



DL-003-038103

Seat No. _____

B. Voc. (M. L. M. D. T.) (Sem. I) (CBCS) Examination

April / May – 2015

**MLMDT -1.3 : Basics of Biochemistry,
Instruments & Reagents**

Faculty Code : 003

Subject Code : 038103

Time : $2\frac{1}{2}$ Hours]

[Total Marks :70

- Instructions :**
- (1) All questions are compulsory.
 - (2) The paper is divided in two sections.
 - (3) No separate OMR sheet will be provided for **Section I.**
 - (4) Figures on right indicate marks

SECTION - I

1 Answer the following MCQ : 20

- (1) Which of the following is carbohydrate but not sugar?
 - (a) Glucose
 - (b) Maltose
 - (c) Cellulose
 - (d) Sucrose

- (2) Which of the following is not true of glycolysis?
 - (a) ADP is phosphorylated to ATP via substrate level phosphorylation
 - (b) The pathway does not require oxygen
 - (c) The pathway oxidizes two moles of NADH to NAD⁺ for each mole of glucose that enters
 - (d) The pathway requires two moles of ATP to get started catabolising each mole of glucose

- (3) In the pentose phosphate pathway, the major products are which of the following?
- (a) Ribulose and ATP (b) Ribulose and NADPH
(c) Ribose and NADH (d) Xylulose and ATP
- (4) Which enzyme is used in gluconeogenesis but not glycolysis?
- (a) Phosphoglucoisomerase
(b) Glucose 6-phosphatase
(c) 3-Phosphoglycerate kinase
(d) Lactate dehydrogenase
- (5) Find out the imino acid from the following amino acids :
- (a) Pro (b) His
(c) Lys (d) Gln
- (6) Which of the following bond is found in secondary structure of protein?
- (a) Peptide Bond (b) Ionic Bond
(c) Hydrogen Bond (d) (A) & (B) both
- (7) The "fuel" for the urea cycle is:
- (a) ammonium ion (b) bicarbonate ion
(c) acetyl CoA (d) carbamoyl phosphate
- (8) The dietary fats are transported as –
- (a) Chylomicons
(b) Micelles
(c) Fatty acid – Albumin complex
(d) Liposomes

- (9) Which of the following is an example of unsaturated fatty acid
- (a) Palmitic acid (b) Lauric acid
(c) Stearic acid (d) Oleic acid
- (10) Deficiency of essential fatty acid leads to
- (a) Tay Sachs disease (b) Phryoderma
(c) Diabetes (d) None of the above
- (11) Which of the following statements correctly describes the enzyme Thiolase?
- (a) It yields Acetoacetyl co A as a product
(b) It yields Malonyl co A as a product
(c) Forms Co A ester as a product
(d) Requires beta keto acyl co A as a substrate
- (12) Molar equivalence between purines and pyrimidines in DNA was given by
- (a) F.Miescher (b) Chargaff
(c) Avery (d) Macleod
- (13) In B-DNA the number of base pairs in each turn is
- (a) 9 (b) 11
(c) 10 (d) 12
- (14) Which of the following is a required substrate for purine biosynthesis?
- (a) PRPP (b) Ara -C
(c) Ribose phosphate (d) 5- methyl thymidine

- (15) What is the relation between K_m and enzyme activity?
- (a) Direct (b) Variable
(c) Inverse (d) None of above
- (16) The enzymes involved in feedback inhibition are termed as
- (a) Allosteric enzymes (b) Holoenzymes
(c) Coenzymes (d) Apoenzymes
- (17) A competitive inhibitor of an enzyme is usually
- (a) a highly reactive compound
(b) a metal ion such as Hg^{2+} or Pb^{2+}
(c) structurally similar to the substrate
(d) water insoluble
- (18) Exciter and Barrier filters are found in:
- (a) Electron Microscope
(b) Fluorescent Microscope
(c) Dark Field Microscope
(d) (A) & (B)
- (19) Which of the following is best to sterilize heat labile solutions?
- (a) Membrane filtration (b) Dry heat
(c) Autoclave (d) None of the above
- (20) According to Beer's law, absorbance of any solution is proportional to
- (a) Transmittance of light
(b) Concentration of solution
(c) Path length
(d) Wavelength

SECTION -II

2 (A) Answer in brief : **(Any 3)** **3×2= 6**

- (1) Write difference between homopolysaccharide and heteropolysaccharide.
- (2) What is phenylketonuria?
- (3) What is meant by salvage pathways of nucleotides?
- (4) Define enzyme. What do you mean by catalytic site of an enzyme?
- (5) How will you make one molar solution of any compound?
- (6) Write principle of centrifuge.

(B) Answer in brief **(Any 3)** **3×3= 9**

- (1) Briefly explain classification of carbohydrates with example.
- (2) What is α (alpha) helix structure of protein?
- (3) Write the comparison of different DNA.
- (4) What are allosteric enzymes?
- (5) Write a note on essential fatty acids
- (6) Write difference between autoclave and hot air oven.

(C) Answer in detail : **(Any 2)** **2×5=10**

- (1) Describe pentose phosphate pathway.
- (2) Describe Watson & Crick model of DNA
- (3) Discuss transamination reactions
- (4) Discuss beta oxidation of fatty acid
- (5) Describe colorimeter.

3 (A) Answer in brief : (Any 3) 3×2= 6

- (1) Define reducing and non-reducing sugars with examples
- (2) Draw the structures of two positively charged amino acids.
- (3) Enlist the different types of RNA.
- (4) Write the functions of lipids.
- (5) What are zymogens?
- (6) Write different types of microscopes.

(B) Answer in brief : (Any 3) 3×3=9

- (1) Explain briefly Cori Cycle.
- (2) Write a brief note on ribozyme
- (3) Draw the structure of three pyrimidines.
- (4) Define: Cofactor, Coenzyme, Prosthetic group.
- (5) What is the working principle of pH meter?
- (6) Write the structure and importance of cholesterol molecule.

(C) Answer in detail : (Any 2) 2×5=10

- (1) Write a note on enzyme inhibition.
 - (2) Discuss biosynthesis of pyrimidine nitrogen base.
 - (3) Describe urea cycle.
 - (4) Write a note on glycogenolysis.
 - (5) Write a note on flame photometer.
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