



DAG-M-20175-N

Seat No. _____

First Year M. B. B. S. Examination

April - 2022

Biochemistry : Paper - I
(New Course)

Time : 3 Hours]

[Total Marks : 100

SECTION - I

- 1 What are iso enzymes? Discuss the clinical significance of different isoenzymes variants of Creatine kinase (CK), Lactate dehydrogenase (LDH) and Alkaline Phosphatase (ALP). **10**

OR

Write a detailed essay on the structural and functional organisation of the electron transport chain. Add a note on its inhibitors.

- 2 Write short notes : (any five out of six) **5×5=25**
- (a) Structure of biological membranes-fluid mosaic model
 - (b) Glycosaminoglycans
 - (c) Prostaglandins
 - (d) Secondary structures of Proteins
 - (e) Functions of nucleotides
 - (f) Doctor -patient relationship (ATCOM 1.3)

- 3 Read the following case and the answer the questions : **2×5=10**

A 60 years old widower, staying alone and surviving mainly on tea and toast, presented with bone pain and generalized feeling of weakness. On examination physician found swelling and bleeding from gums. Laboratory tests showed anemia and decreased serum ascorbic acid levels.

- (a) What is the probable diagnosis of this patient? In your view why this person has developed such clinical presentation?

- (b) What can be the cause of anemia in this case?
- (c) How much is the RDA (Recommended daily allowance) of vitamin C? Why vitamin C is not essential in diet for most of the animals except primates?
- (d) Why urine of a person consuming large dose of vitamin C shows positive Benedict's test?
- (e) How vitamin C acts as an antioxidant vitamin?

4 Answer the following MCQs : (all compulsory) **1×5=5**

- (i) The following are mutant hemoglobin except:
 - (a) HbF
 - (b) HbS
 - (c) HbC
 - (d) HbE
- (ii) The normal pH of blood has a range of
 - (a) 7.15 - 7.25
 - (b) 7.25 - 7.35
 - (c) 7.35 - 7.45
 - (d) 7.45 - 7.55
- (iii) What is Alfa particle?
 - (a) 2 Protons + 2 Neutrons
 - (b) 1 Electron
 - (c) 1 Neutron
 - (d) 1 Electron + 1 Proton
- (iv) Which of the following can be used as supporting medium in electrophoresis
 - (a) agarose gel
 - (b) polyacrilamide gel
 - (c) Whatman filter paper
 - (d) all of the above
- (v) Glycocalyx is present in the
 - (a) Nucleous
 - (b) cell surface
 - (c) ribosomes
 - (d) Golgi complex

SECTION - II

5 Write a detailed essay on biochemical functions, RDA, sources and deficiency manifestations of vitamin A. **10**

OR

What are the different types of hemoglobinopathies . Give an account of their biochemical basis and clinical relevance.

- 6** Write short notes : (any **five** out of six) **5×5=25**
- (a) Acidosis.
 - (b) Homeostasis of body water.
 - (c) Paper chromatography.
 - (d) IUBMB classification of enzymes.
 - (e) Functions of Albumin.
 - (f) t-RNA.
- 7** Justify true or false in 2-3 sentences : (ten out of eleven) **1×10=10**
- (a) Fructose is a stereoisomer of glucose.
 - (b) PUFA decreases fluidity of plasma membrane.
 - (c) Name of the alcohol present in sphingomyelin is "glycerol".
 - (d) Glycine is sometimes called "little master".
 - (e) SnRNA acts as enzyme.
 - (f) Glycogen is the carbohydrate reserve in animal.
 - (g) Vitamin E is a natural antioxidant.
 - (h) Dicoumarol is an anticoagulant.
 - (i) Km value of glucokinase is higher than hexokinase.
 - (j) Heparin is an anticoagulant
 - (k) Anion gap may increased in metabolic acidosis.
- 8** Answer the following MCQs : (all compulsory) **1×5=5**
- (a) On reduction glucose yields the following alcohol:
 - (i) dulcitol
 - (ii) mannitol
 - (iii) ribitol
 - (iv) sorbitol
 - (b) Which of the following enzyme is used in treatment of Myocardial infarction.
 - (i) Urokinase
 - (ii) Papain
 - (iii) Asparaginase
 - (iv) all of the above

- (c) Chaperone proteins play a role in
- (i) protein folding
 - (ii) protein misfolding
 - (iii) denaturation
 - (iv) all of the above
- (d) Digestive enzymes belong to the class of
- (i) transferases
 - (ii) lyases
 - (iii) hydrolases
 - (iv) ligases
- (e) Calcitriol increases the synthesis of following protein that promotes calcium uptake in the intestine
- (i) insulin
 - (ii) calbinding
 - (iii) albumin
 - (iv) none of the above
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