

4. (a) Show hydrogen bonding between A and T & C and G. (Diagrammatic representation).
- (b) What is the basic unit of nucleic acid ? Write down their structure. How are they linked in nucleic acid ?
- (c) Enumerate various types of RNA and describe their functions.
- (d) What informations did Waston and Crick gather to postulate model of DNA structure ? Explain the model. **5,5,5,5**

Unit III

5. (a) Elaborate the full form of each following abbreviations and draw their structure : NADPH, TPP.
- (b) Define following terms :
Committed step of metabolism, metabolic flux.
- (c) Explain, how $\text{NAD}^+/\text{NADH} + \text{H}^+$ ratio is balanced (maintained) for glycolysis under Aerobic Conditions ?

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Roll No.

AA-332

M. Sc. EXAMINATION, Dec. 2018

(First Semester)

(Re-appear Only)

BT503MS

BIOCHEMISTRY

Time : 3 Hours]

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

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P.T.O.

Unit I

1. (a) Differentiate between α -pleated structure of proteins
- (b) Write a note on features of peptide bond.
- (c) Write in details about various forces stabilizer the tertiary structure of proteins.
- (d) Write down the structure of the following pentapeptide (which representation of N-terminal and C-terminal ends) :

Gly-Lys-Phe-Leu-Trp 5,5,5,5

2. (a) Enumerate the biological functions of carbohydrates. Write down the structure of two such monosaccharides which do not conform to ratio of H and O as in water.
- (b) Write structural formulae of the following :
 - (i) O- α -D-galactopyranosyl (1 \rightarrow 6)
 α -D-glucopyranosyl (1 \rightarrow 2) β -D-fructofuranoside.

- (ii) O- α -D-glucopyranosyl (1 \rightarrow 4)
 α -D-glucopyranosyl (1 \rightarrow 4)
manooopyranose.

Are these sugars reducing or non-reducing ?

- (c) Differentiate between cellobiose and maltose by writing their structure as well.
- (d) Write a note on storage polysaccharides. Give a brief description of any two of them. 5,5,5,5

Unit II

3. (a) Write structure and function of a the following lipids : Sphingomyelin, Cholesterol.
- (b) Define following terms : Acid value. Iodine number, Oxidative rancidity, Hydrolytic rancidity, Sponfication value.
- (c) Difference between Wax and Triacylglycerol.
- (d) Write a brief note on bile salts and estrogen. 5,5,5,5

- (c) Draw the structure of PLP and write one role of this molecule in amino acid metabolism.
- (d) Write a note on the regulation of amino acid biosynthesis. **5,5,5,5**
8. (a) Write in detail (with reactions) about *de novo* synthesis of IMP.
- (b) Write a note on salvage pathway of nucleic acid metabolism.
- (c) Write steps involved in degradation of GMP to uric acid.
- (d) Excess Uric Acid causes Gout. How to control it ? **5,5,5,5**
- (d) Write a short note on Glycogenolysis. Also mention (name only) under what condition Glycogenolysis takes place ? **5,5,5,5**
6. (a) Write a note on structural component of fatty acid synthase complex.
- (b) How is fatty activated and transported to the site of its oxidation ? Explain with diagram and reactions.
- (c) Explain four steps of β -oxidation pathway by taking suitable example.
- (d) What is ketosis and acidosis ? Write the name and structure of ketone bodies. **5,5,5,5**

Unit IV

7. (a) Explain the following :
Oxidative deamination, transamination.
- (b) Explain the Urea Cycle.