



**DOON UNIVERSITY, DEHRADUN**  
**Final Semester Examination, B.Sc. III<sup>rd</sup> Semester, December, 2023**  
**School of Physical Sciences, Department of Chemistry**  
**NEP Chemistry**  
**Course Code: CYS-110: Analytical Clinical Biochemistry**

*Time Allowed 2 Hours*

*Maximum Marks: 30*

**Note: All Questions are compulsory**

**SECTION: A**

.....10 Marks

1. Write the different test involved in basic metabolic panel (BMP)?
2. Write the structure, systematic name and common name of 18:2 ( $\Delta^{9,12}$ ) and 20:4 ( $\Delta^{5,8,11,14}$ ) fatty acids?
3. Draw the structure of sphingomyelin lipid and 1-stearoyl, 2-linoleoyl, 3-palmitoyl glycerol?
4. When  $Pk_1$  value of glycine is 2.34 and  $Pk_2$  value is 9.60, then calculate the isoelectric point of glycine?
5. Write the structure of two positively charged and two aromatic R group amino acids?
6. Write the name of two cofactors and two coenzymes which involve to the transfer different chemical groups in the reaction?
7. Explain the structure of D-gluconate and N-Acetylneuraminic acid?
8. Write the chemical composition of urine?
9. Write the different classes of enzymes?
10. Write the reaction and enzymes involved for the conversion of fumarate to oxaloacetate?

**SECTION: B**

.....10 Marks

1. What is Blood and write the different compositions of Blood in detail?
2. What is steroid and explain the different types of steroids present in living beings? And explain the role and structure of cholesterol in detail?
3. Explain the alcoholic and lactic acid fermentation with mechanism?
4. Why all the proteins exhibit enantiomerism except glycine?
5. Explain the Lock and key and Induced fit hypothesis for enzyme action?

**SECTION: C**

.....10 Marks

1. Explain the structure and different components of DNA and RNA and their biological role?
2. Explain the primary, secondary, tertiary and quaternary structure of proteins and also explain the biological importance of proteins?