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**M-4005**  
**First Year M. B. B. S. Examination**  
**July - 2015**  
**Biochemistry : Paper - I**

Time : 1 Hour & 50 Minutes]

[Total Marks : 40

**Instructions :**

(1)

नीचे दशविवेक निशानोंवाली विगतो उत्तरवही पर अवश्य कपली.  
Fillup strictly the details of signs on your answer book.

Seat No. :

Name of the Examination :  
**FIRST YEAR M. B. B. S.**

Name of the Subject :  
**BIOCHEMISTRY - 1**

Subject Code No. :  4  0  0  5 Section No. (1, 2,.....) :  1&2

Student's Signature

- (2) Write each section in separate answer book.  
(3) Draw figures wherever possible.

**SECTION - I**

- 1 Short note : (2 out of 3) 8
- (a) Describe the stage of absorption, transport and storage of iron in the body. Add a note on disorder associated with defective iron metabolism.
- (b) Degradation and clinical significance of cholesterol.
- (c) Role of kidney in maintenance of acid-base balance.
- 2 Describe in brief : (4 out of 6) 12
- (a) Metabolic acidosis.
- (b) Mucopolysaccharides and their biomedical importance.
- (c) Function of prostaglandin.
- (d) Chemiosmotic coupling theory for Oxidative phosphorylation.
- (e) Plasma lipid profile.
- (f)  $\beta$  oxidation of fatty acid and its energetics.

## SECTION - II

Case with 5 questions :

A 56 yr old man with known history of diabetes mellitus (DM) is brought to the hospital in a semiconscious state. He has rapid breathing his relative says that due to a family functions, his diet and sleep have been erratic. The physician advises to routine blood test - RBS, Blood Urea, Creatinine, HBA1C and Electrolytes.

- (1) Write the Normal Range of random, fasting and post-prandial plasma glucose.
- (2) What is the utility of HBA1C estimation?
- (3) What is the WHO criteria for diagnosis of diabetes mellitus?
- (4) Enumerate the three cardinal symptoms of diabetes mellitus.
- (5) Enumerate any two late complication of diabetes.

Answer in few line : (5 out of 7)

- (1) TCA cycle is Amphibolic in nature.
- (2) Selenium is an Antioxidant Mineral.
- (3) LDL cholesterol is called as bad cholesterol.
- (4) Venom of viper snake bite leads to haemolysis.
- (5) Fatty liver is commonly observed in chronic alcoholics.
- (6) Sucrose is non reducing sugar.
- (7) Ketoacidosis is potentially dangerous to the body.



Date of issue :  Centre :   
Sup. Sign. :  Seat No. :

**M-4005-O**  
**First Year M. B. B. S. Examination**  
**July - 2015**  
**Biochemistry : Paper - I**

Time : 10 Minutes]

[Total Marks : 10

**OBJECTIVE QUESTIONS**

**Instructions :**

(1)

नीचे दशांशक निशानों के बिना उत्तरवही पर अवश्य लिखी.  
Fill up strictly the details of signs on your answer book.

Name of the Examination :  
FIRST YEAR M. B. B. S.

Name of the Subject :  
BIOCHEMISTRY : PAPER - I

Subject Code No. : 4 0 0 5 Section No. (1, 2,.....): Nil

Seat No. :

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Student's Signature

- (2) Choose single best answer.
- (3) Each question carries one mark.
- (4) No negative marking.
- (5) Answer shall be written on the OMR sheet.

**5 Multiple Choice Questions :**

- (1) The following is used in measuring GFR
  - (a) Inulin
  - (b) Cellulose
  - (c) Starch
  - (d) None of the above
- (2) Respiratory distress syndrome in premature infants is due to the deficiency of -
  - (a) Plasmalogen
  - (b) Cadiolipin
  - (c) Dipalmitonyl lecithin
  - (d) Cephalin

- (3) Fluoride inhibits the following enzyme in glycolysis
- (a) Aldolase
  - (b) Enolase
  - (c) Hexokinase
  - (d) Phosphofructokinase
- (4) Niemann-Pick disease occurs due the defect in
- (a) Ceramidase
  - (b) Sphingomyelinase
  - (c) Phospholipase C
  - (d)  $\beta$ -galactosidase
- (5) LDL receptor recognizes the following apoprotein
- (a) Apo A-I
  - (b) Apo C-II
  - (c) Apo B-100
  - (d) Apo B-48.
- (6) Copper serves as a metal cofactor for all the following enzymes, except
- (a) Superoxide dismutase
  - (b) Glutathione peroxidase
  - (c) Catalase
  - (d) ALA synthase
- (7) Which of one of following is considered as a naturally occurring antioxidant
- (a) Catalase
  - (b) Vitamin E
  - (c) Superoxide dismutase
  - (d) All of above
- (8) High anion gap acidosis does not occur in
- (a) Renal tubular acidosis
  - (b) Diabetic ketoacidosis
  - (c) Lactic acidosis
  - (d) Renal failure



Date of issue :  Centre :   
Sup. Sign. :  Seat No. :

**M-4006-O**  
**First Year M.B.B.S. Examination**  
**July - 2015**  
**Biochemistry : Paper - II**

Time : 10 Minutes]

[Total Marks : 10

**OBJECTIVE QUESTIONS**

**Instructions :**

(1)

नीचे दशांशक निशानीवाणी विगतो उत्तरवही पर अवश्य लभवी.  
Fillup strictly the details of signs on your answer book.

Name of the Examination :   
FIRST YEAR M.B.B.S.

Name of the Subject :   
BIOCHEMISTRY : PAPER - 2

Subject Code No. :  4  0  0  6 Section No. (1, 2,.....):  Nil

Seat No. :

Student's Signature

- (2) Choose single best answer.  
(3) Each question carries one mark.  
(4) No negative marking.  
(5) Answer shall be written on the OMR sheet.

**5 Multiple Choice Question:**

- (1) Creutzfeldt-Jakob disease is due to a mutation causing the misfolding of
- (a)  $\beta$ -Amyloid protein (b) prion protein  
(c) muscle protein (d) None of the above
- (2) The following proteins are associated with DNA structure -
- (a) Albumins (b) Globulins  
(c) Collagen (d) Histones

- (3) Elevated levels of one of the following enzyme serves as a marker of chronic alcoholism
- (a) 5' nucleotidase      (b)  $\gamma$  GGT  
(c) ALT      (d) AST
- (4) Renal rickets is caused by
- (a) Decreased formation of cholecalciferol  
(b) Increased synthesis of 25 (OH)D<sub>3</sub>  
(c) Decreased synthesis of calcitriol  
(d) None of the above
- (5) Which one of the following molecules is an end product of heme degradation ?
- (a) Uroporphyrinogen      (b) Coproporphyrinogen  
(c) Protoporphyrinogen      (d) Urobilinogen
- (6) Urea is synthesized in
- (a) Brain      (b) Kidneys  
(c) Muscle      (d) Liver
- (7) The following disease is popularly known as 'black urine disease'
- (a) Phenylketonuria      (b) Alkaptonuria  
(c) Albinism      (d) Tyrosinemia type
- (8) All the following inborn enzyme defects cause primary gout, except
- (a) Glutathione peroxidase  
(b) Glucose 6-phosphatase  
(c) HGPRT  
(d) PRPP glutamyl amidotransferase
- (9) The technique that is used to confirm the DNA cloning result
- (a) Northern blotting      (b) Western blotting  
(c) Southern blotting      (d) All the above
- (10) Glutathione is a
- (a) Tripeptide      (b) Dipeptide  
(c) Polypeptide      (d) Acidic amino acid



MU-4005

First Year M. B. B. S. Examination

December - 2015

Biochemistry : Paper - I

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 40

Instruction :

નિચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.  
Fillup strictly the details of signs on your answer book.

Seat No. :

Name of the Examination :  
FIRST YEAR M. B. B. S.

Name of the Subject :  
BIOCHEMISTRY : PAPER - 1

Subject Code No. :  Section No. (1, 2,.....):  Student's Signature

SECTION - I

- 1 Short notes : (2 out of 3) 8
- Regulation of pH
  - Diabetes mellitus
  - Phospholipids.
- 2 Write in brief : (4 out of 6) 12
- Biological importance of HMP Shunt
  - HbA1C
  - Malnutrition
  - Chemiosmotic theory of ATP production
  - Atherosclerosis
  - ATP.

SECTION - II

3 Read the case and answer the questions given below : 10

A 54 year old unconscious obese person was brought to emergency department with increase respiratory rate and very low blood pressure (70/40 mm Hg). Random blood glucose using Glucometer showed 780 mg/dl result. Arterial blood showed pH of 7.1. Serum ketone bodies were high.

1. How body mass index is used to diagnose obesity ?
2. Why does respiratory rate increase in response to metabolic acidosis ?
3. Define fasting and post-prandial glucose.
4. Name organ producing ketone bodies. Are ketone bodies useful to body ? Explain.
5. Why does uncontrolled diabetes mellitus cause acidosis ?

4 Write Justification in 2-3 lines : (5 out of 7) 10

- a. Na<sup>+</sup>-Glucose cotransport is important in the treatment of diarrhea.
- b. Brown adipose tissue reduces obesity.
- c. Sucrose is non reducing sugar
- d. Tri-carboxylic acid cycle is amphibolic.
- e. Aspirin reduces platelet aggregation.
- f. Cataract is more common in galactosemia.
- g. Fibers in diet are essential nutrients.





Date of issue :  Centre :   
Sup. Sign. :  Seat No. :

**MU-4006-O-N**  
**First Year M. B. B. S. Examination**  
**December - 2015**  
**Biochemisry : Paper - II**

Time : 10 Minutes]

[Total Marks : 10

**OBJECTIVE QUESTIONS**

**Instructions :**

(1)

नीचे दशांशक निशानों वाली विषयों के उत्तरवही पर अवश्य लिखनी।  
Fill up strictly the details of signs on your answer book.

Name of the Examination :   
**FIRST YEAR M. B. B. S.**

Name of the Subject :   
**BIOCHEMISRY : PAPER - 2**

Subject Code No. :     Section No. (1, 2,.....):  **Nil**

Seat No. :

Student's Signature

1 Multiple Choice Questions :

10

1. Common DNA damage caused by UV light is.
  - a. double strand breakage
  - b. pyrimidine dimer
  - c. base substitution
  - d. purine dimer
2. Serum alkaline phosphatase is elevated in
  - a. Obstructive jaundice
  - b. Diseases of Bone
  - c. Pregnancy
  - d. All of above

3. Enzyme can be regulated by
  - a. Product feedback inhibition
  - b. Covalent modification
  - c. Induction
  - d. All of above
4. Serotonin is formed from
  - a. Tryptophan
  - b. Tyrosine
  - c. Threonine
  - d. Phenylalanine
5. Following protein do not have quarternary structure
  - a. Myoglobin
  - b. LDH
  - c. CKMB
  - d. HCG
6. Atypical nitogen bases are frequently found in
  - a. DNA
  - b. mRNA
  - c. rRNA
  - d. tRNA
7. Transcription do not require
  - a. Enzyme
  - b. Substrate
  - c. Primer
  - d. Template
8. Following is absent in RNA
  - a. A
  - b. T
  - c. G
  - d. C
9. Uronic acids are useful for
  - a. Bilirubin conjugation
  - b. Detoxification of drugs
  - c. Proteoglycans synthesis
  - d. All of above
10. Dihydrofolate reductase is inhibited by
  - a. Methotrexate
  - b. 5-Flurouracil
  - c. Allopurinol
  - d. Cyclophosphamide



Date of issue :  Centre :   
Sup. Sign. :  Seat No. :

**MU-4005-O**  
**First Year M. B. B. S. Examination**  
**December - 2015**  
**Biochemistry : Paper - I**

Time : 10 Minutes]

[Total Marks : 10

**OBJECTIVE QUESTIONS**

**Instruction :**

नीचे दशांश देव - निशांनीवाणी विनतो ढनरवली पर अवरश लपनी.  
Fillup strictly the details of signs on your answer book.

Name of the Examination :  
FIRST YEAR M. B. B. S.

Name of the Subject :  
BIOCHEMISTRY : PAPER - 1

Subject Code No. : 4 0 0 5 Section No. (1, 2,.....): Nil

Seat No. :

Student's Signature

- 5 Multiple choice questions : 10
- Following function synergistic to vitamin E.  
(A) Sodium  
(B) Copper  
(C) Selenium  
(D) Iron
  - Fluoride ions (F<sup>-</sup>) inhibit  
(A) Pyruvate kinase  
(B) Enolase  
(C) Phosphofructokinase  
(D) Glucose 6 phosphatase
  - Neonatal Respiratory distress syndrome is caused by  
(A) deficient vitamin K  
(B) high lung surfactant levels  
(C) low lung surface tension  
(D) deficiency of lung lecithin

4. Bile salts are formed from
  - (A) Hemoglobin
  - (B) Cholesterol
  - (C) Unconjugated bilirubin
  - (D) Heme
5. BMR is mainly influenced by following :
  - (A) Calcitriol
  - (B) Calcitonin
  - (C) Parathormone
  - (D) Thyroxin
6. Following is highly elevated in acute pancreatitis
  - (A) ADA
  - (B) Amylase
  - (C) Lipase
  - (D) Both (B) and (C)
7. Night blindness is caused by the deficiency of following form of vitamin A related compounds
  - (A) Ratinol
  - (B) Retinal
  - (C) Retinoic acid
  - (D) Beta-Carotene
8. Methyl folate trap is due to
  - (A) Dihydrofolate deficiency
  - (B) Methionine excess
  - (C) Homocysteine deficiency
  - (D) Vitamin B<sub>12</sub> deficiency
9. Insulin resistance results in
  - (A) Hyperglycemia
  - (B) Hyperinsulinemia
  - (C) None of above
  - (D) Both of above
10. Glucose-6 phosphatase do not occur in
  - (A) Liver
  - (B) Kidney
  - (C) Skeletal Muscle
  - (D) Both (B) and (C)