

**D 92980**

**(Pages : 2)**

**Name.....**

**Reg. No.....**

**FIRST SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2015**

**(CUCSS)**

General Biotechnology

**GB 1C 2 – BIOMOLECULES**

Time : Three Hours

Maximum : 36 Weightage

**Section A**

*Answer **all** questions.*

*Each question carries a weightage of 1.*

1. What is the importance of torsion angles in protein structure?
2. How **mineralocorticoids** affect mineral metabolism?
3. What do you mean by **isoelectric focussing**?
4. Explain the significance of **Henderson-Houselbalch** equation.
5. What are **isoprenoids**? Give examples.
6. List out the **phytohormones** that are commonly used on plant tissue culture and explain their function.
7. Write a note on sugar puckering.
8. What are non-protein amino acids? Give an example.
9. Draw the **zwitter** ion form of any *two* basic amino acids.
10. Biological systems obey first law of thermodynamics. Justify.

(10 x 1 = 10 weightage)

**Section B**

*Answer any **seven** questions.*

*Each question carries a weightage of 2.*

11. Discuss about the chemical basis of :
  - (a) **Osazone** formation.
  - (b) **Mutarotation**.(Draw structures)
12. With diagrams, explain the principle behind,
  - (a) Gel permeation chromatography.
  - (b) Affinity chromatography.

**Turn over**

13. Secondary metabolites can be a source of lead molecules for drug discovery. Explain with example.
14. Discuss about the significance of osmosis in biological system.
15. What are the different methods used for precipitation of proteins?
16. Give a brief idea about the biosynthesis of fatty acids.
17. Most of the B vitamins are precursors of enzymes. Justify the statement.
18. What are the salient structural features of B-DNA?
19. Distinguish between differential centrifugation and density gradient centrifugation.
20. Write a note on heteropolysaccharides.

(7 x 2 = 14 weightage)

### Section C

*Answer any **two** questions.*

*Each question carries a weightage of 6.*

21. Discuss about the contributions of NMR spectroscopy and X-ray crystallography in the structural analysis of proteins.
22. List out the hormones that affect blood sugar level and explain their action. Discuss about the mechanism of action of protein hormones.
23. Explain the biosynthesis of Guanine nucleotides.

(2 x 6 = 12 weightage)