STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2009 – 10)

SUBJECT CODE: BY/PC/BC14

M. Sc. DEGREE EXAMINATION, NOVEMBER 2009
BIOTECHNOLOGY
FIRST SEMESTER

COURSE : CORE
PAPER : BIOCHEMISTRY
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL QUESTIONS: **(20 x 1 = 20)**

1. Which of the following is not present in the cytoplasm?
   a) Golgi body b) Lysosomes c) Endoplasmic reticulum d) DNA.
2. pH is
   a) $-\log [H^+]$ b) $\log 1 / [H^+]$ c) Both a) & b) d) None of these.
3. The primary structure of a protein tells us about
   a) the number of amino acids present b) the order in which the amino acids are arranged c) Both a) & b) d) None of these.
4. Which of the following is hydrophobic?
   a) Carbohydrate b) protein c) Both A & B. d) Lipid
5. Which of the following is double stranded?
   a) m-RNA b) t-RNA c) DNA d) r-RNA
6. Glycogen is present in
   a) Liver b) muscle c) liver & muscle d) none of these.
7. TCA cycle takes place in
   a) Cell membrane b) mitochondria c) cytoplasm d) Nucleus.
8. The abbreviation "HMG" in HMG CoA stands for _____
9. Transamination involves transfer of _____ group.
10. Whenever a glucose molecule enters a cell it is immediately converted to _____.
11. The rate of enzyme catalyzed reaction is _____ when the initial reaction temperature is increased by 10°C.
12. A tripeptide has _____ peptide bonds.
13. The nucleus in the structure of the cholesterol molecule is _____.
14. Define oxidative phosphorylation.
15. Name two secondary structure of a protein.

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16. Define alkalosis.
17. Name the pathway that produces ribose for nucleic acid synthesis.
18. Expand SGOT and give its alternate name.
19. What is final end product of protein metabolism?
20. The different cell organelles are separated by a technique / process called _____.

SECTION – B

ANSWER ANY FOUR QUESTIONS: (4 x 10 = 40)

21. Describe the structure of proteins.
22. Describe the classification of enzymes with example.
23. Starting from glucose-6 phosphate write all the biochemical reactions leading to the formation of glycogen mentioning the enzymes, cofactors, coenzymes.
24. Write short notes on:
    a) oxidative deamination (3)
    b) alkalosis (3)
    c) isoenzymes (4)
25. Explain the β-oxidation of a fatty acid.
26. Describe the transfer of electrons in electron transport chain in detail.
27. How the blood glucose level is maintained ?

SECTION – C

ANSWER ANY TWO QUESTIONS: DRAW DIAGRAMS WHEREVER NECESSARY: (2 X 20 = 40)

28. Describe the application of any five enzymes in diagnosis.
29. Describe the TCA cycle and calculate the number of ATPs produced.
30. Describe a) digestion and absorption of carbohydrates b) why glucose cannot be made from fat?
31. Describe the urea cycle.

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