



J-4653

Seat No._____

First Year M. B. B. S. Examination

September / October - 2019

Biochemistry : Paper - II

(Old Course)

Time : 3 Hours]

[Total Marks : 50

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

SECTION - I

1 State True or False with Justification : (Any Six) **1×6=6**

- (a) Km value of Glucokinase is lower than Hexokinase.
- (b) Lead inhibits haemoglobin synthesis.
- (c) Carnitine deficiency leads to ketotic hypoglycaemia.
- (d) Gluconeogenesis is not a simple reversal of glycolysis.
- (e) Isocitrate dehydrogenase is activated by ATP and inhibited by low $[NADH] : [NAD^+]$ ratio.
- (f) Increased dietary consumption of protein raises urea production in the liver.
- (g) Oxaloacetate acts as a catalyst in urea cycle.
- (h) Lactase deficiency causes Lactosuria.

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

A 4 year old fair chubby boy was brought to the hospital with the complaints of delayed developmental milestones, mental retardation, seizures and eczema. He exhibits light coloured hair, skin & eye. Blood Phenylalanine level was 36 mg/dl (Normal 1 - 2 mg/dl). Guthrie bacterial inhibition assay and ferric chloride test showed blue green colour.

Questions :

- (i) What is the probable diagnosis?
- (ii) What is the possible cause for the disorder?
- (iii) Patient exhibits light coloured hair, skin & eyes. Why?
- (iv) Name the metabolites appearing in the urine of this patient? Give reasons.
- (v) Suggest your line of treatment.

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

- (i) Homocystinurias
- (ii) Galactosemia

3 Write short notes : (Any **Three**) **3×3=9**

- (i) Biological values of proteins
- (ii) De novo synthesis of purines
- (iii) Metabolism of Triacylglycerol
- (iv) Role of S-Adenosylmethionine (SAM) in transmethylation reactions
- (v) Creatine Biosynthesis

SECTION - II

4 Give your comments with justification : (Any **Six**) **1×6=6**

- (a) Fatty acids are activated before being catabolised.
- (b) Glucose interferes with the expression of Lac operon.
- (c) Leucine is strongly ketogenic amino acid.
- (d) Glutathione is essential for degradation of insulin.
- (e) Purine salvage pathway is highly active in RBC & Brain.
- (f) Alcohol consumption leads to hypoglycemia.
- (g) Prolonged starvation leads to ketoacidosis.
- (h) Glycine is essential for porphyrins synthesis.

5 Discuss the following : (Any **Two**) **5×2=10**

- (a) Digestion and absorption of proteins
- (b) Molecular basis of cancer
- (c) Phase-II reactions of xenobiotics metabolism

6 Write short notes : (Any **Three**) **3×3=9**

- (a) Reactive Oxygen Species (ROS)
- (b) Heme catabolism
- (c) Effects of alcohol on human body
- (d) Lesch nyhan syndrome
- (e) Renal regulation of pH