STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2011–12and thereafter)

SUBJECT CODE: 11CH/AC/BC33

B.Sc. DEGREE EXAMINATION, NOVEMBER 2015
BRANCH V(a) – PLANT BIOLOGY & PLANT BIOTECHNOLOGY
BRANCH VI(a) - ADVANCED ZOOLOGY & BIOTECHNOLOGY
THIRD SEMESTER

REG.NO ……..

COURSE : ALLIED CORE
PAPER : BIOCHEMISTRY - I
TIME : 30 MINUTES **MAX.MARKS :30**

SECTION – A (30x1=30)

ALL QUESTIONS TO BE ANSWERED
ANSWER ON THE QUESTION PAPER ITSELF:

I.CHOOSE THE CORRECT ANSWER:

1. In acidosis the HCO_3/pCO_2 ratio is less than
   a) 50 b) 40 c) 30 d) 20

2. The alkalinity of blood is increased by the presence of high levels of
   a) Na^+ b) K^+ c) Ca^{++} d) All of these

3. Glyceraldehyde is an example for
   a) Diose b) triose c) tetrose d) pentose

4. Cellulose is
   a) Highly insoluble and readily hydrolyses
   b) Highly soluble and readily hydrolyses
   c) Highly insoluble and resistant to hydrolysis
   d) Highly soluble and resistant to hydrolysis

5. The Michaelis – Menten Plot is a
   a) Hyperbolic curve b) Epibolic curve c) Straight line d) Diagonal line

6. Km value represents
   a) Enzyme concentration b) substrate concentration
   c) Activation curve d)Inhibition curve

7. High energy compounds provide energy for
   a) Cellular processes b) covert irreversible processes reversible
   c)botha&b d)neither a nor b

8. P~P is expanded as
   a) phosphophosphate b) pyrophosphate
   c)phosphorylphosphate d)phosphate phosphoryl.

9. Transaminases fall under the class
   a) Isomerases b) ligases c) transferases d) lyases

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10. The process of formation of fumarate from succinate is an example for
    a) Oxidative phosphorylation b) substrate level phosphorylation
    c)photophosphorylation d) none of these

II. FILL UP THE BLANKS:

11. _____ uses the principle of diffusion in the extraction and purification of proteins.
12. SDS is an _____ detergent which imparts a negative charge to the protein.
13. The α and β forms of glucose are called _____.
14. The _____ ring is a five membered ring structure.
15. Energy in the form of heat is measured in terms of _____.
16. Standard free energy is denoted by the symbol _____.
17. _____ is the study of energy transformations in biological systems.
18. Ubiquinone is also known as _____.
19. _____ is a reducing disaccharide.
20. Embden Meyerhof pathway is also called _____.

III.STATE WHETHER TRUE OR FALSE:

21. The acid – base balance is maintained by proper respiratory mechanism.
22. Amylopectin is the less branched component of starch.
23. Optimum temperature for enzyme activity is between $20^oC – 30^oC$.
24. In an endergonic reaction $\Delta G<0$.
25. EC number of enzymes is the Enzyme Commission Number.

IV. ANSWER IN ONE OR TWO SENTENCES:

26. Define pH.

27. Draw the Haworth structure of glucose.

28. Defineapoenzymes.

29. Define Entropy.

30. What is free energy?

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COURSE : ALLIED CORE
PAPER : BIOCHEMISTRY - I
TIME : 2½ HOURS **MAX.MARKS : 70**

SECTION – B **(5x6=30)**

Answer any FIVE questions:

1. Write a note on the electrolytes present in our body. What are their importance?
2. Classify the polysaccharides with suitable examples.
3. Write a note on the factors that affect enzyme action.
4. What are energy rich compounds? Explain.
5. List out and explain the steps in glycogenesis.
6. Illustrate the mechanism of enzyme action by the Fischer and Koshland hypothesis.
7. Water the "Elixir of life," explain this statement.

SECTION – C **(2x20=40)**

Answer any TWO questions:

8. a) Write a note on ATP and ADP as high energy compounds. Explain the role of ATP as the energy currency of the cell. (10)
   b) Explain the sequential steps involved in gluconeogenesis (10)
9. Explain Glycolysis and the TCA cycle.
10. Write notes on: a) SDS PAGE b) Digestion and absorption of disaccharidesand polysaccharides in the body.

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