. Myocardial infarction.
5. Pulmonary edema
6. Describe pathogenesis and complications of atherosclerosis
7. Discuss various cellular adaptations
8. Discuss pathogenesis and types of urinary stones

SHORT ANSWERS 10x3=30

9. Mention the stages of ESR
10. Stages of shock
11. Atrophy.
12. Name three agents causing cell injury
13. List three disadvantages of FNAC
14. List three causes of urinary tract infection
15. List any three blood grouping systems
16. Landsteiner's law
17. Mention three steps of tissue processing
18. List three methods of urine sample collection

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