B.Sc. 4th Semester (Honours) Examination, 2019

Subject : Chemistry

Paper : SEC-2

(Analytical Clinical Biochemistry)

Time: 2 Hours **Full Marks: 40**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

1. Answer *any five* questions from the following: 2×5=10

(a) What is the emperical formula of carbohydrate? What is glycosidic linkage?

(b) Why are proteins called amphipathic molecule?

(c) What do you mean by polyunsaturated fatty acid? Give an example.

(d) What is ribozyme?

(e) What is substrate level phosphorylation?

(f) Define heterolactic fermentation with example.

(g) What do you mean by "Christmas factor"? What is its role in blood coagulation?

(h) What is "Zwitter ion"? Mention its total charge.

2. Answer *any two* questions from the following: 5×2=10

(a) Briefly describe the primary and secondary structure of protein. 5

(b) What is Chargaff's principle? Explain Watson-Crick's Base pairing rule. 2½+2½=5

(c) Define Michaelis-Menten constant. What are co-enzyme and co-factor? Give an example of enzyme inhibition. 2+2+1=5

(d) Explain central dogma of molecular biology. What is 'CAP'? 4+1=5

3. Answer *any two* questions from the following: 10×2=20

(a) (i) What is packed cell volume? What do you mean by extrinsic blood coagulation?

(ii) How is blood preserved in Blood Bank? Give example of two buffers present in blood. (2+2)+(4+2)=10

(b) (i) Write down the procedure of urine production.

(ii) What are the normal constituents of urine?

(iii) What is black urine disease? 5+3+2=10

(c) (i) What do you mean by glycolysis? Where does it occur?

(ii) Why is glycolysis called EMP pathway? Show the flowchart of glycolysis. Mention the significance of glycolysis. (2+1)+(2+3+2)=10

(d) (i) What do you mean by invert sugar? What are homopolysaccharide and heteropolysaccharide? Provide example for each.

(ii) Why is carbohydrate called as protein sparing food?

(iii) Explain what you mean by 'rancidity'. (2+4)+2+2=10
