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PBG-003-1013022-A Seat No. _____

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

November / December - 2018

Biochemistry : Paper - 301

(Biomolecules)

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

1 (a) Write the correct answer for the questions : **4**

(1) What linkage is there between glucose molecules in cellulose?

(2) Give two examples of pentose sugars and mention their occurrence.

(3) Which group present in sugars give Saliwanoff test positive?

(4) Describe the term invert sugar.

(b) Write the Answer in Brief : (Any **One** out of Two) **2**

(1) Write the difference between amylose and amylopectin.

(2) Write the differences between reducing and non reducing sugar.

(c) Write the Answer in detail : (Any **One** out of Two) **3**

(1) Write a detail note on mutarotation.

(2) Explain classification of monosaccharide according to carbon number and functional group.

(d) Write the Short note in detail : (Any **One** out of Two) **5**

(1) Write a short note on structural polysaccharides in plants.

(2) What do you mean by optical isomer? Explain type of optical isomer.

2 (a) Write the correct answer for the questions : **4**

(1) Give the examples of polyunsaturated fatty acid (PUFA).

(2) Differentiate between fats and oils.

(3) Define: rancidity

(4) _____ lipoproteins have role in removing cholesterol from blood circulation and taking it back to liver and hence called 'good cholesterol'.

(b) Write the Answer in Brief : (Any **One** out of Two) **2**

(1) Differentiate between saturated and unsaturated fatty acids with examples.

(2) Draw structure of a 1, 2-diacylglycerol

(c) Write the Answer in detail : (Any **One** out of Two) **3**

(1) Write functions of cholesterol in human body.

(2) Give example of hydroxyl group containing fatty acid and write its natural occurrence and importance.

(d) Write the Short note in detail : (Any **One** out of Two) **5**

(1) Describe structures of different glycerophospholipids and their functions.

(2) Write a short note on functions of phosphiolipids.

3 (a) Write the correct answer for the questions : **4**

(1) Name the amino acid that lacks asymmetric carbon and doesn't have L and D forms.

(2) Which types of bond(s) is/are involved in primary structure of the proteins?

(3) Write two examples of acidic amino acids.

(4) What is zwitterion?

(b) Write the Answer in Brief : (Any **One** out of Two) **2**

(1) Define metalloproteins with suitable example.

(2) What is peptide bond? How it can be formed?

(c) Write the Answer in detail : (Any **One** out of Two) **3**

(1) Explain the titration curve of amino acid.

(2) Classify proteins according to function.

(d) Write the Short note in detail : (Any **One** out of Two) **5**

(1) Write the detail note on properties of amino acids.

(2) Give the structural classification of protein.

4 (a) Write the correct answer for the questions : **4**

(1) How thymine is different from Uracil?

(2) What is renaturation?

(3) Name the RNA involved in RNA processing.

(4) Name the 5 types of histones.

(b) Write the Answer in Brief : (Any **One** out of Two) **2**

(1) Draw the basic structure of DNA,

(2) Differentiate nucleoside and nucleotides,

(c) Write the Answer in detail : (Any **One** out of Two) **3**

(1) Draw structure of t-RNA and label it.

(2) Write a note on nucleosome.

(d) Write the Short note in detail : (Any **One** out of Two) **5**

(1) Explain the experimental evidence of nucleic acid as a genetic material.

(2) Write short note on Griffith experiment and its significance.

5 (a) Write the correct answer for the questions : **4**

(1) A 60 year old female patient is having osteoporosis, a condition result from calcium depletion in bones. As a treatment, which of the vitamin can be prescribed?

(2) Pellagra is caused due to deficiency of _____.

(3) Judge the, statement is true or not: "A patient with blockage of hepatic biliary network has increased "Direct" bilirubin in patient's blood."

(4) Which enzyme helps in incorporation of iron in protoporphyrin IX.

(b) Write the Answer in Brief : (Any **One** out of Two) **2**

(1) Write the rich sources of Vitamin A

(2) What happens to serum bilirubin levels in people suffering from haemolytic jaundice.

(c) Write the Answer in detail : (Any **One** out of Two) **3**

(1) What are the causes of obstructive jaundice? How will you differentiate it from other types of jaundice?

(2) Give the functions of and deficiency condition of Vitamin K.

(d) Write the Short note in detail : (Any **One** out of Two) **5**

(1) Write the rich sources, RDA, and functions of Vitamin D.

(2) Describe in detail the haem synthetic pathway.
