[LF 1014] **OCTOBER 2014** **Sub. Code: 1251**

M.Sc MEDICAL LABORATORY TECHNOLOGY DEGREE EXAMS
(2013-2014 Batch onwards)
FIRST YEAR
PAPER I – GENERAL BIOCHEMISTRY MEDICAL LABORATORY TECHNOLOGY

Q.P. Code : 281251

Time : Three hours **Maximum : 100 marks**

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

1. Name the aromatic amino acids. Describe in detail the metabolism of Tyrosine and include the inborn errors associated with its manifestations. Add a note on the special products obtained from tyrosine.

2. Describe the various steps involved in the Glycolytic pathway. Give an account of the energy yield from Glycolysis under aerobic and anaerobic conditions. Add a note on the regulation of Glycolysis.

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

1. Enumerate and describe briefly the pre-analytical errors in the clinical laboratory
2. Saturated and unsaturated fatty acids
3. Laboratory Information System.
4. Describe Western blot and Northern blot technique and their applications
5. Biochemical functions of Vitamin C
6. Quality management in the laboratory
7. Components and Inhibitors of respiratory chain
8. Polymerase Chain Reaction
9. Competitive and non-competitive inhibition of enzymes
10. Principle, instrumentation and application of Chemiluminescence

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[LH 0415] **OCTOBER 2015** **Sub. Code: 1251**

M.Sc. (MEDICAL LABORATORY TECHNOLOGY) DEGREE EXAMINATION

(From 2013-2014 Batch onwards)

FIRST YEAR

PAPER I – 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. What is oxidative phosphorylation? Discuss the steps and mention its significance.
2. Define enzymes. Classify Enzymes with suitable examples. Discuss briefly about the active site of enzymes.

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

1. Laboratory information system.
2. Deficiency manifestations of Vitamin D.
3. Southern blot and its applications.
4. Structure and functions of Mitochondria.
5. Biochemical structure of DNA.
6. Types of laboratory errors.
7. Laboratory safety measures.
8. Phenylketonuria.
9. Significance of HMP Shunt.
10. Polymerase chain Reactions.

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[LJ 1016] OCTOBER 2016 **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY EMAMS
FIRST YEAR
PAPER I – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q.P. Code: 281251

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

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

1. Enumerate and explain the various factors that are involved in influencing the enzyme activity.

2. a) Explain the synthesize and regulation of urea.
   b) How is urea synthesize affected in liver disorder?

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

1. Glycoproteins.
2. Brief the inhibitors of respiratory chain.
3. Ketone bodies and their significance.
4. Phenylketonuria.
5. Polymerase chain reaction.
6. Biochemical functions of Thiamine.
7. Describe paper chromatography.
8. Structure of DNA.
9. HDL and it's role in prevention of Atherosclerosis.
10. Western blot technique and it's clinical applications.

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[LK 0517] MAY 2017 **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY EMAMS
FIRST YEAR
PAPER I – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q.P. Code: 281251

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

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

1. Discuss the initiation, elongation and termination of transcription. Give an account of post transcriptional modifications. Mention the inhibitors of transcription.

2. Define and classify enzymes. Explain enzyme inhibition in detail with example.

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

1. Lipoproteins.
2. Metabolic changes in Diabetes mellitus.
3. Synthesis of catecholamines.
4. Causes, features and diagnosis of ketosis.
5. TCA cycle and its significance.
6. Glycosaminoglycans.
7. Quality management in laboratory.
8. Biochemical functions and deficiency manifestations of Vitamin A.
9. Phenylketonuria.
10. Components and Inhibitors of electron transport chain.

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[LL 1017] OCTOBER 2017 **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY EMAMS
FIRST YEAR
PAPER I – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q.P. Code: 281251

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

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

1. Explain about urea cycle and its regulation. Add a note on Hyperammonemias.
2. Define and classify enzymes. Add a note on diagnostic enzymes.

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

1. Quality control and quality assurance in analytical phase of laboratory.
2. Rappaport Leubering cycle.
3. Ketone bodies.
4. Structure and functions of mitochondria.
5. Double helical structure of DNA.
6. Phenylketonuria.
7. Deficiency manifestations of Vitamin A.
8. Functions of calcium.
9. High density lipoproteins –functions and significance.
10. Delta checks and limit checks.

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[LN 1018] OCTOBER 2018 **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY EMAMS
FIRST YEAR
PAPER I – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q.P. Code: 281251

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

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

1. Discuss in detail about glycogen metabolism and its regulation.
2. Briefly discuss about the oxidative phosphorylation and explain its mechanism.

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

1. Steps involved in PCR.
2. Quality management in laboratories
3. Principle of spectrophotometry
4. Centrifuge and its types.
5. Laboratory safety measures.
6. Factors affecting enzyme activity.
7. Blood glucose regulation.
8. Diseases caused by the deficiency of different minerals.
9. Okasaki fragments.
10. Polysaccharides.

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[LP 1019] OCTOBER 2019 **Sub. Code: 1251**

M.Sc. MEDICAL LABORATORY TECHNOLOGY EMAMS
FIRST YEAR
PAPER I – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q.P. Code: 281251

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

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

1. Explain in detail about sources, RDA, functions and deficiency manifestations of Vitamin D.

2. Explain in detail about the process of Gluconeogenesis. Add a note on Malate Shuttle.

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

1. Levy Jening chart and west Gard rules.
2. Phenylketonuria.
3. Cholesterol.
4. Structure of DNA.
5. Functions of iron.
6. Cardiac enzymes.
7. Action of Insulin.
8. Oxidative phosphorylation.
9. Personel protective Equipments.
10. Okasaki fragments.

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[LQ 1019] **NOVEMBER 2020** **Sub. Code: 1251**

(MAY 2020 EXAM SESSION)

M.Sc. MEDICAL LABORATORY TECHNOLOGY

FIRST YEAR

PAPER I – GENERAL BIOCHEMISTRY, MEDICAL LABORATORY TECHNOLOGY

Q. P. Code: 281251

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

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

1. Classify enzymes. Write a note on the factors affecting enzyme activity.
2. Explain the homeostasis of calcium in our body. Add a note on its deficiency disorders.

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

1. Centrifuges.
2. Structure of DNA.
3. FISH.
4. Vitamin A deficiency disorders.
5. Lipoproteins.
6. Blood collection techniques.
7. Structure of mitochondria and its functions.
8. Buffer solutions and their action.
9. Detection limit.
10. Functions of iron.

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

[AHS 0321] MARCH 2021 Sub. Code: 1251

(OCTOBER 2020 EXAM SESSION)

M.Sc. MEDICAL LABORATORY TECHNOLOGY

FIRST YEAR (2011-2012 Regulation - From 2013-2014 onwards)

PAPER I – 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. Explain the oxidation of fatty acids in detail. Add a note on its regulation.
2. Explain in detail about sources, synthesis, RDA, functions and deficiency manifestations of Vitamin A.

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

1. Plasma membrane.
2. Isoenzymes.
3. Hazards in the laboratory.
4. Diabetic Ketoacidosis.
5. Electrophoresis.
6. Chemiosmotic theory of ATP synthesis.
7. Deficiency disorders of B-Complex vitamins.
8. Preservation of urine.
9. Pre-Analytical variables.
10. Post translational modifications.

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

[AHS 0921] **SEPTEMBER 2021** **Sub. Code: 1251**
(MAY 2021 EXAM SESSION)

M.Sc. MEDICAL LABORATORY TECHNOLOGY
FIRST YEAR (2011-2012 Regulation - From 2013-2014 onwards)
PAPER I – 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. Explain the mechanism of oxidation of glucose. Add a note on its regulation.
2. Explain in detail about sources, RDA, absorption, functions and deficiency manifestations of Iron.

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

1. Types of RNA.
2. Polymerase chain reaction.
3. Explain the safety measures in a laboratory.
4. Competitive inhibition of enzyme activities.
5. Metabolic functions of vitamin C.
6. a) Hypernatremia
   b) Hypokalemia
7. Classify Diabetes Mellitus. Add a note on its complications.
8. Automation of analytical processes.
9. Flame emission Spectrophotometry.
10. External quality assessment.

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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 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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