SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

B.Sc. Allied Health Sciences Second Year (Semester-III)
September 2021 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. With a neat labelled diagram describe in detail the Watson & Crick Model of DNA
2. Describe the chemistry, dietary sources, Recommended Daily Allowance, Biochemical functions and deficiency manifestations of Vitamin A. (1+1+1+4+3)

**Short Essay(Answer Any Six)** **6X5=30 Marks**

3 What are Glycosaminoglycans? List any four Glycosaminoglycans with their biological significance (1+4)
4 Define active site of an enzyme. Describe any 3 characteristic features of an active site. (1+3)
5 Classify amino acids with examples.
6 Explain the Fluid Mosaic model with a neat labelled diagram
7 What are dietary fibers? Give examples. Describe the beneficiary effect & disadvantage of dietary fibers. (1+1+2+1)
8 Define Enzymes. Explain two therapeutic & Diagnostic enzymes with their applications (1+2+2)
9 Define & Classify complex lipids with examples (1+4)
10 Name five biologically important nucleotides with biological function

**Short Answers(Answer Any Ten)** **10X3=30 Marks**

11 List the abnormal constituents of Urine
12 Define essential amino acids and name them
13 Define (a) Epimers (b) Anomers
14 Define essential fatty acids give examples.
15 Mention any three biochemical functions of VitC
16 Heat & acetic acid test: Principle & significance
17 Folate trap.
18 Define BMR. Mention any 4 factors affecting BMR
19 Disaccharides- Definition & Types with examples
20 What is Nitrogen balance? Mention two conditions with positive Nitrogen balance.
21 Write any three difference between Kwashiorkar & Marasmus
22 Define Isoelectric pH.

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## SUBJECT : BIOCHEMISTRY - II

## Q.P Code : J3032

*Your answers should be specific to the questions asked.*
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**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. Write the reference values for Fasting and Post Prandial blood glucose. Explain the hormonal regulation of blood sugar. (2+8)

**Short Essay(Answer Any Six)** **6X5=30 Marks**

3. Briefly explain the Chemiosmotic theory of oxidative phosphorylation
4. Define Lipoproteins. Classify them & write their functions (1+4)
5. Define Jaundice. Classify jaundice& mention the causes for each type of jaundice. (1+2+2)
6. Write the steps of TCA cycle
7. Name the Bile salts. Explain their role in lipid digestion and absorption. (1+4)
8. Glucose tolerance test (GTT): Indications, contraindication & Procedure. (1+1+3)
9. Define Lactose intolerance : add a note on enzyme deficient, Clinical features & Name the laboratory test by which lactose can be differentiated by Maltose (2+1+1+1)
10. Describe the role of carnitine in the oxidation of Fatty acids.

**Short Answers(Answer Any Ten)** **10X3=30 Marks**

11 Write the enzyme defect and any 2 clinical features of Phenylketonuria
12 Name two iron storage disorders.
13 Mention normal levels of serum calcium. List any two factors affecting the absorption of calcium
14 Mention three biological important compounds derived from Cholesterol.
15 Mention two copper containing enzymes.
16 Name the ketone bodies. Write any two conditions where ketone bodies are elevated
17 What is substrate level phosphorylation? Give two examples
18 Define Gluconeogenesis. List the substrates for Gluconeogenesis
19 Write the reference range for: (1) serum sodium (2) serum potassium (3) serum chloride.
20 What is Von Gierke's disease? Mention the enzyme defect and clinical feature.
21 Define clearance test. List the various clearance test
22 What are lipotropic factors? Give 2 examples.

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## SUBJECT : BIOCHEMISTRY - III

## Q.P Code : J3033

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

**Long Essay** **2X10=20 Marks**

1. What are the various pre analytical and analytical and post analytical errors. Add a note on Internal quality control.
2. What is chromatography? Write different types of chromatography. Explain any one type of chromatography in detail.

**Short Essay(Answer Any Six)** **6X5=30 Marks**

3. pH meter – Principle, instrumentation & application
4. Derive Henderson Hasselbach equation. Add a note on its significance. (4+1)
5. Classify Liver function test & add a note on the synthetic function of Liver (4+1)
6. Define & explain Mean, Median & Mode with an example
7. What is Vandenberg reaction? Explain the principle write its significance
8. Explain any two methods of protein purification
9. Define anion gap. Mention the normal anion gap & write the types of anion gap with an example
10. Principle and applications of Flame photometer.

**Short Answers(Answer Any Ten)** **10X3=30 Marks**

11 Mention any two techniques to separate proteins.
12 Define pH. Write the normal pH of blood.
13 Coefficient of Variation (% CV).
14 Define Accuracy and precision.
15 Mention any two applications of ECLIA.
16 Mention the composition of Gastric Juice.
17 Write the principle of Colorimeter.
18 ELISA – Principle.
19 Write the reference range for (1) Albumin (2)Globulin (3)A:G Ratio
20 Define Metabolic alkalosis and mention any two causes
21 Mention the three mechanism for regulating the pH of blood
22 Mention the biochemical changes in Hepatic Jaundice