

**MGM INSTITUTE OF HEALTH SCIENCES, NAVI MUMBAI**  
**I B.P.T UNIVERSITY EXAMINATION, JULY - 2015**

Subject - **BIOCHEMISTRY**

Maximum Marks: 40  
Duration – 1 ½ Hours  
(Section A = 10 Min.)

**INSTRUCTIONS:**

1. Attempt all questions
2. Maximum marks are indicated in the right
3. Illustrate the answers with suitable diagrams wherever necessary
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**SECTION – A**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Classify carbohydrates with examples.
- B. Cholesterol functions.
- C. Mechanism and biochemical events in muscle contractions.
- D. Urea cycle
- E. Hormonal regulation of blood glucose level.

**SECTION – B**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Mechanism of action of group I hormones
- B. Functions, sources and deficiency manifestation of Iron.
- C. Nitrogen balance
- D. Characteristic features of genetic code.
- E. Liver function tests.



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**SECTION – A**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Mucopolysaccharides
- B. Functional classification and proteins.
- C. Phospholipid
- D. Mechanism and muscle contraction
- E. Urea cycle.

**SECTION – B**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Functions sources of  $Ca^{++}$
- B. cAMP-second messenger
- C. Role of fiber in nutrition
- D. Renal function tests
- E. Types of RNA and their functions



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**SECTION – A**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Describe glycogenesis and its regulation
- B. Describe urea cycle with its significance
- C. Describe biochemical events of muscle contraction
- D. Hormonal regulation of blood glucose level
- E. Ketosis

**SECTION – B**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Functions and deficiency manifestation of calcium
- B. Cell membrane receptor mechanism of hormone action
- C. Genetic code
- D. Protein energy malnutrition
- E. Creatinine clearance test



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**SECTION –A**

**Q.1. Short Answer Questions: (Any FIVE) (5×3 Marks)**

**15 Marks**

- A. Define BMR and factors affecting BMR
- B. Explain mechanism of action of steroid hormones.
- C. Define transamination. What is its importance
- D. Write functions of vitamin C
- E. What is gout? Give types with biochemical defects
- F. State diagnostic importance of enzymes

**Q2. Short Answer Questions: (Any FIVE) (5×5Marks)**

**25 Marks**

- A. Diagrammatic representation of glycolysis with acting enzymes and coenzymes.
- B. Structural organization of proteins
- C. Hormonal regulation of Calcium.
- D. Describe liver function tests based on synthetic functions
- E. Classify lipoproteins and write their functions
- F. Describe in brief events of muscle contraction



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**SECTION –A**

**Q.1. Short Answer Questions: (Any FIVE) (5×3 Marks)**

**15 Marks**

- A. Competitive inhibition with 3 examples
- B. Functions of lipoproteins
- C. Significance of HMP shunt.
- D. Sources, functions and deficiency disorder of thiamin.
- E. State function of Iron
- F. Give important renal function tests.

**Q2. Short Answer Questions: (Any FIVE) (5×5Marks)**

**25 Marks**

- A. Give major functions of Glycine
- B. Mechanism of action of steroid hormones
- C. Write short note on malnutrition disorders.
- D. Formation and fate of bilirubin, and associated disorders.
- E. Structure and functions of collagen
- F. Describe glycolysis with energetics.



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**SECTION –A**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Write note on Kwashiorkor
- B. Describe TCA cycle with inhibitors
- C. Write functions of phospholipids
- D. Define transamination reaction write its significance.
- E. Define and classify liver function tests. Describe liver function tests based on excretory functions

**SECTION – B**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Write functions and deficiency manifestations of thiamine
- B. Describe factors affecting enzyme activity.
- C. Functions of DNA and RNA
- D. Iron- Functions, sources and deficiency manifestations
- E. Write note on muscle proteins



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**SECTION –A**

**Q.1. Short Answer Questions: (Any FIVE) (5×3 Marks)**

**15 Marks**

- A. Write notes on homopolysacchrde
- B. Functions of phospholipids
- C. Write causes and symptoms of Kwashiorkar
- D. Sources, functions and deficiency disorders of niacin
- E. State functions of calcium
- F. Write names and functions of ketone bodies

**Q2. Short Answer Questions: (Any FIVE) (5×5Marks)**

**25 Marks**

- A. Draw well labled TCA cycle (Diagrammatic presentation only)
- B. Describe factors affecting enzyme activity
- C. Write note on muscle proteins
- D. Describe excretory function of liver function test
- E. Digrammatic presentation of Urea cycle.
- F. Homopdysaccharides



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**Duration – 1 ½ Hours**  
**(Section A = 10 Min.)**

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**SECTION – A**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Describe the pathway of glycolysis
- B. Urea cycle
- C. Explain competitive inhibition with examples.
- D. Lipid profile test and their interpretation
- E. Salient features of Genetic code

**SECTION – B**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Nitrogen balance
- B. Formation of ketone bodies and its clinical significance.
- C. Vitamin E
- D. Collagen
- E. Sources, daily requirement and functions of Iron.



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**SECTION –A**

**Q.1. Short Answer Questions: (Any FIVE) (5×3 Marks)**

**15 Marks**

- A. What are essential amino acids? Name them
- B. Write the normal range of
  - a. Blood glucose
  - b. Blood urea
  - c. Serum creatinine
- C. Diagrammatic representation of action of steroid hormones
- D. What is BMR? Mention the factors affecting on BMR
- E. Collagen
- F. Mention renal function tests.

**Q2. Short Answer Questions: (Any FIVE) (5×5Marks)**

**25 Marks**

- A. Explain the diagnostic importance of enzymes.
- B. What are carbohydrates? Classify them with examples
- C. Structural organization of proteins
- D. Describe the sources, daily requirement, functions and deficiency disorders of Vitamin A.
- E. Explain the functions of sodium and potassium
- F. Ketogenesis.



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**SECTION – A**

**Q1.Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Describe biochemical events of muscle contraction
- B. Describe glycolysis with energetics
- C. Write note on competitive inhibition
- D. Describe creatinine clearance test
- E. Functions and deficiency manifestations of Vitamin A

**SECTION – B**

**Q.2. Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Mechanism of action of steroid hormone
- B. Describe urea cycle with disorders
- C. Describe sources, functions & deficiency manifestation of calcium
- D. Classify lipids with examples
- E. Write note on protein energy malnutrition



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Duration – **2 Hours**  
(Section A = 10 Min.)

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**SECTION –A**

**Q.1. Short Answer Questions: (Any FIVE) (5×3 Marks)**

**15 Marks**

- A. Mention the factors affecting on enzyme activity.
- B. Homopolysaccharides
- C. Define transamination. What are its features?
- D. Mention abnormal haemoglobin
- E. Ketone bodies
- F. Hormones regulating blood glucose level

**Q2. Short Answer Questions: (Any FIVE) (5×5Marks)**

**25 Marks**

- A. Explain glycolysis pathway with its energetic and regulation
- B. Competitive inhibition
- C. Sources, active form, functions and deficiency disorders of Vitamin D.
- D. Kwashiorkor and marasmus
- E. Describe the lipid profile tests with its interpretation
- F. Liver function test.



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**SECTION – A**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Regulation of blood sugar level (Hormonal)
- B. Describe urea cycle with disorders
- C. Classify lipids with suitable examples.
- D. Write a note on collagen
- E. Importance of cholesterol

**SECTION – B**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Write sources, RDA, deficiency manifestation and factors affecting absorption of  $Ca^{++}$ (Calcium)
- B. c AMP (Cyclic AMP)
- C. Functions of DNA and RNA
- D. Kwashiorkar and marasuras
- E. Clearance Tests



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**SECTION –A**

**Q.1. Short Answer Questions: (Any FIVE) (5×3 Marks)**

**15 Marks**

- A. Name three glycogen storage conditions with enzyme defect and biochemical manifestations.
- B. Explain Wald's visual cycle
- C. Mechanism of action of steroid hormones
- D. Write structure and function of hemoglobin
- E. Note on collagen
- F. Write function of phospholipids

**Q2. Short Answer Questions: (Any FIVE) (5×5Marks)**

**25 Marks**

- A. What is Alkaptonuria? Write biochemical defect and symptoms
- B. Write diagnostic importance of enzymes with suitable examples
- C. Write sources, RDA, active form, functions and deficiency manifestations of thiamine
- D. Define renal clearance and write note on Creatinine clearance test.
- E. Describe functions of calcium
- F. Hormonal regulation of calcium and phosphorus



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**SECTION –A**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Amphibolic role of citric acid cycle
- B. Phospholipids
- C. Vitamin C
- D. Serum enzymes estimated to assess the liver function test
- E. Nitrogen balance

**SECTION – B**

**Short Answer Questions: (Any FOUR)**

**20 Marks**

- A. Compounds synthesized from glycine
- B. Silent features of genetic code
- C. Structure and function of DNA
- D. Calcium
- E. Collagen