J-M20176 Seat No. _____

First Year M. B. B. S. Examination

September / October - 2019

Biochemistry : Paper - II

Time : **3** Hours] [Total Marks : **50**

SECTION – I

1 State true or false with justification : (any **six**) **1×6=6**

(a) Insulin is always given orally.

(b) Muscle glycogen can contribute to maintain blood glucose level.

(c) Omega 3 fatty acids are beneficial for health.

(d) Some RNA molecules have enzymatic activity.

(e) Hypercalcemia leads to tetany.

(f) Lactate formation is necessary for reconversion of NADH to NAD in aerobic condition.

(g) Replication is semi-conservative.

2 (A) Read the following case report and answers the questions : **5**

A full term child, born after normal pregnancy, developed grunting respiration 36 hours after birth. After 3 days, he had severe bouts of vomiting and became lethargic. He was unresponsive to stimuli and went into coma. Chromatography results of plasma sample indicated that plasma levels of citrulline, alanine and glutamine were grossly elevated, but argininosuccinate level was decreased. In addition to that, his blood ammonia level was very high, blood urea level was low and blood pH was on alkaline side. Treatment was immediately started including low protein diet, avoidance of breast milk and antibiotic drugs.

(1) Which enzyme of urea cycle was deficient in this case ?

(2) Why glutamine level in the blood was very high ?

(3) Why ammonia is toxic to brain ?

(4) Why breast milk was avoided in this patient ?

(5) What are the sources of two nitrogen atoms in the formation of urea ?

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

(i) One carbon metabolism.

(ii) Cori's cycle and its importance.

3 Write short notes : (any **three**) **3×3=9**

(i) Atherosclerosis-Risk factors and preventive measures.

(ii) Phenylketonuria.

(iii) Protein Energy Malnutrition.

(iv) Glycogen Storage disease type - I : Von Gierke's disease.

SECTION – II

4 Give your comments with Biochemical justification : **1×6=6**
(any **six**)

(a) Ethanol is used to treat methanol poisoning.

(b) Glycated hemoglobin is important in prognosis of Diabetes Mellitus.

(c) Excessive alcohol intake leads to fatty liver.

(d) Many point mutations are silent mutations.

(e) In hyperthyroidism body, temperature increases.

(f) Malate Aspartate shuttle is important for gluconeogenesis.

(g) Glucose can be converted to fatty acids but fatty acids cannot be converted to glucose.

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

(a) Regulation of gene expression. Write on Recombinant DNA technology.

(b) Transamination and its importance. Write on detoxification of ammonia.

(c) Lipoprotein metabolism.

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

(a) Immunology and Laboratory diagnosis of AIDS.

(b) Metabolism of Xenobiotics.

(c) Renal function tests.

(d) Metabolic acidosis and importance of anion gap.
