MBBS FIRST PROFESSIONAL (PART-II)

MODEL PAPER FOR ANNUAL 2009

Biochemistry

(Multiple Choice Questions)

Q.1 A pregnant woman who has a lactase deficiency and cannot tolerate milk in her diet is concerned that she will not be able to produce milk of sufficient caloric value to nourish her baby. She should be advised that:

a) She must eat pure galactose in order to produce the galactose moiety of lactose.
b) She will not be able to breast feed her baby because she cannot produce lactose.
c) The production of lactose by the mammary gland does not require the ingestion of milk or milk products.
d) She can produce lactose by degrading α-lactalbumin.
e) She must eat pure fructose which will be converted to galactose moiety of lactose.

Q.2 A 16 year old patient with type 1 diabetes mellitus was admitted to the hospital with a blood glucose level of 400 mg/dL (The reference range for blood glucose is 80-100 mg/dL). One hour after an insulin infusion was begun; her blood glucose level had decreased to 320 mg/dL. One hour later, it was 230 mg/dL. The patient glucose level decreased because insulin:

a) Stimulates the transport of glucose across the cell membrane of the liver and brain
b) Stimulates the conversion of glucose to glycogen and triacylglycerol in the liver
c) Inhibits the synthesis of ketone bodies from blood glucose
d) Stimulates glycogenolysis in the liver
e) Inhibits the conversion of muscle glycogen to blood glucose

Q.3 In liver disease, the enzyme aspartate transaminase (AST) and alanine transaminase (ALT) leak into the blood from damaged liver cells. Both of these enzymes:

a) Transfer ammonia to α-ketoacids to form amino acid
b) Form intermediates of glycolysis from amino acids
c) Require thiamine pyrophosphate as a cofactor
d) Catalyze irreversible reactions
e) Convert α-ketoglutarate to glutamate

Q.4 Patient with xeroderma pigmentosum suffer DNA damage when they are exposed to UV light because UV light causes the formation of:

a) Purine dimers in DNA.
b) Pyrimidine dimers in DNA.
c) Deoxyribose dimers in DNA.
d) Anhydride bonds between phosphate groups and DNA.
e) Converts deoxyribose to ribose in DNA.

Q.5 Sickle cell anaemia is the clinical manifestation of homozygous genes for an abnormal hemoglobin molecule. The mutational event responsible for the mutation in the b-chain is:

a) Crossing over.
b) Insertion.
c) Deletion.
d) Non-disjunction.
e) Point mutation.

Q.6 Flattened P waves, widened QRS complex, depressed ST segment, tall tented T waves are characteristic features of:

a) Hyponatremia.
b) Hypocalcemia.
c) Hyperkalemia.
d) Hypokalemia.
e) Hypercalcemia.

Q.7 The laboratory reports the following ABGs: pH 7.33 (7.35 - 7.45), pCO_2 40mmHg (35 - 45) and HCO_3 20mEq/L (22-26), you interpret these results as:

a) Respiratory acidosis.
b) Metabolic acidosis.
c) Respiratory alkalosis.
d) Metabolic alkalosis.
e) Mixed respiratory and metabolic alkalosis

Q.8 cGMP is the second messenger of:

a) Atrial natriuretic peptide (ANP).
b) Angiotensin.
c) Prolactin.
d) Epinephrine.
e) Insulin.

Q.9 The diabetics should consume a diet low in carbohydrates, having moderate amount of fat and rich in protein. Despite their impaired carbohydrate metabolism and deficient insulin, why carbohydrates are still included in their diet?

a) Carbohydrates have high glycemic index.
b) Carbohydrates have low glycemic index.
c) Carbohydrates are essential for life.
d) Carbohydrates are protein sparing.
e) Carbohydrates are digested easily.

Q.10 A 2 year old boy presents to the OPD with poor eating for the past few weeks. Recently he has developed a wound on his leg which shows poor healing. On examination he appears plump but apathetic. He has dry, sparse golden hair and his skin appears thick and pigmented. Abdomen is distended. His serum albumin is 15 g/L (35-50 g/L). What is the likely diagnosis?

a) Anorexia nerovsa.
b) Starvation.
c) Marasmus.
d) Crohn's disease.
e) Kwashiorkor.