



(A DEEMED TO BE UNIVERSITY)
B.Sc. Allied Health Sciences Second Year (Semester-III)
September-2023 Examination
B.Sc. Medical Laboratory Technology

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

2 X 10 = 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. Illustrate with suitable graphs (2+8).

Short Essay (Answer any Six)

6 X 5 = 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 Watson & Crick model of DNA.
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 four important functions (1+2+2).
9. Classify proteins on the basis of their function with suitable examples.
10. Write four functions of albumin and its normal blood reference range.

Short Answers (Answer any Ten)

10 X 3 = 30 Marks

11. What is Denaturation? List two factors causing Denaturation.
12. Why sucrose is a non-reducing sugar ?
13. What are dietary fibers? Give two examples
14. What is active transport? Give a suitable example.
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

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

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SUBJECT : BIOCHEMISTRY - II

Q.P Code : J3032

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Long Essay

2 X 10 = 20 Marks

1. Define Glycolysis. How is glucose converted to pyruvate . Add a note on its energetics (1+7+2) .
2. List the sources of ammonia. Explain how ammonia is detoxified in the body. Add a note on disorders of urea cycle (1+6+3).

Short Essay (Answer any Six)

6 X 5 = 30 Marks

3. Define Gluconeogenesis. Name the substrates for Gluconeogenesis & give its significance
4. Define Fatty Liver. Mention the causes of fatty liver. Add a note on lipotropic factors.
5. Explain the, sources & biochemical functions of Copper & zinc.
6. Describe the transport, storage and functions of iron.
7. Describe the digestion & absorption of Carbohydrates.
8. Briefly explain the synthesis of Creatinine. Mention the normal serum level and list the causes for increased serum levels of creatinine.
9. Describe the digestion & absorption of Lipids
10. What is Atherosclerosis? Explain pathogenesis and factors contributing to Atherosclerosis.

Short Answers (Answer any Ten)

10 X 3 = 30 Marks

11. List any three Biological important compounds derived from Cholesterol
12. Write any three biochemical functions of Calcium
13. Vandenberg Test.
14. Define substrate level Phosphorylation. Give two examples
15. What is ketosis? Give two causes for ketoacidosis.
16. Mention normal levels of serum calcium. List any two factors affecting the absorption of calcium
17. List any 3 glycogen storage disorders
18. Define Gout. Mention the two types of Gout.
19. Write three causes for Hepatic jaundice.
20. What is Cori's cycle? Mention its clinical significance?
21. Write the reference range for: (1) serum sodium (2) serum potassium (3) serum chloride.
22. What is Alkaptonuria? Mention the enzyme defect.

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SUBJECT : BIOCHEMISTRY - III

Q.P Code : J3033

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Long Essay

2 X 10 = 20 Marks

1. Write the normal pH of blood & explain the various mechanisms involved in regulation of Blood pH (2+8) .
2. Describe the Principle, different types and applications of Chromatography

Short Essay (Answer any Six)

6 X 5 = 30 Marks

3. Flame photometer: principle, instrumentation & application
4. Classify Renal function tests and how is it used to assess Glomerular filtrate.
5. Define Sensitivity, Specificity, Accuracy, Precision & total allowable Error.
6. Define metabolic alkalosis and mention the causes
7. Describe the Importance of automation in clinical biochemistry laboratory.
8. Describe the Thyroid function tests.
9. Radio Immuno Assay: principle, applications.
10. Describe sample transport and precautions to be taken for sample storage

Short Answers (Answer any Ten)

10 X 3 = 30 Marks

11. Define Preanalytical error. Mention any two causes for Preanalytical errors.
12. Write the principle of Electrophoresis
13. Mention the precautions to be taken while transferring the samples to the lab for Arterial Blood Gas analysis
14. List three enzyme parameters in Liver function tests.
15. Define mean & mode.
16. Define Beer's & Lambert's law
17. Mention any two advantages of spectrophotometer over colorimeter
18. Define A: G ratio. Mention the biological reference range of A:G ratio
19. List any two rules to plot quality control.
20. Give the Biological reference range of (1)SGOT (2) SGPT (3)GGT
21. Biochemical changes in Hyperthyroidism.
22. List any two techniques in purification of proteins.

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