

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2015 – 2016)

SUBJECT CODE: 15BI/PC/BC14

M. Sc. DEGREE EXAMINATION, NOVEMBER - 2015
BIOINFORMATICS
FIRST SEMESTER

COURSE : CORE
PAPER : BIOCHEMISTRY
TIME : 3 HOURS

MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS:

(20X1=20)

1. What are biomolecules?
2. Give examples for micro and macromolecules.
3. Define a bio system.
4. Give the molecular structure of water.
5. Give the cyclic structure of glucose.
6. What is the role of glucose-6-phosphate in carbohydrate metabolism?
7. Name the enzyme responsible for the transamination of glutamic acid.
8. How much energy in calories is produced after the β - oxidation of palmitic acid?
9. Define peptide bond.
10. Draw the structure of an amino acid that shows optical activity.
11. List out the nitrogenous bases in nucleic acids and draw the structure of any one base.
12. What is the difference between α and β sheet? Give an example for each.
13. Define biocatalyst.
14. Define K_m .
15. What is an allosteric site?
16. Prove enzymes are proteins with an example.
17. Define free energy.
18. Expand ATP.
19. What is Entropy?
20. What is the “Energy Currency”?

SECTION- B**ANSWER ANY FOUR QUESTIONS****(4X10=40)**

21. Elucidate the properties of water.
22. Write a note on glycogen metabolism.
23. Classify carbohydrates with suitable example.
24. Explain the β - oxidation of fatty acids.
25. Illustrate allosteric modulation.
26. Derive the Michaelis – Menten Equation and draw the M-M plot.
27. How are free energy, heat and enthalpy related? Explain.

SECTION – C**ANSWER ANY TWO QUESTIONS****(2X20=40)**

28. Explain the steps involved in the anaerobic and aerobic breakdown of glucose.
29. What are the four levels of protein structure? Explain the conformation of protein Structure with the help of the Ramachandran Plot.
30. Write a detailed note on enzyme inhibition.
31. Write short notes on: a) Respiratory Chain b) ATP synthesis hypothesis.
