

April-2001

[KD 504]

Sub. Code : 4004

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours

Maximum : 50 marks

Two and a half hours

Theory : 35 marks

for Theory

M.C.Q. : 15 marks

M.C.Q. : 30 minutes

Answer ALL questions.

Draw suitable diagrams wherever necessary.

M.C.Q. must be answered separately on the answer sheet provided.

1. Describe the chemistry, sources, daily requirements and biochemical role of cholecalciferol. (10)
2. Write short notes on : $(2\frac{1}{2} \times 10 = 25)$
 - (a) Absorption of lipids
 - (b) Lineweaver-Burk plot
 - (c) Name the four protolipid complexes of respiratory chain, with their components
 - (d) Name three function tests that suffice in the differential diagnosis of jaundice. Explain giving normal values
 - (e) Interpretation of metabolism via TCA cycle

(f) Define ketosis. Name two conditions where it occurs.

(g) Calculate your daily calorie requirement.

(h) Structure of cell membrane.

(i) Heme catabolism.

(j) Disorders (name) of malnutrition.

APRIL - 2001

[KD 504 A]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours

Maximum : 100 marks

Two and a half hours

Theory : 70 marks

for Theory

M.C.Q. : 30 marks

M.C.Q. : 30 minutes

M.C.Q. must be answered separately on the answer sheet provided as per the instructions on the first page.

Draw diagrams wherever necessary.

Answer ALL questions.

1. Explain the effects of different factors on rates of enzyme catalysed reactions. (15)
2. Write short notes on : (4 × 5 = 20)
 - (a) Sources of acetyl CoA
 - (b) Anaplerotic reactions
 - (c) Chemiosmotic hypothesis
 - (d) Acute intermittent porphyria.
3. How are lipoproteins classified? What are their functions? Describe the metabolism of low density lipoproteins. (15)

4. Write short notes on :

(4 × 5 = 20)

- (a) Antioxidants
- (b) Vitamin K
- (c) Von Gierbe's disease
- (d) Classification of enzymes.

[KE 504 A]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours Maximum : 100 marks

Theory : Two and a half hours Theory : 70 marks

M.C.Q. : Half an hour M.C.Q. : 30 marks

MCQ must be answered separately on the answer sheet provided as per the instructions on the first page.

1. Define enzyme. Write about factors regulating enzymatic activity. Name four clinically important enzymes. Mention their importance. (15)

2. Short notes : (4 × 5 = 20)

(a) Lipoproteins

(b) Active form of Vit. D and its biochemical role

(c) VandenBergh test

(d) Inhibitors of respiratory chain.

3. What is Normal Blood Glucose Value? Write in detail about its regulation. (15)

4. Short notes on : (4 × 5 = 20)

(a) Essential fatty acids

(b) Tests to identify ketone bodies in urine

(c) Abnormal hemoglobin

(d) Specific Dynamic Action (SDA).

[KG 504 A]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours Maximum : 100 marks

Theory : Two and a half hours Theory : 70 marks

M.C.Q. : Half an hour M.C.Q. : 30 marks

MCQ must be answered separately on the answer sheet provided as per instructions on the first page.

1. Give an account of Embden-Meyerhoff's pathway in carbohydrate metabolism. Describe the substrate level of phosphorylation and its importance in this pathway. (15)

2. Write short notes on : (4 × 5 = 20)

- (a) Mitochondria
- (b) Km value and its significance
- (c) Uncouples of oxidative phosphorylation
- (d) Specific dynamic action of food stuffs.

3. Name the important vitamins which require for the proper functioning of the nerve. Describe the sources, biochemical functions, daily requirements and deficiency manifestations of any one of them. (15)

4. Write short notes on : (4 × 5 = 20)

- (a) Essential Fatty acids
- (b) Galactocemia
- (c) Haemoglobinopathies
- (d) Vanden Bergh's reaction and its interpretation.

September-2002

[KH 504 A]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours

Maximum : 100 marks

Theory : Two and a half hours

Theory : 70 marks

M.C.Q. : Half an hour

M.C.Q. : 30 marks

M.C.Q. must be answered SEPARATELY on the answer sheet provided as per the instructions on the first page.

Draw labelled diagrams wherever necessary.

Answer ALL questions.

1. What is urea? Describe the steps of urea synthesis. What is the significance of urea cycle? Name the disorders of urea cycle. (15)

2. Write short notes on : (4 × 5 = 20)

(a) Structure and functions of human insulin.

(b) Synthesis and functions of active form of vit. D

(c) Biological value of protein

(d) Electrophoresis and its applications.

3. Discuss in detail glycogen metabolism. Mention glycogen storage disorders. (15)

4. Write short notes on : (4 × 5 = 20)

(a) Fatty liver and lipotropic factors

(b) Creatinine clearance test.

(c) Explain the chemiosmotic theory of oxidative phosphorylation.

(d) Discuss the manifestations, molecular bases and laboratory diagnosis of sickle cell disease.

October-2003

[KJ 504]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours

Maximum : 100 marks

Theory : Two hours and

Theory : 80 marks

forty minutes

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Draw labelled diagrams wherever necessary.

Answer ALL questions.

I. Essay :

(2 × 15 = 30)

(1) Write about the sources, activation, biochemical functions, deficiency disease and its detection of Thiamine.

(2) Write in detail about Glucose homeostasis in the human organism and add a note on its biomedical importance.

II. Write short notes on :

(10 × 5 = 50)

(a) Biochemical functions of Vitamin D.

(b) Absorption of lipids.

(c) Excretion of Bilirubin and clinical importance of Bilirubin estimations.

(d) Coupling of oxidative phosphorylation, uncouplers and their importance.

(e) Clinical importance of Isoenzymes with suitable examples.

(f) Biochemical changes in Vongierke's disease and their relation to enzyme deficiency.

(g) Role of LDL receptors in metabolism of low density lipoproteins and the disease caused by its defect.

(h) Definition, expression and significance of K_m value.

(i) Role of liver in integration of metabolism during post prandial state.

(j) Caloric requirement and its recommended distribution among nutrients in an adult male.

August-2004

[KL 504]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Draw labelled diagrams wherever necessary.

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Describe TCA (Citric Acid Cycle) cycle and its inhibitors and energetics. Add a note on the Amphibolic role of TCA cycle. How is TCA cycle regulated?

(2) Discuss cholesterol synthesis and its regulation. Mention the various substances obtained from cholesterol.

II. Write short notes on : (10 × 5 = 50)

1. Phospholipids.
2. Biotin.
3. Isoenzymes.
4. Protein energy Malnutrition.
5. Obstructive Jaundice.
6. Uncouplers of oxidative phosphorylation.
7. Absorption of carbohydrates from the intestines.
8. Structure of Hemoglobin.
9. Bile salts.
10. Vitamin E.

[KL 504]

[KM 504]

Sub. Code : 4055

II. Write Short notes : (10 × 5 = 50)

FIRST M.B.B.S DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw labelled diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) What is enzyme inhibition? Describe different kinds of enzyme inhibitions with examples.

(2) Describe in detail the synthesis and utilization of ketone bodies. Name any three conditions of increased production of ketone bodies and mention Laboratory evaluation of ketoacidosis.

- (a) Lipoproteins and their functions.
- (b) Significance of HMP-shunt pathway.
- (c) Synthesis and conjugation of bilirubin.
- (d) Fate of acetyl CoA.
- (e) Functions and deficiency symptoms of Vit. A.
- (f) Isoenzymes and their diagnostic importance.
- (g) Galactosemia.
- (h) Cyclic AMP.
- (i) Recommended daily dietary allowance.
- (j) Essential fatty acids.

[KN 504]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

(Non-Semester)

(Revised Regulations)

Paper V — BIOCHEMISTRY — I

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
 forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw labelled diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) What are the sources, properties, functions deficiency manifestations daily recommended allowances of Ascorbic acid.

(2) What is the normal fasting and post prandial blood glucose levels? Explain how normal blood glucose level is maintained. Add a note on the disruption of hormonal regulation of Blood glucose.

II. Short notes on : (10 × 5 = 50)

(a) Allosteric enzymes and its feedback regulation

(b) Phospholipids and their clinical importance

(c) Kwashiorkor

(d) Inhibitors of electron transport chain

(e) Diagnostic value of Isoenzymes

(f) B.M.R.

(g) Fatty acid synthesis

(h) Heme degradation

(i) Eicosanoids

(j) LDL Metabolism.

[KO 504]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

Revised (Non-Semester) Regulations

Paper V — BIOCHEMISTRY – I

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw labelled diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

1. Describe the process of Glycogen synthesis and Glycogenolysis.

2. What is normal serum Cholesterol level? Describe the process of synthesis of Cholesterol.

II. Write short notes : (10 × 5 = 50)

(a) Mutarotation.

(b) Factors regulating the enzyme action.

(c) Anaplerotic reactions.

(d) What are ketone bodies? Describe the formation of ketone bodies.

(e) Chemiosmotic theory.

(f) Justify the statement that Vitamine D is an hormone.

(g) Thiamine.

(h) Vitamine B12.

(i) Acute intermittent porphyria

(j) Physiological jaundice.

[KP 504]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

Revised (Non-Semester) Regulations

Paper V — BIOCHEMISTRY — I

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

1. Write detail about β -oxidation of fatty acid under the following heading :

- (a) Definition
- (b) Site
- (c) Steps and
- (d) Energetics.

(2 + 1 + 12 + 5 = 20)

2. Discuss citric acid cycle under following heading :

- (a) Location
- (b) Reaction and
- (c) Energetics.

(1 + 10 + 4 = 15)

3. Write an essay on chemistry, functions, deficiency manifestations and hypervitaminosis state of Vitamin A. (2 + 6 + 5 + 2 = 15)

II. Write short notes on : (6 x 5 = 30)

(a) Define and classify polysaccharides with examples.

(b) Define and classify enzymes with examples.

(c) Protein energy malnutrition.

(d) Acute intermittent porphyria.

(e) Role of cytochromes in electron transport chain.

(f) Comparison between prokaryotic and eukaryotic cells.

[KQ 504]

Sub. Code : 4055

III. Short notes on :

(6 × 5 = 30)

FIRST M.B.B.S. DEGREE EXAMINATION.

Revised (Non-Semester), Regulations

Paper V — BIOCHEMISTRY — I

Time : Three hours

Maximum : 100 marks

Theory : Two hours and
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay questions :

1. Write in detail about Gluconeogenesis and mention its significance. Write about Glucose-Alanine cycle. (20)

II. Essay :

1. What are iso enzymes? Write about different iso enzymes and their clinical importance. (15)

2. Describe the chemistry, source, daily requirement, biochemical functions and deficiency manifestation of folic acid. (15)

- (a) Phospho lipids.
- (b) Congenital hyper bilirubinemias.
- (c) Formation of ketone bodies and their clinical significance.
- (d) Basal metabolic rate.
- (e) HMP shunt pathway.
- (f) Oxidative phosphorylation.

[KR 504]

Sub. Code : 4055

3. Short answers : (10 × 5 = 50)

FIRST M.B.B.S. DEGREE EXAMINATION.

Revised (Non-Semester), Regulations

Paper V — BIOCHEMISTRY — I

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
forty minutes

M.C.Q : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Essay Questions.

1. Define biological oxidation. Mention the components and organisation of electron transport chain. Describe in detail the mechanism of ATP synthesis. Add a note on uncouplers. (1 + 2 + 8 + 4 = 15)
2. Describe the chemistry, sources, RDA and biochemical functions of thiamine. Add a note on beri beri. (15)

- (a) Poly unsaturated fatty acids
- (b) Balanced diet
- (c) Glycosylated hemoglobin
- (d) Chondroitin sulphate
- (e) Synthesis and utilisation of ketone bodies
- (f) Rapoport - Leubering cycle
- (g) Folate trap
- (h) Glycosides
- (i) Apolipoproteins and their significance
- (j) Renal glycosuria.

FEBRUARY 2008

[KS 504]

Sub. Code : 4055

FIRST M.B.B.S. DEGREE EXAMINATION.

Revised (Non-Semester) Regulations

Paper V — BIOCHEMISTRY — I

Q.P.Code : 524055

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks
 forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw diagrams wherever necessary.

Essay questions :

1. Describe the site, process of β oxidation of fatty acid and add a note on role of CARNITIN. Write the energetics when palmitic acid is oxidised. (15)
2. Describe the synthesis of HEME. What is PORPHYRIA? Classify the different types of porphyrias. Give the enzyme defect and biochemical findings. (15)

3. Write Short notes on : (10 × 5 = 50)
 - (a) Biotin
 - (b) Enzymes in myocardial infarction
 - (c) Protein energy malnutrition diseases
 - (d) Oxidative phosphorylation
 - (e) Structure of cell membrane
 - (f) How glucose is absorbed from small intestine?
 - (g) Catabolism of cholesterol
 - (h) Wald's visual cycle
 - (i) Glycogen storage diseases
 - (j) Fibre diet.