DCZ-003-2013022 Seat No. _____

B. Sc. (Sem. III) (CBCS) Examination

August - 2022

BC301 : Biochemistry (Biomolecules)

Faculty Code : 003

Subject Code : 2013022

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 (A) Objective Type Questions : **4**

(1) Define Carbohydrates.

(2) Which is the smallest aldose sugar?

(3) Which bond is present between two mono-sachharides?

(4) Write the general formula of carbohydrate.

(B) Answer in Brief : (any 1 out of 2) **2**

(1) Write any two characteristic of mono-sachharide ?

(2) Draw the linear structure of Glucose?

(C) Answer in Detail : (any 1 out 2) **3**

(1) Write the names of monomers of Sucrose, Lactose and Maltose.

(2) Which sugars are considered as Non-reducing sugars? Why?

(D) Write a note on : Any 1 out of 2 **5**

(1) Describe the functions and importance of monosaccharides and polysaccharides.

(2) Describe in brief about the types & functions of proteoglycans, glycoproteins and glycolipids.

2 (A) Objective Type Questions : **4**

(1) What are the building blocks of lipids?

(2) Which functional groups are present at the terminal ends of fatty acids ?

(3) Which bonds/linkages are present in lipid molecules?

(4) Which type of lipid is present in cell membranes of organisms?

(B) Answer in brief : (any 1 out of 2) **2**

(1) Draw the structure of a triglyceride.

(2) Name any two phospholipids present in cell membrane.

(C) Answer in brief : (any 1 out of 2) **3**

(1) Describe in brief about waxes.

(2) Write any three differences between sulpholipids and sphingolipids.

(D) Write a note on : (any 1 out 2) **5**

(1) Write a short note on sterols.

(2) Describe important roles of membrane lipids.

3 (A) Objective Type Questions : **4**

(1) Draw the general structure of amino-acid.

(2) Name the simplest amino-acid. Draw its structure.

(3) Which bonds are present between two amino-acids in protein.

(4) On the basis of optical rotation,which form of amino-acids are generally present in human body?

(B) Answer in brief : (any 1 out of 2) **2**

(1) Write the name of any two non-essential amino-acids.

(2) Which amino-acid is called imino-acid? Give reason for it.

(C) Answer in detail : (any 1 out of 2) **3**

(1) Write any three chemical properties of amino acids.

(2) Describe salting in and salting out process of proteins in brief.

(D) Write a note on : (Any 1 out 2) **5**

(1) Describe different structure formations of a protein molecule.

(2) Describe in brief different functions of fibrous and globular proteins.

4 (A) Objective Type Questions : **4**

(1) Which bond is present in nucleic acids?

(2) Which bacteria did Griffith used in his transformation experiment?

(3) Who proved that nucleic acids are genetic material and not proteins by using radioisotopes?

(4) Name the building blocks of nucleic acids.

(B) Answer in brief : (Any 1 out of 2) **2**

(1) Write examples of pyrimidine and purine nitrogen bases.

(2) Write any four differences between RNA & DNA.

(C) Answer in detail : (any 1 out of 2) **3**

(1) Write three differences between different forms of DNA.

(2) Explain different forms of RNA and also mention their importance.

(D) Write a note on : (Any 1 out of 2) **5**

(1) Draw the structure of Watson & Crick mode! of DNA.

(2) Explain UV absorption phenomenon and the effects of acids and alkali on DNA.

5 (A) Objective Type Questions : **4**

(1) What are porphyrins?

(2) Name any two metalloporphyrin occurring in nature.

(3) Name the pigments that are present in bile.

(4) Which vitamins are water soluble?

(B) Answer in brief : (Any 1 out of 2) **2**

(1) Write the two physiological significances of bile pigments.

(2) Write the names of any two deficiency diseases caused due to lack of vitamin A.

(C) Answer in detail : (any 1 out of 2) **3**

(1) Write the classification of porphyrins in brief.

(2) Write any three biological significances of vitamins.

(D) Write a note on : (any 1 out of 2) **5**

(1) Write a note on deficiencies and toxicities that arise due to fat soluble vitamins.

(2) Describe the detection of porphyrins sphectro-photometrically and by fluorescence.
