Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - August 2007

Time : 3 Hrs. [Max. Marks : 90]

Biochemistry [Old Scheme]

QP Code - 1005

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 10 = 20 Marks**

1. Write the reactions of Krebs's citric acid cycle. Write the significance of the pathway.
2. Define genetic code. What are the salient features of genetic code?

SHORT ESSAY **10 X 5 = 50 Marks**

3. Protein energy malnutrition
4. Malate-aspartate shuttle
5. Pyruvate-dehydrogenase complex
6. Tumor markers
7. Functions of plasma proteins
8. Lac operon
9. Plasma buffers
10. Formation and utilization of ketone bodies
11. Competitive inhibition
12. Fluid mosaic model of plasma membrane

SHORT ANSWERS **10 X 2 = 20 Marks**

13. Uncouplers of oxidative phosphorylation
14. Zymogens
15. Ninhydrin reaction
16. Lysosomes
17. Transamination reaction
18. Write the defect in the following diseases
    a) Alkaptonuria
    b) Maple syrup urine disease
    c) Classical albinism
    d) Hartnup's disease
19. Rate limiting reaction in pyrimidine biosynthesis
20. Role of bile salts in digestion
21. Beer-Lambert's law
22. Write the reaction by which
    Acetyl CoA→Malonyl CoA

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - January 2008

Time: 3 Hours [Max. Marks: 100]

10

BIOCHEMISTRY (Revised Scheme II)

QP Code: 1079 – Paper I (Max. Marks: 50)

Your answer shall be specific to question asked. Draw neat and labelled diagrams wherever necessary. **Use separate answer books for section A and section B.**

LONG ESSAY **1 X 10 = 10 Marks**

1. Define Isoenzymes. Mention the principles used for separation of Isoenzymes. Write about the clinical importance of Isoenzymes

SHORT ESSAY **5 X 5 = 25 Marks**

2. List the important products formed from Tyrosine and write the metabolic pathways leading to the formation of any two of them
3. Mechanisms of action of Glucagon
4. Single electron carrier components of respiratory chain
5. Mechanism of pyruvate dehydrogenase enzyme action and it's biochemical importance
6. List various types of fatty acid oxidation. Write about activation of fatty acids for oxidation

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Functions of plasma membrane
8. Lipid peroxidation – clinical importance
9. Role of growth factors in carcinogenesis
10. Glucose 6 phosphate dehydrogenase deficiency
11. Functional classification of proteins

QP Code: 1080 – Paper II (Max. Marks: 50)

Use separate answer book

LONG ESSAY **1 X 10 = 10 Marks**

1. What is the importance of maintaining acid-base balance in the body? Write in detail how kidney helps in maintaining acid-base balance

SHORT ESSAY **5 X 5 = 25 Marks**

2. Replication of lagging strand
3. List metabolic functions of Ascorbic acid. How do you detect it's deficiency? What is the daily requirement?
4. BMR (Basal Metabolic rate)
5. Degradation of Heme
6. Gene therapy

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Iodine metabolism
8. Importance of base pairing
9. Molecular defect in and consequences of sickle cell disease
10. Sources and beneficial effects of dietary fiber
11. What is reference range? How is it calculated?

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - January 2008

Time : 3 Hrs. [Max. Marks : 100]

BIOCHEMISTRY (Revised Scheme)

QP Code: 1055

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 9 = 18 Marks**

1. Give an account of the metabolism of glycine and outline the synthesis of different important substances from glycine
2. Give an account of the β-oxidation of palmitic acid and its energetics

SHORT ESSAY **10 X 5 = 50 Marks**

3. Glycogenesis
4. Metabolism of galactose
5. Competitive inhibition and its usefulness in therapeutics
6. Multienzyme complexes
7. Biochemical functions of vitamin C
8. One carbon metabolism
9. Fatty livers and lipotropic factors
10. Gout
11. Replications
12. Calcium homeostasis

SHORT ANSWERS **16 X 2 = 32 Marks**

13. What are epimers? Give examples
14. Isoelectric pH and its significance
15. Essential fatty acids
16. Give two examples of substrate level phosphorylation
17. How is aspirin detoxified?
18. Name two metabolic disorders of amino acids metabolism and indicate the enzyme defect
19. Name two lipid storage disorders and indicate the corresponding enzyme defect
20. Indicate sources of various atoms of purine ring
21. Name the hemoglobinopathies
22. What is a codon? Mention the termination codons
23. Give two examples for post translational modification
24. How is heme synthesis regulated?
25. Outline the structure of immunoglobulins
26. Name four liver function tests
27. SDA
28. Nutritional deficiency disorders in India

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - January 2008

(12)

Time : 3 Hrs. [Max. Marks : 90]

Biochemistry [Old Scheme]

QP Code - 1005

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 10 = 20 Marks**

1. What is Normal blood glucose level? Describe the various mechanisms for its regulation
2. What is Lac-operon? Describe the steps of protein biosynthesis

SHORT ESSAY **10 X 5 = 50 Marks**

3. Functions of folic acid and vit B_{12}
4. Ketosis
5. Importance of HMP pathway
6. Urea cycle
7. Formation and functions of glycine
8. Creatine – phosphate
9. Clinical significance of enzymes
10. Blood buffers
11. Formation and fate of bilirubin
12. Applications of recombinant DNA technology

SHORT ANSWERS **10 X 2 = 20 Marks**

13. Name the liver function tests based on enzyme measurement
14. What is allosteric modification of enzyme? Give two examples
15. Define creatinine clearance. What is the normal value?
16. Differentiate between ICF and ECF
17. Write the important metabolites derived from tryptophan
18. Inhibitors of respiratory chain
19. What is glycosylated hemoglobin? Write its importance
20. Four functions of plasma proteins
21. What is normal blood urea level? Two causes of uremia
22. Name the various bonds stabilizing protein structure

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - July 2008

13

Time: 3 Hours [Max. Marks: 100]

BIOCHEMISTRY (Revised Scheme II)

QP Code: 1079 – PAPER I (Max. Marks: 50)

Your answer shall be specific to question asked. Draw neat and labelled diagrams wherever necessary. **Use separate answer books for section A and section B.**

LONG ESSAY **1 X 10 = 10 Marks**

1. Describe TCA cycle. Discuss in detail its energetics, regulation and its role

SHORT ESSAY **5 X 5 = 25 Marks**

2. Secondary structure of proteins
3. Glycogenesis
4. Serotonin
5. Antioxidants
6. General mechanism of action of steroid hormones

SHORT ANSWERS **5 X 3 = 15 Marks**

7. PSA
8. Uncouplers of oxidative phosphorylation
9. Refsum's disease
10. Significance of HMP pathway
11. Rancidity

QP Code: 1080 – PAPER II (Max. Marks: 50)

Use separate answer book

LONG ESSAY **1 X 10 = 10 Marks**

1. Discuss in detail recombinant DNA technology and its clinical application

SHORT ESSAY **5 X 5 = 25 Marks**

2. Chloride shift
3. Functions and deficiency manifestations of Vitamin C
4. Metabolic Acidosis
5. Degradation of pyrimidines
6. Salient features of genetic code

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Carboxy hemoglobin
8. Fluorosis
9. Immuno Electrophoresis
10. Anticoagulants
11. Limiting aminoacid or Essential aminoacid

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - July 2008

Time : 3 Hrs. [Max. Marks : 90]

Biochemistry [Old Scheme]

QP Code - 1005

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 10 = 20 Marks**

1. Describe in detail the steps of urea cycle. How is it linked to TCA cycle? Write the causes of Uremia
2. What is normal blood pH? Describe the various mechanisms regulating it

SHORT ESSAY **10 X 5 = 50 Marks**

3. Functions and deficiency manifestations of Vit A
4. Digestion and absorption of lipids
5. Glycolysis in RBC^s
6. Oxidative phosphorylation
7. Clinical importance of enzymes
8. Phenylketonuria
9. Glyconeogenesis
10. Metabolic acidosis
11. Regulation of water balance
12. Detoxification

SHORT ANSWERS **10 X 2 = 20 Marks**

13. Effect of pH on enzyme activity
14. Enzyme defect in alkaptonuria and albinism
15. Role of insulin in carbohydrate metabolism
16. Define Tumor markers, give two examples
17. Write functions of phospholipids
18. What is total serum bilirubin level? Two causes of hyperbilirubinemia
19. Role of thiamine
20. Name essential fatty acids and write their role
21. Functions of plasma proteins
22. Name the ketone bodies and the tests to detect them

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - January 2009 (16)

Time: 3 Hours [Max. Marks: 100]

BIOCHEMISTRY (Revised Scheme II)

QP Code: 1079 – PAPER I (Max. Marks: 50)

Your answer shall be specific to question asked. Draw neat and labelled diagrams wherever necessary. **Use separate answer books for section A and section B**.

LONG ESSAY **1 X 10 = 10 Marks**

1. Explain in detail the β oxidation of palmitic acid with its energetics

SHORT ESSAY **5 X 5 = 25 Marks**

2. Function of carbohydrates
3. Competitive inhibition and its importance in medicine
4. Metabolic changes in diabetes mellitus
5. Fatty liver and lipotropic factors
6. Disorders of sulphur containing aminoacids

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Mention two isotopes and mention their application in medicine
8. Mention four tumor markers with their significance
9. Role of cytochrome P_{450} in detoxification reaction
10. Biologically important compounds derived from Tyrosine
11. What is Reactive oxygen species (ROS)? How are they formed?

QP Code: 1080 – PAPER II (Max. Marks: 50)

Use separate answer book

LONG ESSAY **1 X 10 = 10 Marks**

1. Describe in detail biosynthesis of protein and discuss its regulation

SHORT ESSAY **5 X 5 = 25 Marks**

2. Name 5 Heme proteins and their functions
3. Unconjugated hyperbilirubinemia
4. Lesch-Nyhan syndrome
5. Tests based on metabolic and excretory function of liver
6. Applications of recombinant DNA technology

SHORT ANSWERS **5 X 3 = 15 Marks**

7. What is the difference between endonuclease and restriction endonuclease? Give two examples of restriction endonuclease
8. Deficiency manifestation of Vit A
9. Role of dietary fibre in the body
10. Biochemical role of pyridoxine
11. Name the trace elements. Explain the biochemical role of any two trace elements

Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - January 2009

(17)

Time : 3 Hrs. [Max. Marks : 100]

BIOCHEMISTRY (Revised Scheme)

QP Code: 1055

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 9 = 18 Marks**

1. Describe the components of election transport chain. Write a note on uncouplers & inhibitors
2. What are plasma proteins? Write a note on their separation & functions

SHORT ESSAY **10 X 5 = 50 Marks**

3. Gluconeogenesis
4. Active form of vit D & its biochemical role
5. Fatty liver & Lipotropic factors
6. Catabolism of haemoglobin
7. Diagnostic importance of enzymes
8. Role of lungs in pH maintenance
9. Creatinine Clearance Test
10. Recombinant DNA technology
11. Salvage pathway of purine metabolism
12. Protein energy malnutrition

SHORT ANSWERS **16 X 2 = 32 Marks**

13. Zymogen
14. Bile salts
15. Lactose intolerance
16. Normal levels of calcium & phosphorus
17. Bence Jones Protein
18. Biochemical findings in obstructive Jaundice
19. Sickle cell anemia
20. Functions of selenium
21. Name two copper containing enzymes
22. Essential fatty acids
23. Ketone bodies
24. Ferritin
25. Vitamin antagonists
26. Endocytosis
27. Km value
28. Coenzyme form of Niacin & Folic acid

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - January 2009 (18)

Time : 3 Hrs. [Max. Marks : 90]

Biochemistry [Old Scheme]

QP Code - 1005

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 10 = 20 Marks**

1. Describe the steps of Glycolysis. What is the significance of Rapoport Leubering cycle?
2. Classify plasma lipoproteins, explain their composition, transport and functions

SHORT ESSAY **10 X 5 = 50 Marks**

3. Essential Amino acids
4. Ketogenesis
5. Factors affecting Enzyme action
6. Regulation of blood sugar
7. Biochemical functions of Tetra Hydro Folate (THF)
8. Functions of tRNA
9. Gene Therapy
10. Salvage pathways of Purine nucleotide synthesis – Abnormalities
11. Biochemical role of vitamin D
12. Transminases in clinical diagnosis

SHORT ANSWERS **10 X 2 = 20 Marks**

13. Name Essential Fatty Acids and their importance
14. Glycosidic bonds
15. Name two oxidoreductases of HMP shunt
16. Phenylketonuria
17. Conjugate Acid-Base pair
18. Phosphate synthatases Carbamoyl
19. Cyclic AMP
20. Fouchet's test
21. HMG CoA Reductase
22. Golgi complex

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - June/July 2009 (19)

Time : 3 Hrs. [Max. Marks : 100]

BIOCHEMISTRY (Revised Scheme)

QP Code: 1055

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 9 = 18 Marks**

1. Outline heam synthesis. Write a note on its function & abnormal Haemoglobin
2. Describe pentose phosphate pathway & its significance

SHORT ESSAY **10 X 5 = 50 Marks**

3. Ketone bodies their formation & utilization
4. Disposal of ammonia
5. Role of kidneys in Acid –Base balance
6. ß oxidation of fatty acid
7. Name a provitamin form of Vit. A. Add a note on sources and deficiency symptoms of Vit. A
8. Structural organization of proteins
9. Biochemical role of calcium
10. Coenzymes
11. Basal metabolic rate
12. Fatty acid synthase complex

SHORT ANSWERS **16 X 2 = 32 Marks**

13. Replication
14. Oncogenes
15. P:O ratio
16. Functions of magnesium
17. Glycosidic linkage
18. Cerruloplasmin
19. Name two inborn errors of metabolism and the associated enzyme
20. Essential amino acids
21. Scurvy & its symptoms
22. Unsaturated fatty acid
23. Four diagnostic enzymes
24. Types of RNA
25. Hypervitaminosis
26. Homocysteine
27. Cell membrane
28. Energetics in aerobic & Anaerobic pathway of EM pathway

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3B

RAJARAJESWARI MEDICAL COLLEGE AND HOSPITAL, BANGALORE

DEPARTMENT OF BIOCHEMISTRY

1st MBBS Internal assessment Exam-19/11/2012

Time: 3 Hours **Max. Marks: 100**

PAPER I

Long Essays: **1X10 = 10 Marks**

1. What are isoenzymes and write about different isoenzymes and their clinical importance?

Short Essays: **5X5 =25 Marks**

2. Name four Homopolysaccharides and add a brief note on them.
3. What are lipoproteins? Name them and write their functions.
4. Leukotrienes.
5. Classification of amino acids based on nutritional significance and metabolic fate.
6. Structure of DNA.

Short Answers: **5X3 = 15 Marks**

7. Lactose intolerance.
8. Rancidity.
9. Biologically important compounds derived from cholesterol.
10. Functional classification of proteins.
11. Explain in brief enzyme specificity.

PAPER II

Long Essays: **1X10 = 10 Marks**

1. Give an account on chemistry, sources, daily requirement, and biochemical functions, Manifestations of deficiency and toxic effects of vitamin A.

Short Essays: **5X5 =25 Marks**

2. Classify enzymes with two examples of each class.
3. Explain competitive inhibition. Mention significance of competitive inhibition with examples.
4. Name the active form of thiamine. Write any two thiamine dependent reactions in which it participates? Name the deficiency disorder & deficiency manifestations
5. Name the coenzyme forms of Niacin and their biochemical role.
6. Biochemical Functions of Vit B12.

Short Answers: **5X3 = 15 Marks**

7. Cyclic nucleotides.
8. Zymogens.
9. Vitamin E.
10. What is the daily requirement of Thiamine, Niacin and pyridoxine?
11. FIGLU

Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - June/July 2009

(21)

Time : 3 Hrs. [Max. Marks : 90]

Biochemistry [Old Scheme]

QP Code - 1005

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 10 = 20 Marks**

1. Describe the process of ketogenesis and ketolysis. Write a note on Ketosis
2. Describe the different types of enzyme inhibitions and its role in clinical medicine

SHORT ESSAY **10 X 5 = 50 Marks**

3. Detoxification by conjugation
4. Metabolic changes in prolonged starvation
5. Glucose tolerance test
6. Atherosclerosis
7. Glycosuria
8. Genetic code
9. Niacin
10. Transamination and deamination
11. Antibiotics affecting protein synthesis
12. Galactosemia

SHORT ANSWERS **10 X 2 = 20 Marks**

13. Define and write normal value of insulin clearance
14. Functions of cholesterol
15. Name any two biologically important peptides and write their functions
16. Substrate level phosphorylation
17. How is bilirubin conjugated?
18. Normal level of serum transaminases and their clinical significance
19. Write the components and principle of Colorimeter
20. What are oncogenes? Give two examples
21. What is respiratory acidosis? Give two causes
22. What is transmethylation? Give two examples

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - December 2009

24

Time : 3 Hrs. [Max. Marks : 90]

Biochemistry [Old Scheme]

QP Code - 1005

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 10 = 20 Marks**

1. Give an account of chemistry, sources daily requirement, functions and deficiency manifestations of Vit D
2. Give a detailed account of hexose monophosphate shunt. Write its significance

SHORT ESSAY **10 X 5 = 50 Marks**

3. Isoenzymes
4. Glucose Tolerance Test
5. Hormonal regulation of blood glucose level
6. Blood buffers
7. Applications of recombinant technology
8. Clearance Tests
9. Ketosis
10. Lipoproteins
11. Lac-Operon
12. Abnormal hemoglobin

SHORT ANSWERS **10 X 2 = 20 Marks**

13. What is transmethylation reaction? Give two examples
14. Two reactions using biotin
15. Post translational modifications
16. Therapeutic applications of enzymes
17. Types of RNA^{s} and their role
18. Normal serum uric acid level and two causes of hyper uricemia
19. Two products synthesized from acetyl Co A
20. Mention the pathways where G-6-P can enter
21. Role of dietary fibre
22. Enzyme defect in alkaptonuria and albinism

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - June\July 2010

(26)

Time : 3 Hrs. [Max. Marks : 100]

BIOCHEMISTRY (Revised Scheme)

QP Code: 1055

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

LONG ESSAY **2 X 9 = 18 Marks**

1. Give an account of the metabolism of phenylalanine. Outline the synthesis of different products obtained from Phenylalanine
2. Give an account of Citric acid cycle. Add a note on its energetics and its importance

SHORT ESSAY **10 X 5 = 50 Marks**

3. Intestinal absorption of Iron
4. Sodium-Potassium pump
5. Base excision DNA repair mechanism
6. Effect of pH and temperature on enzyme catalyzed reaction
7. Hyperuricemia
8. Electron Transport Chain
9. Post transcriptional modifications
10. Liver Function Tests
11. Lipoproteins
12. Plasmids

SHORT ANSWERS **16 X 2 = 32 Marks**

13. Mention functions of zinc in the body
14. What are the features of a normal glucose tolerance curve?
15. Peptide bond
16. What is meant by semi conservative mechanism of replication?
17. List the effects of missense mutation
18. Name two phospholipids and their function
19. Vitamin K
20. List four functions of albumin
21. Respiratory acidosis
22. Name bile acids. How are they formed?
23. What is the enzyme defect in Orotic aciduria? Give one clinical symptom
24. Define BMR. Give two factors which affect BMR
25. How is pepsinogen activated? What is the function of pepsin?
26. How is histamine formed? What is the role of histamine?
27. What is the principle of electrophoresis?
28. What is arachidonic acid? Mention two uses of arachidonic acid

Rajiv Gandhi University of Health Sciences, Karnataka

First Phase MBBS Degree Examination – June 2013

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY-PAPER I
(REVISED SCHEME)
QP Code: 1055

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS **2 x 9 = 18 Marks**

1. Enumerate the reactions of purine degradation and add a note on Gout
2. Describe the process of DNA replication

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Components of ETC
4. Uronic acid pathway
5. Fatty Liver
6. Intestinal absorption and transport of iron
7. Digestion and absorption of proteins.
8. Porphyrias
9. Explain the amphibolic role of TCA cycle
10. Metabolic changes during starvation
11. Write Four detoxification mechanisms with One example for each.
12. Write the principle of Vanden Bergh's test and its application.

SHORT ANSWERS **16 x 2 = 32 Marks**

13. Define the term active and passive transport.
14. Write Four structural features of cell membrane
15. Write short note on dietary fibre
16. Write short note on rickets
17. Define isoelectric pH and state properties of a protein at its isoelectric pH.
18. What are lipotropic factors? Name them
19. Write short note on carnitine
20. Name the key gluconeogenic enzymes
21. Give the composition of hyaluranic acid.
22. Define Km value. What is its significance?
23. Write short on albinism
24. Describe the role of bile salts in lipid metabolism
25. Name any Two specialized products derived from glycine
26. Name the deficient enzyme in a) Hyperargininemia b) Phenyl ketonuria
27. Calculate energy requirement per day of a student of 20 years.
28. Write short note on protein calorie malnutrition.

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - June/July 2009

Time: 3 Hours [Max. Marks: 100]

BIOCHEMISTRY (RS-2 & RS-3)

QP Code: 1079 – PAPER I (Max. Marks: 50)

Your answer shall be specific to question asked. Draw neat and labelled diagrams wherever necessary. **Use separate answer books for section A and section B**.

LONG ESSAY **1 X 10 = 10 Marks**

1. Describe in detail the sources, absorption, functions and factors regulating blood calcium level. Discuss about any clinical condition with abnormal blood calcium level.

SHORT ESSAY **5 X 5 = 25 Marks**

2. What are the biologically important compounds derived from cholesterol?
3. Prostaglandins
4. Give four examples of transmethylation reactions
5. Maple syrup urine disease
6. Energy releasing steps of citric acid cycle

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Name the two endopeptidases with their specifications
8. What are functions of apolipoproteins?
9. Give the significance of uronic acid pathway
10. Clinical importance of transamination
11. Detoxification of alcohol

QP Code: 1080 – PAPER II (Max. Marks: 50)

Use separate answer book

LONG ESSAY **1 X 10 = 10 Marks**

1. Describe in detail the sources, absorption, functions and factors regulating blood calcium level. Discuss about any clinical condition with abnormal blood calcium level.

SHORT ESSAY **5 X 5 = 25 Marks**

2. What are the sources, functions and daily requirement of vitamin A?
3. Transport proteins of blood
4. Formation and fate of bilirubin in the body
5. Basal metabolic rate
6. Bicarbonate buffer system of blood

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Polymerase chain reaction
8. What is the daily requirement of Thiamine, Niacin and Pyridoxine?
9. Give enzyme defect in the following conditions
   a) Drug induced haemolytic anaemia b) Criggler-Najjar syndrome
10. Creatinine clearance test
11. Give the normal blood level of the following
    a) Fasting blood glucose b) Total protein c) Urea d) Bicarbonate e) Sodium
    f) Pottasium

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - December 2009

23

Time: 3 Hours [Max. Marks: 100]

BIOCHEMISTRY (RS-2 & RS-3)

QP Code: 1079 – PAPER I (Max. Marks: 50)

Your answer shall be specific to question asked. Draw neat and labelled diagrams wherever necessary. **Use separate answer books for section A and section B.**

LONG ESSAY **1 X 10 = 10 Marks**

1. What is the normal fasting blood glucose level? Why does it need to be regulated? Describe the various mechanisms of its regulation

SHORT ESSAY **5 X 5 = 25 Marks**

2. Composition and function of any two phospholipids
3. Cell membrane
4. Essential amino acids
5. Enumerate ketone bodies. How they are formed?
6. Phenyl ketonuria

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Formation of Ammonia and its toxicity in brain
8. What is Zymogen? Give examples of zymogen
9. Diagrammatic representation of mitochondrial electron transport chain and location of ATP formation sites
10. Mechanism of carcinogenesis
11. Give two examples of detoxification by oxidation and reduction

QP Code: 1080 – PAPER II (Max. Marks: 50)

Use separate answer book

LONG ESSAY **1 X 10 = 10 Marks**

1. Describe the sources, functions, deficiency, manifestations and daily requirement of vitamin A

SHORT ESSAY **5 X 5 = 25 Marks**

2. Regulation of blood calcium level
3. Catabolism of purines and related disorders
4. Post-transcriptional modifications
5. Acute intermittent porphyria
6. Role of kidney in regulation of blood pH

SHORT ANSWERS **5 X 3 = 15 Marks**

7. What is complete protein?
8. Enumerate sources of atoms of purine ring by a diagrammatic representation
9. Give four characteristic feature of genetic code
10. What is recombinant DNA?
11. Clinical interpretation of estimation of Thyroid Stimulating Hormone (TSH) in blood

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Rajiv Gandhi University of Health Sciences

M.B.B.S. PHASE - I Degree Examination - June\July 2010

Time: 3 Hours [Max. Marks: 100]

BIOCHEMISTRY (RS-2 & RS-3)

QP Code: 1079 – PAPER I (Max. Marks: 50)

Your answer shall be specific to question asked. Draw neat and labelled diagrams wherever necessary. **Use separate answer books for section A and section B.**

LONG ESSAY **1 X 10 = 10 Marks**

1. Discuss in detail oxidative phosphorylation and enumerate its inhibitors

SHORT ESSAY **5 X 5 = 25 Marks**

2. Glycogenolysis
3. Transmethylation reactions
4. Metabolism of chylomicrons
5. Non competitive enzyme inhibition
6. Rappaport leubering cycle

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Nutritional classification of Amino acids
8. Significance of Serum Amylase
9. Endoplasmic reticulum
10. Niemann pick disease
11. Denaturation

QP Code: 1080 – PAPER II (Max. Marks: 50)

Use separate answer book

LONG ESSAY **1 X 10 = 10 Marks**

1. Discuss the structure and replication of DNA

SHORT ESSAY **5 X 5 = 25 Marks**

2. Deficiency manifestations of Vitamin A
3. Protein energy malnutrition
4. Extra cellular buffers
5. Functions of selenium
6. Acute phase proteins

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Methemoglobin
8. Dietary fibre
9. Respiratory quotient
10. Renal glycosuria
11. Leach Nyhan syndrome

I Valuation

Rajiv Gandhi University of Health Sciences

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M.B.B.S. PHASE - I Degree Examination - Dec 2011 / Jan 2012

Time: 3 Hours [Max. Marks: 100]

BIOCHEMISTRY **(RS 2 & RS 3)**

QP Code: 1079 – **PAPER I (Max. Marks: 50)**

Your answer shall be specific to question asked. Draw neat and labelled diagrams wherever necessary.
Use separate answer books for section A and section B.

LONG ESSAY **1 X 10 = 10 Marks**

1. Describe the reactions of Urea cycle. Discuss the interrelation of urea cycle and citric acid cycle. What is the reference range for serum urea?

SHORT ESSAY **5 X 5 = 25 Marks**

2. Classify transport mechanisms across cell membranes. Define uniport, symport and antiport. Give an example of each
3. Define primary, secondary, Tertiary and Quarternary structure of protein. What are the noncovalent forces which preserve the secondary structure
4. Explain the mechanism of action of Allosteric Enzymes? Name the Allosteric Inhibitor and Allosteric Activator for Phosphofructokinase and Acetyl CoA – Carboxylase
5. Outline the steps for synthesis of cholesterol. Discuss the rate limiting step and regulation of synthesis of cholesterol
6. Describe the reactions of Citric Acid cycle

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Oncogenes
8. Thyroid function tests – Routine and anti – TPO
9. Cytochromes
10. GTT Graph for Renal Glycosuria
11. Anti – oxidants

QP Code: 1080 – **PAPER II (Max. Marks: 50)**

Use separate answer book

LONG ESSAY **1 X 10 = 10 Marks**

1. What is gluconeogenesis? Describe the pathway in detail and add a note on its significance

SHORT ESSAY **5 X 5 = 25 Marks**

2. Briefly outline the steps of Denovo synthesis of purine
3. Hormonal regulation of Fluid and Electrolyte
4. Briefly explain the renal mechanisms involved in maintenance of pH of blood
5. Sources, biochemical role and dietary requirement of vitamin A
6. Protein Calorie malnutrition

SHORT ANSWERS **5 X 3 = 15 Marks**

7. Operon concept
8. Bence jones proteins
9. What is porphyria? Mention the defect and signs and symptoms of acute intermittent porphyria
10. Enumerate three functions of the liver and three tests with reference ranges to assess them
11. What is a Chimeric DNA molecule. Give the applications of recombinant technology

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Rajiv Gandhi University of Health Sciences, Karnataka

First Phase MBBS Degree Examination – June 2013

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY (RS2 & RS3)

QP Code: 1079 – Paper I (Max.Marks:50)

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

Use separate answer books for section A and Section B

LONG ESSAYS **1 x 10 = 10 Marks**

1. What are enzymes? Classify enzymes with one example each. Explain any four factors that affect enzyme activity.

SHORT ESSAYS **5 x 5 = 25 Marks**

2. Define gluconeogenesis. How is alanine converted to glucose?
3. What is substrate level phosphorylation? Give **two** examples with complete reaction.
4. Classify lipoproteins and write the functions of each lipoprotein.
5. What are transamination reactions? Giving **two** examples discuss the importance of these reactions.
6. Classify proteins based on their function giving an example for each class.

SHORT ANSWERS **5 x 3 = 15 Marks**

7. High energy compounds
8. Glycogen storage disorders.
9. Enzymes of diagnostic importance
10. FIGLU excretion test
11. Mitochondrial shuttle systems.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Phase MBBS Degree Examination – June 2013

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY (RS2 & RS3)

QP Code: 1080 – Paper II (Max.Marks:50)

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

Use separate answer books for section A and Section B

LONG ESSAYS **1 x 10 = 10 Marks**

1. What are sources of C & N atoms of purine? Describe the biosynthesis of purine and add a note on its regulation.

SHORT ESSAYS **5 x 5 = 25 Marks**

2. Name the different types of RNA. Write their salient features. Mention their functions.
3. What are buffers? Discuss any **two** buffer system of the body.
4. Give the biochemical functions of niacin with examples and manifestation of its deficiency.
5. What is a restriction endonuclease? Explain their role in recombinant DNA technology.
6. Give an account of phosphorus metabolism.

SHORT ANSWERS **5 x 3 = 15 Marks**

7. Post translational modifications
8. Base pairing rule and Wobble hypothesis.
9. Biochemical defect in Thalassemia.
10. Cause of Scurvy and beri beri.
11. Creatinine clearance test.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Phase MBBS Degree Examination – Dec 2013 33

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY (RS2 & RS3)

QP Code: 1080 – Paper II (Max.Marks:50)

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

Use separate answer books for section A and Section B

LONG ESSAYS **1 x 10 = 10 Marks**

1. Describe the synthesis and breakdown of haemoglobin. Write a note on haemoglobinopathies.

SHORT ESSAYS **5 x 5 = 25 Marks**

2. Explain the structure of tRNA with diagram and mention its function.
3. Define BMR. How do you calculate BMR? Discuss **four** factors that effect BMR.
4. Describe with an example regulation of gene expression.
5. What do you mean by gene therapy? Discuss its application in medicine.
6. Describe the catabolism of purine nucleotide. Add a note on Gout.

SHORT ANSWERS **5 x 3 = 15 Marks**

7. Anticancer agents
8. Plasmids and oncogenes
9. Obstructive jaundice and its diagnosis
10. Abnormal components of urine
11. Radio isotopes.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Phase MBBS Degree Examination – Dec 2013 34

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY-PAPER I
(REVISED SCHEME)
QP Code: 1055

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS **2 x 9 = 18 Marks**

1. Explain the metabolism of iron under the following headings.
   a) Absorption and transport b) Biochemical functions c) Hemosiderosis
2. What is β oxidation of fatty acids? Outline the process involved and give the energetics.

SHORT ESSAYS **10 x 5 = 50 Marks**

3. Write an account on balanced diet
4. Serum calcium homeostasis
5. Short note on diagnostic significance of serum enzymes
6. Give an account of digestion of carbohydrates from GIT
7. Describe the synthesis of glycogen in the body.
8. How is HMG CoA formed? What is its importance?
9. Give an account of metabolism of LDL
10. Explain the metabolic role of methionine
11. Give the salient features of α-helical structure and quaternary structure of proteins
12. Write short note on salvage pathway of purines.

SHORT ANSWERS **16 x 2 = 32 Marks**

13. What are buffers? Write the importance of bicarbonate buffer system?
14. How does insulin regulate blood glucose?
15. Define uncouplers with two examples
16. Identify the sources of carbon and nitrogen atoms of pyrimidine ring
17. Write the composition of a) PAPS b) SAM
18. Write short note on acute intermittent porphyria
19. Write short note on enzyme assays for liver function
20. Define balanced diet
21. Write short note on codon and 'Wobble hypothesis'.
22. Give the normal values of fasting blood glucose and cholesterol
23. Define respiratory acidosis. How is it compensated ?
24. Write short note on sickle cell hemoglobin
25. Write a note on role of carnitine in β-oxidation
26. Name the components of sphingomyelin
27. Name the enzyme defects in the following cases
    1) Refsum's disease 2) Alkaptonuria
28. Indicate the biochemical defect in lactose intolerance and Gilbert's disease

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Rajiv Gandhi University of Health Sciences, Karnataka

First Phase MBBS Degree Examination – Dec 2013

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Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY (RS2 & RS3)

QP Code: 1079 – Paper I (Max.Marks:50)

Your answers should be specific to the questions asked

Draw neat labeled diagrams wherever necessary

Use separate answer books for section A and Section B

LONG ESSAYS **1 x 10 = 10 Marks**

1. Describe the citric acid cycle. How is it regulated? Write about its energetic and amphibolic nature.

SHORT ESSAYS **5 x 5 = 25 Marks**

2. Describe the fate and functions of methionine.
3. What are the reactions of HMP pathway? What is the significance of this pathway?
4. Clinical importance of enzymes in assessment of cardiac disease & liver function
5. Outline the de novo synthesis of fatty acid. What are the advantages of having a multifunctional enzyme complex?
6. How is urea synthesized in the body? Give the reactions. What is the significance of urea cycle?

SHORT ANSWERS **5 x 3 = 15 Marks**

7. Phospholipids.
8. Coenzymes.
9. Secondary structure of proteins.
10. Prostaglandins.
11. Transamination

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