



R-3704

First Year M. B. B. S. Examination

July - 2018

Biochemistry : Paper - I

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

[Total Marks : 50

Instruction :

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fill up strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
FIRST YEAR M. B. B. S.	<input type="text"/>
Name of the Subject :	<input type="text"/>
BIOCHEMISTRY : PAPER - 1	<input type="text"/>
Subject Code No. : <input type="text"/> 3 <input type="text"/> 7 <input type="text"/> 0 <input type="text"/> 4	Section No. (1, 2,.....) : <input type="text"/> 1&2
Student's Signature	

SECTION - I

- 1 Short notes : (2 out of 3) 2×4=8
 - (a) Describe electron transport chain and its inhibitors.
 - (b) Degradation and clinical significance of cholesterol.
 - (c) Describe how carbohydrates are digested and absorb in the body.

- 2 Short notes : (4 out of 6) 4×3=12
 - (a) Principle and application of electrophoresis
 - (b) Homeostasis of plasma calcium level
 - (c) Gluconeogenesis and its significance
 - (d) Protein energy malnutrition
 - (e) Describe reverse cholesterol transport and HDL cycle
 - (f) Renal function test.

- 3 Answer in one or two line : (5 out of 6) 5×1=5
 - (a) Biochemical role of selenium.
 - (b) Name any four Tumor marker.
 - (c) Renal glycosuria.
 - (d) Mention any two phospholipids and its specific function.
 - (e) Principle of ELISA.
 - (f) Importance of benedict test.

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[Contd.....

SECTION - II

4 Read the following case and answer the questions : $5 \times 2 = 10$

A 14 year old boy was brought to a hospital in a comatose state with fruity smell. The doctor on duty got his RBS and ketone bodies in urine analyzed. RBS was around 450 mg/dl and ketone bodies in urine was 4+. The urine sugar was also 4+. The patient was dehydrated and there was low serum potassium. His arterial blood gas analysis revealed :

Blood pH : 7.2, HCO_3^- : 14 mmol/L, pCO_2 : 30 mmHg

- (a) What is normal range of Random, Fasting and Postprandial plasma Glucose ?
- (b) Why Diabetes mellitus causes elevated serum ketone bodies ?
- (c) How will you differentiate between the diabetic ketoacidosis and starvation ketoacidosis ?
- (d) Describe the major functions of Insulin.
- (e) What is the reason of fruity smell ?

5 Write justification : (5 out of 7) $5 \times 2 = 10$

- (a) Ethanol is used to treat methanol poisoning.
- (b) Human being can not digest cellulose.
- (c) Premature baby tends to develop Respiratory distress syndrome.
- (d) Hyperkalemia is usually associated with acidosis while hypokalemia is seen during alkalosis.
- (e) Iron deficiency anemia is observed in copper deficiency.
- (f) Aspirin is used as an anti-inflammatory agent.
- (g) Excessive alcohol intake leads to fatty liver.

6 Answer in one or two line : (5 out of 6) $5 \times 1 = 5$

- (a) Biochemical changes in alcoholism.
- (b) Normal level of BMR (Basal Metabolic rate).
- (c) Application of isotopes for diagnosis.
- (d) Name of lipoprotein.
- (e) Name of glycogen storage diseases.
- (f) Write three main functions of prostaglandin.



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नीचे दृष्टावेब निशा-नीवाणी विगतो उत्तरवकी पर अदश्य बभवी.
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 - II

Subject Code No. : **3 7 0 5** Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

SECTION - I

- 1 Short notes : (2 out of 3) 2×4=8
 - (a) Describe in detail reaction of transamination, deamination and urea cycle. Add note on the effect of hyperammonemia.
 - (b) Write the process of replication with inhibitor.
 - (c) Describe different types of enzyme inhibition with examples.

- 2 Short notes : (4 out of 6) 4×3=12
 - (a) Gene therapy
 - (b) Biochemical basis of scurvy
 - (c) PCR (polymerase chain reaction)
 - (d) Mention important products formed from tyrosine and write its inborn disorders
 - (e) Base -excision repair
 - (f) One carbon metabolism.

- 3 Answer in one or two line : (5 out of 6) 5×1=5
 - (a) Folate trap.
 - (b) Write MI diagnostic enzymes name.
 - (c) What is Chargaff's rule ?
 - (d) Plasmid.
 - (e) What is recombinant DNA ?
 - (f) Acute base protein.

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[Contd.....

SECTION - II

4 Read the following case and answer the questions : $5 \times 2 = 10$

A middle aged executive complained of severe joint pain especially in the big toes in the early morning hours. His joints were swollen. The consultant decided to get his uric acid level in the serum to be estimated which was 11.0 mg/dl. The case was diagnosed as gout and the doctor advised the patients to consume a lot of fluids, avoid alcohol and nonvegetarian diet. He was also prescribed to take allopurinol.

- (a) What is uric acid? What is normal range in serum ?
- (b) What is the reason behind treating this patient with allopurinol ?
- (c) Differentiate primary and secondary gout ?
- (d) Why consultant advised the patient not to take alcohol ?
- (e) What do you mean by tophi ?

5 Write justification : (5 out of 7) $5 \times 2 = 10$

- (a) mt-DNA only inherited from mother.
- (b) Vitamin C is essential for the formation of cross links in the collagen.
- (c) Most human cancers emerge from oncofetal gene.
- (d) Diarrhea cause normal anion gap acidosis.
- (e) Telomerase is essential for dividing cell.
- (f) Glutathione & NADPH play important role for maintain RBC membrane.
- (g) Glycine is optically inactive.

6 Answer in one or two line : (5 out of 6) $5 \times 1 = 5$

- (a) Prion disease.
- (b) Define gene library.
- (c) Write name of porphyrias.
- (d) Characteristic of pellagra.
- (e) Application of southern blotting.
- (f) Molecular defect in sickle cell anemia.



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First Year M. B. B. S. Examination
November / December - 2018
Biochemistry : Paper - I



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

[Total Marks : 50

Instruction :

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

Name of the Subject :
BIOCHEMISTRY : PAPER - 1

Subject Code No. : 3 7 0 4 Section No. (1, 2,.....) : 1&2

Seat No. :

Student's Signature

SECTION- I

- Short note: (2 out of 3)** **2x4=8**
 - Describe the mechanism of iron absorption, transport and storage.
Add a note on disorder associated with defective iron metabolism.
 - What is gluconeogenesis ? Write the pathway with its significance.
 - Describe De Novo synthesis of fatty acid with regulation.
- Short notes: (4 out of 6)** **4x3=12**
 - Metabolism of VLDL.
 - Liver function test
 - Write the role of kidneys in acid-base regulation.
 - Name the function and composition of any four Mucopolysaccharides
 - Electron transport chain and its inhibitors
 - Protein energy malnutrition
- Answer in one or two line: (5 out of 6)** **5x1=5**
 - Fluorosis
 - ketoacidosis.
 - Rancidity of fat
 - What is P:O ratio & its importance
 - Inulin chemical structure and clinical use
 - Differentiate glucokinase & hexokinase

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[Contd...

SECTION –II

- 4. Read the following case and answer the questions : 5x2=10**
5. A young shopkeeper was diagnosed for hypercholesterolemia during routine laboratory investigations. His total cholesterol was 245mg%, TG was 126mg% and HDL cholesterol was 33 mg%.
- In which organ cholesterol is mainly synthesized in our body? Name the regulatory enzyme of cholesterol biosynthesis.
 - How cholesterol is transported from peripheral tissue to liver.
 - Calculate approximate blood level of LDL cholesterol in this patient.
 - How cholesterol is excreted from the body?
 - How "Statin" group of drugs reduces blood cholesterol level.
- 6. Write justification : (5 out of 7) 5x2=10**
- 2-3 BPG decreases affinity of oxygen with hemoglobin.
 - Brain cannot utilize free fatty acids for energy purpose.
 - Fat burn in flame of carbohydrate
 - Human beings cannot digest cellulose
 - Lead poisoning causes anemia
 - Cataract is more common in galactosemia
 - Iron deficiency anemia is observed in copper deficiency
- 7. Answer in one or two line : (5 out of 6) 5x1=5**
- Write significance of HbA1c
 - Application of isotopes for diagnosis
 - Glucose tolerance test
 - Write test name of Lipid profile
 - Significance of HMP shunt
 - Liposomes & its use





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Instructions :

(1)

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

Name of the Subject :
BIOCHEMISTRY : PAPER - 2

Subject Code No. : 3 7 0 5 Section No. (1, 2,.....) 1&2

Seat No. :

Student's Signature

SECTION- I

- Short note: (2 out of 3)** 2x4=8
 - Explain translation.
 - Formation of serotonin and melatonin from tryptophan
 - Name the active form of Vitamin. D, how it is formed in the body? Explain its metabolic functions, deficiency manifestation and RDA
- Short notes: (4 out of 6)** 4x3=12
 - Clinical application of recombinant DNA technology
 - Hyperuricemia and gout
 - Mutation
 - Restriction fragment length polymorphisms (RFLP)
 - Regulation of Gene expression
 - Urea cycle
- Answer in one or two line: (5 out of 6)** 5x1=5
 - Two characteristic of genetic code
 - Normal level of bilirubin in blood
 - Acute phase protein
 - Write name of porphyrias
 - Define gene library
 - Molecular defect in sickle cell anemia

SECTION –II

4. Read the following case and answer the questions :

5x2=10

A 41 years –old male complaining about hyper pigmented macules & papules all over the skin and severe oral pain and difficulty of mouth opening. During medical history assessment, he reported the removal of two skin lesion nine years before; one of them on facial skin(basal cell carcinoma) and another one at the chest skin(lentigo simplex) due to sensitivity of UV rays. The patient had consanguineous parents. He was instructed to keep a rigorous photo protection of the body and perform proper hygiene of the mouth.

- 1) What is the diagnosis?
- 2) How UV radiation causes damage to DNA?
- 3) What are the agents causing DNA damage.
- 4) Some amount of UV light is good for health in normal person. Explain.
 - a) What is autosomal genetic disorder?

5. Write justification :: (Sout of 7)

5x2=10

- a) IgM is known as macroglobulin
- b) 5 fluorouracil is an anticancer drug
- c) Synergistic action of vitamin E with selenium
- d) Vitamin C causes bleeding gums
- e) Protein malnutrition causes oedema
- f) Cigarette smoking causes emphysema
- g) GABA deficiency may cause stiffman syndrome

6. Answer in one or two line : (5 out of 6)

5x1=5

- a) What is promoter site
- b) What is creatine and creatinine? Their clinical significance.
- c) Role of glutathione in scavenging hydrogen peroxide
- d) Protein denaturation
- e) Therapeutic uses of enzyme
- f) Comparison of competitive and non competitive enzyme inhibition

