



MJ-4653

Seat No. _____

First Year M. B. B. S. Examination

July - 2016

Biochemistry : Paper - II

Time : 3 Hours]

[Total Marks : 50

- Instructions :** (1) Each section to be answered in separate answer book.
(2) Answer should be brief and to the point.

SECTION-I

- 1 State true or false with reasons on any six : **1×6=6**
- (a) HDL acts as a repository of transferrable apoproteins.
 - (b) Cholesterol is completely degraded to CO₂ and H₂O and yield energy in liver.
 - (c) High levels of glutamate and its derivatives are toxic to the brain.
 - (d) Biopterin is structurally similar to folic acid and act as a vitamin.
 - (e) Albinos are more prone to skin cancers.
 - (f) Urinary pH could be as low as 4.4 and as high as 9.8 in different circumstances.
 - (g) Dietary hexaphosphate of inositol increases calcium absorption.
 - (h) Thioredoxin is essential for formation of deoxyribonucleotides.

- 2 (a) Read the following case report and answer the questions : **1×5=5**

A 12 year old girl was brought to hospital with complaints of weakness, increased thirst, weight loss in spite of good appetite and increased frequency of micturition. Biochemical tests showed presence of reducing sugar in urine and blood glucose level: 290 mg/dl.

- (i) What is the diagnosis? Is it necessary to perform oral glucose tolerance test in this patient to confirm the diagnosis?
- (ii) State the Biochemical basis of symptoms of this patient.
- (iii) Differentiate between Type I and Type 2 Diabetes Mellitus.
- (iv) At the time of admission, what do you expect the patient's tissue glycogen level to be and why?
- (v) What are the various complications she may develop, about which you would like to caution her before discharge?

(b) Discuss the following : **3+2=5**

- (i) Von-Gierke's disease
- (ii) Maple syrup urine disease

3 Write short notes on any three : **3×3=9**

- (a) Sorbitol pathway and its significance
- (b) Reactions of uronic acid pathway
- (c) Catabolism of pyrimidine nucleotides
- (d) Transamination reactions and its importance
- (e) Catabolism of branched chain amino acids.

SECTION-II

4 Give your comments with justification on any six : **1×6=6**

- (a) Serum lipase estimation has an advantage over that of serum amylase.
- (b) Glycogen phosphorylase acts as a glucose sensor?
- (c) During strenuous exercise, the demand of ATP in muscle is increased.
- (d) Oxidation of odd number carbon fatty acids favors the activity of TCA cycle.

- (e) Though the liver produces ketone bodies it cannot utilize them.
- (f) L-asparaginase is used as an anti-cancer agent in leukemias and lymphomas.
- (g) Amino acids are the major contributors of one carbon groups to the one carbon pool.
- (h) Purine biosynthesis is impaired in pernicious anemia.

5 Discuss any two of the following : **5×2=10**

- (a) Synthesis and oxidation of ketone bodies
- (b) Liver function tests
- (c) Disorders of porphyrin metabolism

6 Write short notes on any three : **3×3=9**

- (a) Respiratory regulation of blood pH
- (b) Inborn errors of histidine metabolism
- (c) Purine salvage pathway and its importance
- (d) Cytochrome P-450 hydroxylase cycle and its significance
- (e) Molecular basis of protooncogene activation.
