

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

**B.Sc. Allied Health Sciences Second Year (Semester-III)
March 2022 Examination**

B.Sc. Medical Laboratory Technology (MLT)

Time: 2.30 Hrs.

[Max. Marks: 80]

SUBJECT: BIOCHEMISTRY - I

Q.P Code: J3031

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

- Long Essay** **2X10=20 Marks**
1. Define Carbohydrates. Classify them with suitable examples & write their biomedical importance. (1+7+2)
 2. Define Enzymes. Describe in detail the various factors affecting enzyme activity. (2+8)
- Short Essay(Answer Any Six)** **6X5=30 Marks**
3. With a neat labelled diagram, describe the structure of Immunoglobulins. (2+3)
 4. What are Biologically Important Peptides? Give four examples and their biological roles. (1+4)
 5. Write the sources, Recommended Daily Allowance and biochemical functions of Ascorbic acid. (1+1+3)
 6. With a neat labelled diagram, describe the structure of tRNA.
 7. Briefly describe the Fluid Mosaic model of plasma membrane with a neat labelled diagram. (3+2)
 8. What are Phospholipids? Classify them with suitable examples and enumerate the important functions of them. (1+2+2)
 9. Classify proteins with suitable examples.
 10. Write four functions of albumin and the normal blood reference range.
- Short Answers(Answer Any Ten)** **10X3=30 Marks**
11. What is Denaturation? List two factors causing Denaturation.
 12. Why sucrose is a non-reducing sugar and why it is called invert sugar?
 13. What are dietary fibers? Give two examples
 14. What is active transport? Give two examples
 15. Mention two therapeutic enzymes with their applications.
 16. What are lipoproteins? Give two examples
 17. Define respiratory quotient. Write the RQ of carbohydrates, lipids and proteins.
 18. Define BMR. Mention any 4 factors affecting BMR
 19. Coenzyme forms of i. Thiamine ii. Riboflavin ii. Niacin
 20. Define essential fatty acids and Name them.
 21. What is SDA? Mention its significance.
 22. Define Isoelectric pH. Mention its significance



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SUBJECT : BIOCHEMISTRY - II

Q.P Code: J3032

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Draw neat labeled diagrams wherever necessary.

Long Essay

2X10=20 Marks

1. List the sources of ammonia. Explain how ammonia is detoxified in the body. Add a note on disorders of urea cycle. (1+6+3)
2. Name the ketone bodies. Describe the formation and breakdown of ketone bodies. Write any two conditions where ketone bodies are elevated (2+3+3+2)

Short Essay(Answer Any Six)

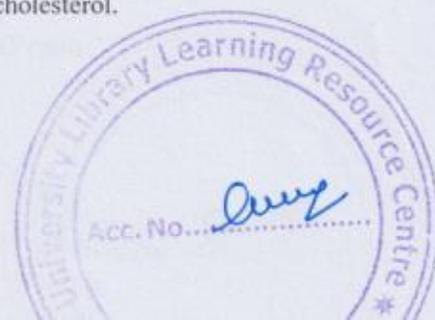
6X5=30 Marks

3. Define Gluconeogenesis. List the substrates of Gluconeogenesis & give any two significance. (2+1+2)
4. Describe the transport, storage and functions of iron.
5. Define Jaundice. Classify jaundice with examples & list out any 2 blood investigations done to differentiate the various types of jaundice
6. Glucose tolerance test (GTT): Indications, contraindications, Procedure for GTT (1+1+3)
7. What is meant by detoxification? Give an account of various detoxification processes.
8. Describe the dietary source, RDA, two Biochemical functions & deficiency manifestations of Calcium.
9. Briefly explain the synthesis of Creatinine. Mention the normal serum level and list the causes for increased serum levels of creatinine. (3+1+1)
10. Enumerate the different components of Electron Transport Chain (ETC) with a neat labeled diagram.

Short Answers(Answer Any Ten)

10X3=30 Marks

11. Mention the sources and any two functions of Selenium
12. Define hyponatremia & hypernatremia
13. Vandenberg's test: Principle & importance
14. What is Maple Syrup urine disease? Mention two clinical features
15. Define uncouplers. Give two example of uncoupler
16. Write three biomedical importance of HMP shunt
17. Lactose intolerance : add a note on enzyme deficient & Name the laboratory test by which lactose can be differentiated by Maltose
18. Write the reference range for: (1) Total cholesterol (2) Triglycerides (3) HDL cholesterol.
19. What is Alkaptonuria? Mention the enzyme defect.
20. What are Chylomicrons? Mention its functions
21. Define Gluconeogenesis. List the substrates for Gluconeogenesis
22. What is Hemosiderosis and hemochromatosis?



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BIOCHEMISTRY - III

Q.P Code: J3033

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Draw neat labeled diagrams wherever necessary.

Long Essay

2X10=20 Marks

1. Give an account on Principle, different types, instrumentation, procedure and applications of Electrophoresis. (2+8)
2. Write the normal pH of blood & explain the Blood Buffers & renal mechanisms involved in regulation of Blood pH. (2+3+5)

Short Essay(Answer Any Six)

6X5=30 Marks

3. Mention the advantages and applications of ELISA.
4. Describe in detail the pH meter principle, instrumentation, applications
5. Define clearance test. Explain the various types of clearance tests. (1+4)
6. Radio Immuno Assay: principle, applications.
7. Define Mean, Median, Mode, Standard Deviation (SD) & Coefficient of variation (% CV).
8. Give an account on Principle, different types and applications of Chromatography
9. Describe in detail Arterial Blood Gas analysis.
10. Describe the Pancreatic function tests.

Short Answers(Answer Any Ten)

10X3=30 Marks

11. Define Anion gap. Mention the reference interval of anion gap.
12. Biochemical changes in Hypothyroidism.
13. Name any four conditions where Serum Urea is increased.
14. Define Accuracy & Precision.
15. Mention the advantage of spectrophotometer compared to colorimeter.
16. Creatinine clearance test.
17. Mention two enzymes which help in diagnosing the Pancreatic disorder
18. List the parameters in lipid profile.
19. Vandenberg Test.
20. Give the Biological reference range of (1)Albumin (2) Globulin (3) A:G ratio
21. Define Beer- lamberts law.
22. List any two rules to plot quality control.

