

**B.OPTOM**  
(New Syllabus 2018-2019)

**FIRST YEAR**

**PAPER IV – BASIC BIOCHEMISTRY & NUTRITION**

*Q.P. Code: 802734*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Define vitamins. Give a detailed account on classification, sources, functions and deficiency disorders of vitamins.
2. Explain glycolysis.
3. Write in detail about protein energy malnutrition.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Biological importance of carbohydrates.
2. Tears – fluid, chemistry and functions.
3. Factors affecting enzyme action.
4. Diabetes mellitus.
5. Basic five food groups.
6. Essential fatty acids.
7. Functions of calcium.
8. Anti oxidants.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Properties of amino acids.
2. Selenium.
3. Electrophoresis.
4. Steroids.
5. Goitre.
6. Buffers.
7. Balanced diet.
8. Dietary fiber.
9. WHO definition of health?
10. Obesity.

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**B.OPTOM**  
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**FIRST YEAR**

**PAPER IV – BASIC BIOCHEMISTRY & NUTRITION**

*Q.P. Code: 802734*

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Serum enzymes of clinical importance.
2. Explain the significance of HMP pathway.
3. Write in detail about iron and its role in eye.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Hetero polysaccharides.
2. Immuno globulins.
3. Vitamin A deficiency diseases.
4. GTT.
5. Supplementary food.
6. Bomb calorimeter.
7. Menu planning.
8. RDA.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Tears.
2. Percentage solutions.
3. Cholesterol.
4. Wilson's disease.
5. Chromatography.
6. Hypothyroidism.
7. Define nutrients.
8. Complete proteins.
9. Anti oxidants.
10. Omega 3 fatty acids.

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

**[AHS 0321]**

**MARCH 2021  
(AUGUST 2020 EXAM SESSION)**

**Sub. Code: 2734**

**B.OPTOM**

**FIRST YEAR (Regulation 2018-2019)**

**PAPER IV – BASIC BIOCHEMISTRY & NUTRITION**

***Q.P. Code : 802734***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Give a detailed account on sources, functions, deficiency disorders and hypervitaminosis of Vitamin A.
2. B-oxidation of palmitic acid – add a note on its Bioenergetics.
3. Hormonal regulation of blood glucose.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Functions of carbohydrates.
2. Plasma proteins.
3. Enzyme inhibition.
4. Functions of sodium and potassium.
5. Obesity and its dietary management.
6. Antioxidants and eye.
7. Applications of radio isotopes.
8. Dietary fiber.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Bilirubin.
2. Tears.
3. PUFA.
4. Diabetes mellitus.
5. Mutarotation.
6. Chromatography.
7. Nitrogen balance.
8. Define BMI.
9. Define energy and its units.
10. Malnutrition.

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

[AHS 0422]

APRIL 2022

Sub. Code: 2734

(FEBRUARY 2021 & AUGUST 2021 EXAM SESSIONS)

**B.OPTOM**

**FIRST YEAR (Regulation 2018-2019)**

**PAPER IV-BASIC BIOCHEMISTRY AND NUTRITION**

*Q.P NO. 802734*

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All questions**

**I. Elaborate on:**

**(3×10=30)**

1. Define Lipids. Write Classification of lipids and its properties.
2. Explain the Citric acid Cycle, energetics and its significance.
3. Explain briefly about on Beta-Oxidation of Palmitic acid and its energetics.

**II. Write note on:**

**(8×5=40)**

1. Biological importance of carbohydrates.
2. HMP shunt pathway and its significance.
3. Importance of biochemical constituent in the ocular tissues.
4. Functions of sodium and Selenium.
5. Enzyme inhibition.
6. Explain Jaundice and its types.
7. Conversion of cholesterol into steroid hormone.
8. Deficiency disorders of vitamins.

**III. Short answer on:**

**(10×3=30)**

1. Hypervitaminoses.
2. Redox potential.
3. Fatty liver.
4. Hyperbilirubinemia.
5. Atherosclerosis.
6. Give two examples for co-enzymes.
7. Applications of radio isotopes.
8. Define Triglyceride with example
9. Omega-3 fatty acid.
10. Electrophoresis.

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

[AHS 1122]

**NOVEMBER 2022**

**Sub. Code: 2734**

**B.OPTOM  
FIRST YEAR (Regulation 2018-2019)  
PAPER IV - BASIC BIOCHEMISTRY & NUTRITION**

*Q.P NO. 802734*

**Time : Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3×10=30)**

1. Define Vitamins. Add notes on vitamin A- sources, required dietary allowance, functions and deficiency manifestations.
2. List out the sources, functions and deficiency manifestations of proteins. Add note on supplementary foods.
3. Define glycolysis. Elaborate the pathway with the energetics for aerobic phase of glycolysis.

**II. Write note on:**

**(8×5=40)**

1. Plasma proteins.
2. Classification of lipids.
3. Enzyme Inhibition.
4. Beta-oxidation of palmitic acid.
5. Explain about various food groups.
6. Nutritional supplement for underweight child.
7. Importance of biochemical constituents in ocular fluid.
8. Essential fatty acids.

**III. Short answer on:**

**(10×3=30)**

1. Dietary fiber.
2. Give any four functions of carbohydrates.
3. Importance of omega-3- fatty acid in the diet.
4. Atherosclerosis.
5. Monosodium Glutamate (MSG).
6. Functions of calcium.
7. Iron deficiency anemia.
8. pH meter.
9. Electrophoresis.
10. Benedicts test.

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

[AHS 0423]

APRIL 2023

Sub. Code: 2734

**B.OPTOM**  
**FIRST YEAR (Regulation 2018-2019 onwards)**  
**PAPER IV-BASIC BIOCHEMISTRY & NUTRITION**  
*Q.P. Code: 802734*

**Time: Three Hours**

**Answer All questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3×10=30)**

1. Explain the Glycolysis pathway and its significance.
2. Write about therapeutic and diagnostic applications of enzymes.
3. Explain the De novo synthesis of Palmitic acid.

**II. Write note on:**

**(8×5=40)**

1. Discuss about Biological role of Lipids.
2. Hormonal regulation of blood glucose level.
3. Define amino acids and write down the properties of amino acid.
4. Formation and utilisation of ketone bodies.
5. Conversion of cholesterol into bile acids.
6. Factors affecting the Enzyme action.
7. Explain the Urea cycle.
8. Functions of calcium and copper.

**III. Short answer on:**

**(10×3=30)**

1. Define Biomolecules.
2. Name essential Aminoacids.
3. pH.
4. Define Immunoglobulin.
5. Diabetes mellitus.
6. Obesity.
7. Hyperbilirubinemia.
8. Coenzymes.
9. Tears.
10. Define Electrophoresis.

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

**[AHS 1123]**

**NOVEMBER 2023**

**Sub. Code: 2734**

**B.OPTOM**

**FIRST YEAR (Regulation 2018-2019 onwards)  
PAPER IV-BASIC BIOCHEMISTRY & NUTRITION**

*Q.P. Code: 802734*

**Time : Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 × 10 = 30)**

1. Enzyme Inhibition.
2. Explain Glycolysis.
3. Write in detail about Iron and its role in Eye.

**II. Write note on:**

**(8 × 5 = 40)**

1. Isomerism.
2. Immunoglobulins.
3. Clinical importance of Enzyme.
4. Functions of Calcium.
5. Visual Cycle.
6. Basic five Food groups.
7. Antioxidants and Eye.
8. GTT.

**III. Short answer on:**

**(10 × 3 = 30)**

1. Tears functions.
2. Selenium.
3. Electrophoresis.
4. Night blindness.
5. Denaturation of Proteins.
6. Classification of Vitamins.
7. Secondary structure of Protein.
8. Chylomicrons.
9. Balance diet.
10. Obesity.

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

**[AHS 0424]**

**APRIL 2024**

**Sub. Code: 2734**

**B.OPTOM**

**FIRST YEAR (Regulation 2018-2019 onwards)**

**PAPER IV-BASIC BIOCHEMISTRY & NUTRITION**

***Q.P. Code: 802734***

**Time : Three Hours**

**Answer all questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 × 10 = 30)**

1. Explain the different structural organization of Proteins.
2. Write in detail about a) Classification of Enzyme  
b) Factors affecting Enzyme action.
3. Give a detailed account on sources, functions, deficiency disorders and Hypervitaminosis of Vitamin A.

**II. Write note on:**

**(8 × 5 = 40)**

1. Cellulose and its functions.
2. Essential, Semi essential amino acids.
3. Complete and incomplete Proteins.
4. Functions and deficiency disorders of Calcium.
5. Vitamin - C.
6. Food Pyramid.
7. List out Antioxidants and its role in Vision.
8. Dietary Fiber.

**III. Short answer on:**

**(10 × 3 = 30)**

1. Classification of Disaccharide.
2. Classification of Lipids.
3. Nitrogen balance.
4. Biological important peptides.
5. Poly unsaturated Fatty acids.
6. Balanced diet.
7. Lutein.
8. Basic source of Carbohydrates.
9. What is meant by Energy Expenditure?
10. Deficiency manifestations of Vitamin D.

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

**[AHS 1125]**

**NOVEMBER 2025**

**Sub. Code: 2734**

**B. OPTOM**

**FIRST YEAR (Regulation 2018-2019 onwards)**

**PAPER IV-BASIC BIOCHEMISTRY & NUTRITION**

*Q.P. Code: 802734*

**Time : Three Hours**

**Answer all questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 × 10 = 30)**

1. Give a detailed account on sources, functions, deficiency disorders and Hypervitaminosis of Vitamin A.
2. B-oxidation of Palmitic acid – Add a note on its bioenergetics.
3. Hormonal regulation of Blood glucose.

**II. Write note on:**

**(8 × 5 = 40)**

1. Functions of Carbohydrates.
2. Plasma proteins.
3. Enzyme inhibition.
4. Wald's visual cycle.
5. Obesity and its dietary management.
6. Antioxidants and eye.
7. Applications of Radio isotopes.
8. Dietary fiber.

**III. Short answer on:**

**(10 × 3 = 30)**

1. Bilirubin.
2. Tears.
3. PUFA.
4. Diabetes mellitus.
5. Muta rotation.
6. Chromatography.
7. Nitrogen balance.
8. Define BMI.
9. Define Energy and its units.
10. Malnutrition.

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