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The West Bengal University of Health Sciences
1st BMLT November - December, 2022 Examination

Subject: Basic Biochemistry

Time: 3 hrs **Full Marks: 100**

*Attempt **all** questions*

1. Answer all questions : 20 x 1

a) β-2,1 glycosidic bond is found in :
i) Lactose. ii) Maltose. iii) Sucrose. iv) Galactose.

b) Example of heteropolysaccharide is :
i) Maltose. ii) Hyaluronic acid. iii) Cellulose. iv) Starch.

c) Example of unsaturated fatty acid is :
i) Palmitic acid. ii) Myristic acid. iii) Linolenic acid. iv) Stearic acid.

d) Lipid aggregate which consists of only one fatty acid chain is :
i) Liposome. ii) Bilayer sheet. iii) Micelle. iv) Fatty acid.

e) Thiol group is present in :
i) Histidine. ii) Arginine. iii) Cystine. iv) Valine.

f) Example of supersecondary structure of protein is :
i) α-helix. ii) β-turn. iii) βαβ motif. iv) Loop.

g) In uncompetitive inhibition Vmax will :
i) Increase. ii) Remain same. iii) Slightly increase. iv) Decrease.

h) The diameter of B-DNA is :
i) 45Å. ii) 10Å. iii) 20Å. iv) 6Å.

i) Helix is left handed in case of :
i) B-DNA. ii) A-DNA. iii) Z-DNA. iv) RNA.

j) Which of the following is an example of ketone body?
i) Acyl CoA. ii) Acetoacetate. iii) LDL. iv) Ketose.

k) Which vitamin deficiency is responsible for Pellagra?
i) Vitamin A. ii) Vitamin B_3. iii) Vitamin C. iv) Vitamin B_5.

l) Pernicious anaemia is due to deficiency of :
i) Folic acid. ii) Vitamin B_7. iii) Vitamin B_{12}. iv) Vitamin K.

m) The enzyme which belongs to the class hydrolase is :
i) Dehydrogenases. ii) Kinase. iii) Lipase. iv) Carboxylase.

n) Spectrophotometer obeys the rule of :
i) Dalton's law. ii) Laplace law. iii) Charles' law. iv) Beer-Lambert law.

o) Hypercalcemia is due to :
i) Decrease in serum calcium. ii) Increase in serum calcium.
iii) Increase in serum phosphate. iv) Decrease in serum phosphate.

p) Rickets is due to deficiency of which mineral?
i) Potassium. ii) Sodium. iii) Calcium. iv) Magnesium.

q) The gram equivalent weight in per litre solution is called :
i) Molarity. ii) Molality. iii) Normality. iv) Osmolality.

r) Phosphate buffer system is found in :
i) Intracellular fluid. ii) Extracellular fluid. iii) Transcellular fluid. iv) Paracellular fluid.

s) Protolysis increases with the rise in :
i) Oxygen. ii) Temperature. iii) Carbon-di-oxide. iv) Viscosity.

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t) Which is not an example of ion selective electrode?
i) pH electrode. ii) Calcium electrode. iii) Chloride electrode. iv) Fluorimeter.

2. Answer the following : 5 x 2
a) Mention two differences between reducing and non-reducing sugar.
b) Define anomerism.
c) Show the reaction of peptide bond formation.
d) Define nucleotide with an example
e) What is non-competitive inhibition?

3. Write ***any six*** of the following : 6 x 5
a) Explain D-L stereoisomerism.
b) Describe the structure of β-pleated sheet.
c) Mention the sources and functions of vitamin A.
d) Discuss the regulation process of cholesterol synthesis.
e) Mention the differences between A, B and Z DNA.
f) Describe the classification of enzymes.
g) Discuss the specimen preparation process.
h) Describe the proton transfer theory of Bronsted and Lowry.

4. Answer ***any one*** of the following :
a) Describe the β-oxidation pathway of Palmitic acid. Define ketonuria and ketonemia. 7+3
b) Discuss different types of laboratory hazards and their precautions taken. 6+4

5. Answer ***any two*** of the following : 2 x 15
a) Discuss the factors affecting blood calcium level. Mention the RDA and functions of calcium. Mention the causes and symptoms of osteoporosis. 6+5+4
b) Discuss the types of enzyme inhibitions with examples. Describe the Michaelis-Menten constant of an enzyme catalysed reaction. Define activator with an example. 7+5+3
c) Discuss the sources, RDA and functions of vitamin B12. Which vitamin deficiency is responsible for Scurvy? Mention the sources, RDA and functions of that vitamin. 7+1+7