

500-A-FIRST M.B.B.S. DEG. EXAMINATION – JULY, 2013-BIOCHEMISTRY-PAPER-I

Time : 2 ½ Hours-Max. Marks: 50-Answer all questions

- 1..Explain the reactions of citric acid cycle emphasizing energy yield and amphibolic use of intermediates. Add a note on the energetic= $6+4=10m$
- 2..Describe the ketogenesis pathway and explain its significance. What are the tests done to detect the presence of ketone bodies in urine? $=5+4+1=10m$

WRITE SHORT NOTES ON: 5 x 4=20m

- 3..Both cellulose and starch are homopolysaccharides of glucose yet humans digest only starch. Explain why?

4.Porphyrins 5.Type I glycogen storage disease 6.Serum lipoproteins 7.High energy compounds

WRITE BRIEFLY ON: 5 x 2=10m

- 8..Explain why Thiamine deficiency is one of the causes for lactic acidosis
- 9..Effect of temperature on enzyme activity
- 10.Sources and deficiency manifestations of Vit.A
- 11.Proenzymes
- 12.Name different types of α -Thalassemias

500-A-FIRST MBBS. DEG. EXAMINATION-NOVEMBER, 2012-BIOCHEMISTRY-PAPER-I

- 1..Describe the biochemical changes in carbohydrate and lipid metabolism in prolonged starvation= $5+5=10m$
2. Describe the formation, transport and metabolic fate of ammonia in the body. What is ammonia toxicity? $=2+2+4+2$

Write Short Notes On: 5 x 4=20m

3. Isoenzymes and their clinical importance
4. Folate trap (Methyl trap)
5. Define basal metabolic rate (BMR) and list the factors affecting BMR.
6. Advantages and disadvantages of intake of polyunsaturated fatty acids
7. Structure and function of glutathione

Write Briefly On: 5 x 2=10m

8. Dietary fibre
9. Two main causes of Fatty liver
- 10.Main sources of sucrose and lactose.
- 11.Mention four Biochemical functions of vitamin K
- 12.Any four functions of phospholipids

500-A-FIRST M.B.B.S. DEG. EXAM – JULY, 2012-BIOCHEMISTRY-PAPER-I

- 1..Explain the reactions of Glycogenesis and Glycogenolysis in liver. How are these pathways regulated? $=4+3+3=10m$
- 2..Give an account of the sources, chemistry, biochemical functions, deficiency diseases and daily requirement of vitamin A= $1+2+3+3+1=10m$

Write Short Notes On: 5 x 4=20m

- 3..Ketogenesis
- 4..Porphyrias
- 5..Competitive inhibition.
- 6..Kwashiorkor and marasmus
- 7..Galactosemia

Write briefly on: 5 x 2=10m

- 8..Essential fatty acids.
- 9..What are Isomerases? Give two examples.
- 10.Sickle cell hemoglobin
- 11.Enzyme defects in essential fructosuria and hereditary fructose intolerance.
- 12.Sources and functions of Folic acid.

500-A-FIRST M.B.B.S. DEG. EXAMINATION-JANUARY, 2012-BIOCHEMISTRY-PAPER-I

- 1..Explain the various factors affecting the enzyme activity. Add a note on the significance of the k_m value of the enzyme= $7+3=10m$
- 2..Discuss the mitochondrial electron transport chain (E.T.C.) and the inhibitors at various sites of this chain= $10m$

Write Short Notes On: 5 x 4=3.Detoxification by conjugation.

4.Glycogen storage diseases

5..Fatty liver and lipotropic factors.

6..Hemoglobinopathies with examples.

7..Functions and deficiency features of Pyridoxine.

Write Briefly On: 5 x 2=10m

8..Define isoenzymes. Give two examples and their diagnostic use.

9..Functions of Bile Salts.

10. Energetics of TCA (tricarboxylic acid) cycle.
 11. Define antioxidants. Which Vitamins have antioxidant function? 12. Respiratory Quotient.

500-A-FIRST M.B.B.S. DEGREE EXAMINATION – JULY, 2011-BIOCHEMISTRY-PAPER-I

1. Describe the CITRIC ACID cycle with energetics. Explain the Amphibolic role of this cycle? = 6+2+2=10m
 2. Write the sources, daily requirements, functions and deficiency manifestations of Vitamin C? = 2+1+4+3=10m
- Write short notes on: 5 x 4=3.. Chemiosmotic theory and oxidative phosphorylation. 4.. Porphyrins
 5.. Digestion and absorption of lipids. 6.. Competitive Inhibition and its clinical significance
 7.. Enzyme markers in myocardial infarction.
 Write Briefly On: 5 x 2 = 8.. Give two examples for phospholipids and write their functions
 9.. Specific Dynamic Action. 10. MUTAROTATION.
 11. What are Antivitamins? Give any two examples with vitamin inhibited by them.
 12. Absolute specificity of Enzymes.

500-A-MBBS.FIRST DEG. EXAMINATION – JANUARY, 2011-BIOCHEMISTRY=PAPER-I

1. Describe the sources, dietary requirements, biochemical functions and deficiency manifestations of Vitamin A = 1+1+4+4=10m
2. Mention the pathways by which Glucose is metabolized in the body. Describe the steps of anaerobic glycolysis and its energetics = 2+6+2=10m

Write Short Notes On: 5 x 4 = 20m

3. Schematically represent the Electron Transport Chain indicating the sites of ATP production and Inhibitors.
4. Formation and fate of Bile pigments. 5. Factors affecting enzyme activity.
6. Abnormal Hemoglobins. 7. Lipoproteins.

Write Briefly On: 5 x 2 = 10m

8. Biological value of proteins. 9. K_m value and its significance. 10. Dietary fiber
11. Detoxification by Oxidation. 12. Lactose Intolerance.

500-A=FIRST M.B.B.S. DEG. EXAMINATION – JULY, 2010=BIOCHEMISTRY-PAPER-I

1. Explain the formation, utilization and excretion of ketone bodies. What is ketoacidosis? = 4+2+2+2=10m
2. How is acetyl CoA oxidized in citric acid cycle? What is its energetics? Why is it called amphibolic pathway? = 6 + 2 + 2 = 10m

Write Short Notes On: 5 x 4 = 20m

3. Isoenzymes 4. Fatty Liver 5. Inhibitors of respiratory chain
6. Diagnostic importance of enzymes 7. Biochemical functions of Vitamin D.

Write Briefly On: 5 x 2 = 10m

8. Cori cycle. 9. Hyaluronic acid and its functions
10. What is substrate level phosphorylation? Give two examples.
11. Functions of cholesterol. 12. What are lyases? Give two examples

500-A=FIRST M.B.B.S. DEG. EXAM – JANUARY, 2010-BIOCHEMISTRY=PAPER-I

1. Outline the reactions of Hexose Monophosphate Shunt Pathway. In which tissues this pathway is operative? What is the significance of this pathway? = 6 + 2 + 2 = 10m
2. How is NADH oxidized in the respiratory chain? Indicate the sites of oxidative phosphorylation. What is chemiosmotic theory? = 4 + 3 + 3 = 10m

Write Short Notes On: 5 x 4 = 20m

3. Functions and deficiency of Niacin 4. Pyruvate dehydrogenase complex
5. Phospholipids and their functions 6. Glycogen storage diseases 7. Detoxification by conjugation

Write Briefly On: 5 x 2 = 10m

8. Functions of high density lipoprotein
9. Biochemically important compounds derived from cholesterol

10. Proenzymes and their importance 11. What are ligases? Give two examples

12. Functions of ascorbic acid

500-A-FIRST M.B.B.S. DEGREE EXAMINATION – JULY, 2009-BIOCHEMISTRY-PAPER-I

1. Discuss the metabolism of ketone bodies and add a note on ketosis. Write briefly on the tests done for the detection of ketone bodies in urine.=7+3=10

2. Write the steps of HMP SHUNT pathway. Write the significance of this pathway=7+3=10

Write Short Notes On: 5x4=20

3. Specificity of enzymes. 4. High energy compounds with examples

5. What are Porphyrias? Write briefly on Acute Intermittent Porphyria.

6. Functions and deficiency manifestations of Vitamin A. 7. Fatty acid synthase complex

Write Briefly On: 5x2=10

8. Name the enzyme deficit in the following conditions=a) Galactosemia b) Nieman Pick's Disease.

9. Specific Dynamic Action. 10. Anti Vitamins 11. Structure of sucrose.

12. Mechanisms of Detoxification.

500-A-FIRST MBBS. DEG. EXAMINATION-FEBRUARY, 2009-BIOCHEMISTRY-PAPER-I

1. Describe tricarboxylic acid cycle with its energetics and inhibitors. Add a note on anaplerotic reactions. (6+2+2=10)

2. Describe Hemoglobin structure, functions and metabolism. Write briefly on Porphyrias and mention any two laboratory tests to diagnose them=(5+3+2=10)

Write Short Notes On:= 5x4=20

3. Isoenzymes and their clinical importance. 4. Glycosaminoglycans and their functions.

5. Define basal metabolic rate (BMR) and list the factors affecting BMR.

6. Synthesis and functions of Calcitriol. 7. Classify phospholipids and mention their functions

Write Briefly On=5x2=10

8. Sources and functions of Folic acid. 9. Biomedical importance of Prostaglandins.

10. Name the Bile salts and mention their functions.

11. What is carnitin and its role in oxidation of fatty acids.

12. Give examples of Uncouplers and Inhibitors of Oxidative Phosphorylation.

500-A- FIRST M.B.B.S. DEG. EXAM – DECEMBER, 2008 BIOCHEMISTRY-PAPER-I

1. Define glycogenesis and glycogenolysis. Explain the reactions of glycogenesis and glycogenolysis in the liver. How cyclic AMP regulates these pathways. Mention its significance. =(1+5+2+2=10)

2. Give an account of the chemistry, sources, and daily requirements of Vitamin 'D'.

Enumerate its biochemical functions and deficiency manifestations (2+1+1+4+2)

Write Short Notes On:= 5x4=20

3. Detoxification by conjugation. 4. Formation of HMG CoA and its importance.

5. Components of electron transport chain. 6. Thalassemia. 7. Functions of any two Phospholipids.

Write Briefly On:= 5x2=8. Factors affecting absorption of carbohydrates. 9. Kwashiorkor.

10. Clinical applications of creatine kinase and LDH. 11. Dietary fiber. 12. Regulation of enzyme activity.

500-A-FIRST M.B.B.S. DEG. EXAMINATION – JULY, 2008- BIOCHEMISTRY-PAPER-I-

1. Explain how palmitic acid is oxidized in our body. How much energy is released?

Explain how acetyl CoA level is regulated?=(6+2+2=10)

2. What are enzymes? Classify them with examples. Give an account on the effect of substrate concentration, pH and temperature on enzyme action. Explain the significance of Km and Vmax.=(1+3+3+3)

Write short notes on: =5x4=20m=3. Steps of glycogenesis and its significance.

4. P:O ratio and respiratory control. 5. Hormonal regulation of blood glucose. 6. Vitamin 'E'.

7. Abnormalities associated with bilirubin metabolism.

Write briefly on: =5x2=10m=8. Lactose. 9. How Aspirin and Indole undergo biotransformation?

10. Specific dynamic action of food. 11. Rapport lube ring cycle.

12. Cobalamin – functions and deficiency manifestations.

500-A-FIRST M.B.B.S. DEG. EXAMINATION – MAR/APRIL, 2008--Biochemistry-Paper-I-

1. What are ketone bodies? How are they synthesized? Name the conditions characterized by excessive production of ketone bodies. Explain the metabolic derangements and consequences of ketosis.-(1+3+1+5)

2. What are the metabolic fates of glucose-6-phosphate? Explain HMP shunt pathway and mention its significance. (2+6+2=10)

Write short notes on: $5 \times 4 = 20 = 1$. What is competitive inhibition? Write its clinical applications.

2. High energy compounds

3. Porphyrias 4. Biochemical functions and deficiency manifestations of Folic acid 5. Calorific value

Write brief notes on: $5 \times 2 = 10$

1. Essential fatty acids 2. Redox potential 3. Sources and deficiency manifestations of Vitamin 'A'

4. Detoxification by Hydrolysis (two examples) 5. Composition and importance of Insulin.

500-A-FIRST M.B.B.S. DEGREE EXAMINATION – SEPT/OCT, 2007-BIOCHEMISTRY-PAPER-I-

1. Define “glycogenesis” and “glycogenolysis”. Describe glycogenesis in detail. How is it regulated= $2+5+3$

2. Explain the terms “Ketonemia” and “ketosis”. Name the conditions in which ketosis occurs. Describe the synthesis and catabolism of ketone bodies. How do you test for ketone bodies in urine= $2+1+6+1$

Write short notes on: $5 \times 4 = 20$ m; 3. Biological value of proteins 4. Sickle cell haemoglobin

5. Rickets 6. Detoxification by conjugation 7. Von Gierke’s Disease

Write briefly on: $5 \times 2 = 10$ m; 8. Uncouplers of oxidative phosphorylation

9. Effect of temperature on enzyme activity 10. Zymogens 11. Define Epimer. Name two Epimers

12. Mention the importance of phosphatidyl inositol

MAY, 2007 - PAPER-I

1. Explain how palmitic acid is oxidized in our body? How much energy is liberated. How acetyl CoA level is regulated. $(6+2+2=10)$

2. What are the fates of glucose-6-phosphate? Explain the HMP shunt pathway & state its significance. $(2+5+3)$

3. Write Short: $5 \times 4 = a$) Name the coenzymes of Niacin and Thiamine and give two metabolic functions of each.

b) Schematic representation of electron transport chain c) Functions of cholesterol d) Porphyria

e) Factors affecting enzyme activity.

4. WRITE BRIEFLY ON: $5 \times 2 = 10 = a$) Uncouplers of oxidative phosphorylation

b) Enzyme markers in myocardial infarction c) Factors influencing biological value of proteins

d) Thalassaemias e) Dietary requirement and deficiency manifestations of Vitamin A.

BIOCHEMISTRY - SEPTEMBER-2006 - PAPER-I-New Regulations-

1. What are enzymes and proenzymes? Mention diagnostic importance of proenzymes. Classify enzymes giving examples of each class. Indicate the reaction catalysed by the enzyme in each class $(2+2+3+3=10$ m)

2. Define Glycogenesis and Glycogenolysis. Explain the relations involved in Glycogenesis and Glycogenolysis in the liver. How are these two pathways reciprocally regulated? Name glycogen storage diseases $(1+4+3+2)$

Write short notes on: $5 \times 4 = 20$ m; 3. De novo synthesis of fatty acids 4. Functions and sources of Vitamin C

5. Hemoglobinopathies 6. Basal Metabolic Rate 7. Electron Transport Chain

Write briefly on: $5 \times 2 = 10$ m; 8. Deficiency manifestations and Biochemical role of Vitamin E

9. Unsaturated fatty acids 10. Detoxification by hydrolysis 11. Lactose intolerance

12. Oxidative phosphorylation and Substrate level phosphorylation

APRIL-2006 - PAPER-I-New Regulations-

1. Write sources, chemistry, recommended dietary allowances, absorption, functions & deficiency manifestations of Folic acid $(1+1+1+1+4+2)$

2. Describe the reactions of Pentose phosphate pathway indicating the sites and significance. Add a note on glucose-6-phosphate dehydrogenase deficiency $(5+2+2+1)$

Write short notes on: $5 \times 4 = 20$ m;

3) Schematically represent the ETC (Electron Transport Chain) indicating the sites of ATP generation and inhibitors.

4) Mention the biologically important nucleotide coenzymes and their functions

5) Congenital hyperbilirubinaemias

6) Name the different types of lipases. Mention their mechanism of activation, site of action and functions

7) Measures of dietary protein quality

Write briefly on: $5 \times 2 = 10$ m; 8) What is carnitine and its functions

9. Mention two abnormal hemoglobins and how do they differ from normal adult Hb.

10) Zellweger’s syndrome 11) What is biotransformation? Give two examples 12) Adolase B

SEPT/OCT-2005 - PAPER-I-New Regulations-

1. How bilirubin is formed in the body? How is it detoxified? Explain its usefulness in the differential diagnosis of jaundice. Name the abnormalities associated with bilirubin metabolism $9+3+3+1=10$)

2. Define gluconeogenesis. Name substrates for gluconeogenesis except lactate. Explain gluconeogenesis starting from lactate. What is its importance. $(1+2+5+2=10$ marks)

Write short notes on: $5 \times 4 = 3$. Ketosis 4. Mucopolysaccharides 5. Oxidative phosphorylation

6. Sources and function of Vitamin-D 7. Protein calorie malnutrition

- Write briefly on: 5 x 2 = 8. Absorption of Vitamin B-12 9. Causes of fatty liver
 10. Clinical applications of competitive inhibition 11. Proenzymes and their diagnostic importance
 12. Functions of phospholipids

MAR/APR.2005 - (New Regulations) PAPER-I

1. Write the sources of, daily allowance, chemistry, functions & deficiency diseases with relation to folic acid-10m
 2. Name the types of glycosuria. Describe the procedure of G.T.T. and its interpretation
 Write short notes on: 5 x 4 = 20marks; 3. Clinical significance of Isoenzymes 4. Fatty Liver
 5. Acute intermittent porphyria 6. Specific Dynamic action of food 7. Oxidative phosphorylation
 Write briefly on: 5 x 2 = 10marks; 8. Role of dietary fibre in health and disease 9. Epimers
 10. Von Gierke's disease 11. Ketonemia
 12. Mention the normal values for: a) Serum Calcium b) HDL-Cholesterol

OCTOBER, 2004. (New Regulations) PAPER-I

1. Define Gluconeogenesis. Explain the pathway in humans from its predominant precursor. Mention the humans from its predominant precursor. Mention the key enzymes, their regulatory steps and significance of the pathway. (1+4+2+2+1)
 2. Write the steps of biosynthesis of heme indicating the regulatory step. Add a note on porphyrias (6+1+3)
 Write short notes on: 5 x 4 = 20m=3. Structural composition and functions of lipoproteins
 4. Enzyme inhibitors and their clinical use 5. Deficiency manifestations of pyridoxine
 6. Boyer's binding change mechanism of ATP synthesis 7. Mechanisms of absorption of sugars from the gut
 Write briefly on: 5 x 2 = 10marks=8. a) BMR and its normal values b) Net protein utilization
 9. The enzymes defective in: a) Refsum's disease b) Crigler-Najjar syndrome
 10. Cardiolipin and its clinical significance 11. "High energy" compound with four examples
 12. Biotransformation with two examples

APRIL, 2004. PAPER-I

1. Explain the chemistry, Daily allowance, sources, metabolic role and deficiency diseases associated with Vitamin C (2=1+2+3+2=10marks)
 2. Explain the types of Glycolysis in the body. Outline the steps of Glycolysis in Red Blood cells (Erythrocytes). Work-out the energetics of the pathway (2+6+2=10marks)
 Write short notes: 5 x 4 = 20m=3. Prostaglandins and their functions 4. Inhibitors and Electron Transport Chain
 5. Factors influencing enzyme activity 6. Thalassemia 7. Kwashiorkor
 Write briefly on: 5 x 2 = 10marks=8. Essential Fatty Acids (EFA) 9. Cori Cycle 10. Anti Vitam
 11. Deficiency of Glucose-6-Phosphate dehydrogenase 12. Mention normal serum values of the following biochemical parameters and their clinical significances: a) SGOT b) Serum Acid Phosphatase

OCTOBER, 2003. (New Regulations) PAPER-I

1. What is the normal Serum Cholesterol level in the body? Describe the structure, synthesis, fate and clinical significance of cholesterol (1+2+3+1+3=10marks)
 2. Name Sulphur containing Vitamins. Describe the chemistry, properties, Biochemical functions, sources, requirement and deficiency manifestations of any one of them (1+1+3+1+1=3=10marks)
 Write short notes on: 5 x 4 = 20m=3. Methemoglobin 4. Factors influencing enzyme action
 5. Bile salts and Bile pigments 6. Similarities and differences of: a) Amylase and Amylopectin
 b) Saturated and unsaturated Fats c) Sucrose and Lactose d) Colloid and Emulsion
 7. Salient features of Glycolysis.
 Write briefly on: 5 x 2 = 8. Name four gastrointestinal enzymes and their action
 9. Protein Energy Malnutrition 10. McArdle's disease 11. Name different types of Porphyrias
 12. Hyaluronic acid

APRIL, 2003 (New Regulations) PAPER-I

1. Classify enzymes with suitable examples. Name the factors that influence the enzyme activity. Describe competitive inhibition with a suitable example (3+3+4=10marks)
 2. Write on chemistry, sources, biochemical functions, deficiency manifestations and daily requirements of Vitamin B1 (2+2+2+2+2=10marks)
 3. Write short notes on: 5 x 4 = 20m=a) Glycosylated Hemoglobin b) Scurvy c) Galactosemia
 d) Aspartate Malate Shuttle e) High density Lipoprotein
 4. Write briefly on: 5 x 2 = a) Resouatirt quotient b) Mention the normal values of
 a) Alkaline Phosphatase and (b) Uric acid in serum c) Lactose intolerance
 d) Give two examples of mucopolysaccharides and mention the repeating units presents in them
 e) Name the ring system present in cholesterol and mention the products formed from it

October/November, 2002 PAPER-I (New Regulations)

1. Classify the mechanisms by which ATP is produced in the cells. Describe in detail the one operating in the

mitochondria (2+8=10marks)

2. Describe the digestion, absorption & transport of lipids in the human body. Mention the associated Disorders=10m

Write short notes on: 5x4=20marks

3. Dietary fiber 4. Vitamin K cycle 5. Rapoport Leubering cycle 6. Mutarotation 7. Detoxication by conjugation

Write briefly on: 5 x 2 =10marks

4. Enzyme specificity 5. Carnitine 6. Name the essential fatty acids and mention their importance.

7. Mention the RDA of (a) Vitamin- and (b) Vitamin B1.

8. Name the ketone bodies. How do you test for them in urine

2nd February, 2001 – PAPER-I (New Regulations)

1. Discuss the Embden Mayer of pathway as it occurs in mature RBC. Add a note on its Energetics (8+2)

2. Explain the Electron transport chain. Show the ATP Synthesizing sites and their inhibitors. What are uncouplers. Give one example (6+2+1+1=10marks)

Write short notes on: 5 x 4 =3. What are Isoenzymes? Write their clinical importance citing two examples

4. Name the mechanisms used for Detoxication, giving one example each

5. What is meant by protein calorie malnutrition? What are the types of PCM and what are their salient features

6. Discuss the metabolism and role of folic acid in the body

7. What are porphyrics? Write symptoms common to them. Name the deficient enzyme in acute intermittent porphyria

Write briefly on: 5 x 2=8. Enumerate the proteolytic enzymes of gastro intestinal tract

9. Compare and contrast: a) Cerebroside with Ganglioside b) Fat with Wax

10. Name two reducing disaccharides & their composition 11. Short notes on Pyruvate Dehydrogenase complex

12. Define a high energy compound. Give two examples of high energy compounds

10th July, 2000 – PAPER-I (New Regulations)

Part-A

1. Describe the chemistry, biochemical functions, daily requirements, sources and deficiency manifestations of Vitamin-A (2+2+2+2+2=10marks)

2. Write short: 5 x 3 =a) 2,3 Bi-phospho glycerate b) Abnormal Haemoglobins c) Lipo proteins
d) High energy compounds e) Hexose Monophosphate pathway

Part-B

3. Describe the reactions of Denovo synthesis of Fatty acids (7+3=10marks)

4. Write short notes;: 5 x 3 =a) Basal metabolic rate b) Chloride shift c) Alkaline phosphatases
d) Metabolism of xenobiotics e) Pyruvate Dehydrogenase complex

14th February, 2000 – PAPER-I (New Regulations)

Part-A

1. What is Porphyria? Classify different types of Porphyrias. Give the Enzyme defect & Biochemical findings 10m

2. Write short notes on: 5 x 3 =a) Co-enzymes b) Cytochrome P450 system

c) Substrate level phosphorylation d) Functions of Vitamin c e) Dietary fibre

Part-B

3. Define Detoxication. Write about various mechanisms of detoxication in the human body (2+8)

4. Write short notes on: 5x3=15m=a) Cytochromes b) Gluconeogenesis c) Brown Adipose tissue
d) Biological value of protein e) Regulation of cholesterol synthesis

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