THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0222] **FEBRUARY 2022** **Sub. Code: 1251**
(OCTOBER 2021 EXAM SESSION)

M.Sc. MEDICAL LABORATORY TECHNOLOGY
FIRST YEAR
(Candidates admitted from 2011-2012 & 2013-2014 onwards - Paper I)
(Candidates admitted from 2020-2021 onwards - Paper II)
PAPER I & II – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY
Q.P. Code : 281251

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Write elaborately on glycolytic pathway and its regulation.
2. Classification of enzymes with examples and also elaborate on enzyme inhibition.

II. Write notes on: **(10 x 6 = 60)**

1. Special products from glycine.
2. Iron metabolism.
3. Preservatives for collection of blood and urine.
4. Flame photometer.
5. Glycogen synthesis and breakdown.
6. Recombinant DNA technology.
7. Functions of Vitamin C.
8. Laboratory investigations in Atherosclerosis.
9. Beta oxidation of fatty acids.
10. Interpretation of Levey Jennings chart.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0522] **MAY 2022** **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY
FIRST YEAR
(Candidates admitted from 2011-2012 & 2013-2014 onwards - Paper I)
(Candidates admitted from 2020-2021 onwards - Paper II)
PAPER I & II – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY
Q.P. Code : 281251

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Sources, biochemical role, RDA and deficiency manifestations of vitamin D.

2. Quality control and quality assurance methods in biochemistry laboratory.

II. Write notes on: **(10 x 6 = 60)**

1. Factors affecting enzyme activity.
2. Iron metabolism.
3. Centrifugation.
4. Turbidimetry.
5. Synthesis and breakdown of ketone bodies.
6. Recombinant DNA technology.
7. Structure of cell membrane.
8. Urea cycle and its regulation.
9. Gluconeogenesis and its regulation.
10. Pre analytical variables.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1022] **OCTOBER 2022** **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY
FIRST YEAR (Regulation 2011–2012)
(Candidates admitted from 2013-2014 onwards – Paper - I)
(Candidates admitted from 2020-2021 onwards – Paper – II)
PAPER I & II – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q. P. Code: 281251

Time: Three hours **Maximum : 100 Marks**

Answer ALL Questions

I. Elaborate on: **(2 x 20 = 40)**

1. Define Chromatography. Classify and explain the various types of Chromatography. Importance of Rf value. Enumerate the clinical applications of HPLC.

2. Enumerate the techniques of sterilization. Give in detail of heat sterilization methods and its advantages and disadvantages.

II. Write notes on: **(10 x 6 = 60)**

1. Thyroid function test.
2. ELISA.
3. Hypokalemia and Hyperkalemia.
4. DNA Repair mechanisms.
5. Gram's Stain.
6. Cardiac biomarkers.
7. Components and inhibitors of Electron Transport Chain.
8. Hypoglycemia.
9. Function of Vitamin C.
10. Derivatives of cholesterol and mention the test included in lipid profile.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0523] **MAY 2023** **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY
FIRST YEAR
(Candidates admitted from 2020-2021 Batch onwards)
PAPER II – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q. P. Code: 281251

Time: Three hours **Maximum : 100 Marks**

Answer ALL Questions

I. Elaborate on: **(2 x 20 = 40)**

1. Explain the hormonal regulation of blood glucose level. List the diagnostic criteria, acute complications and chronic complications of Diabetes mellitus. Discuss the biochemical changes in diabetic keto acidosis.

2. Discuss the process of blood sample collection, transportation, pre-analytical preparation. List 10 errors and assign risk score those errors.

II. Write notes on: **(10 x 6 = 60)**

1. What is Km value? Explain the Michaelis Menton equation and the implications of Km value.
2 Explain the chemiosmotic theory of oxidative phosphorylation.
3 Describe the pathways of production of special products from tyrosine by a neat flow chart.
4 Describe how DNA is organised to form chromosome?
5 Explain the Vitamin K cycle and its function.
6 Explain how you will prepare 1N sodium hydroxide solution?
7 Describe the methods for establishment of reference interval.
8 Describe the personnel records required in a quality management system.
9 Explain the principle and uses of atomic absorption spectrophotometry.
10 Illustrate the urea cycle with a neat diagram.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1023] **OCTOBER 2023** **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY
FIRST YEAR (From 2020-2021 onwards)
PAPER II – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q. P. Code: 281251

Time: Three hours **Maximum: 100 Marks**

Answer ALL Questions

I. Elaborate on: **(2 x 20 = 40)**

1. Discuss the plasma enzymes and isoenzymes used in clinical diagnosis.

2. Define precision, trueness, accuracy, Limit of detection, Limit of blank, analytical measurement range, interference. Describe the measures or experimental methods to quantify them.

II. Write notes on: **(10 x 6 = 60)**

1. Explain the differential centrifugation of cell and mention one marker for each subcellular component.
2. Explain the function of uncoupler.
3. Explain how palmitic acid is broken down to acetyl CoA?
4. Explain glycogenolysis and its regulation.
5. Explain the biochemical basis of phenylketonuria.
6. Describe the initiation of protein synthesis.
7. Mention any 6 reactions for which Vitamin B6 is the coenzyme.
8. Define buffer (acid base buffer). Give four example and their functions.
9. How will you select and use stable control materials to control quality?
10. Explain potentiometry and its application in clinical biochemistry laboratory.

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