



JG-M20175

Seat No. _____

First Year M. B. B. S. Examination

July - 2019

**Biochemistry : Paper - I
(New Course)**

Time : 3 Hours]

[Total Marks : 50

SECTION - I

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

- a) Among different isomers of glucose α -D glucose form is most predominant in blood.
- b) Function of cholesterol in cell membrane is to moderate cell fluidity.
- c) Prostaglandin series II is the most common variety of prostaglandins in human.
- d) Among all water soluble vitamins, only biotin is stored in the liver.
- e) In competitive inhibition K_m value is normal but V_{max} is high.
- f) Oligomycin is an inhibitor of oxidative phosphorylation.
- g) Haemoglobin A₂ contains two alpha and two gamma chains.

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

A 38 years old vegetarian female presented to her doctor with fatigue and tingling/numbness in her extremities (bilateral). The symptoms were gradually worse over the last year. She reported frequent episode of diarrhoea and weight loss. On examination she was pale with tachycardia. Her tongue was beefy red. Neurological examination revealed numbness in all extremities with decreased vibration senses. The CBC demonstrated megaloblastic anaemia.

- a) What is the most likely diagnosis?
- b) What is the most likely underlying problem for this patient ?
- c) What are the two most common causes of megaloblastic anaemia?

- d) How would this patient's history and examination differentiate the two causes?
- e) What is the reason of development of neurological symptoms in this patient?
- B) Discuss the following : **3+2=5**
- a) Plasma membrane
- b) Allosteric regulation of enzymes.
- 3** Write short notes : (any three) **3×3=9**
- a) Mucopolysaccharides.
- b) Essential amino acids.
- c) Factors affecting enzyme activity.
- d) Phospholipids.

SECTION - II

- 4** Give comments with justifications : (any six) **1×6=6**
- a) K_m value of Glucokinase is higher than that of Hexokinase.
- b) Heparin acts as an anticoagulant.
- c) Fetal haemoglobin is not suitable for adult.
- d) Intake of raw eggs is not good for health.
- e) Small dose of aspirin is prescribed to prevent heart attacks.
- f) Hyperkalemia is associated with metabolic acidosis.
- g) Vitamin C helps in absorption of iron.
- 5** Discuss the following : (any two) **5×2=10**
- a) Functions of Prostaglandins.
- b) Electron transport chain.
- c) Vitamin D synthesis, activation, metabolic roles and deficiency features.
- 6** Write short notes : (any three) **3×3=9**
- a) Chromatography and its applications
- b) Structure of immunoglobulins
- c) α -helix and β -pleated sheet of protein
- d) Therapeutic enzymes.
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