

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

**SUBJECT CODE: 11CH/AC/BC33**

**B.Sc. DEGREE EXAMINATION, NOVEMBER 2014**  
**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**  
**(30x1=30)**

**SECTION – A**  
**ALL QUESTIONS TO BE ANSWERED**  
**ANSWER ON THE QUESTION PAPER ITSELF:**

**I. CHOOSE THE CORRECT ANSWER:**

1. The normal pH of blood is  
a) 7                      b) 7.4                      c) 7.6                      d) 6.7
2. SDS – PAGE is used for separation of  
a) DNA                      b) RNA                      c) proteins                      d) Both DNA and proteins
3. Which of the following is not a aldose sugar  
a) altrose                      b) allose                      c) gulose                      d) ribulose
4. Which of the following is composed of  $\beta$  glycosidic linkages?  
a) starch                      b) cellulose                      c) glycogen                      d) dextrin
5. E.C. No. means  
a) Enzyme commission number                      b) Enzyme code number  
c) Enzyme catalytic number                      d) Enzyme carrier number
6. The class of enzymes involved in synthetic reactions are  
a) lyases                      b) ligases                      c) isomerases                      d) transferases
7. Name the phosphate compound with the greatest standard free energy  
a) ATP                      b) phosphocreatine                      c) cAMP                      d) phosphoenolpyruvate
8. A negative sign for free energy indicates that the reaction is  
a) endergonic                      b) exergonic                      c) both a&b                      d) neither a nor b
9. Galactose differs from glucose at carbon  
a) 4                      b) 3                      c) 2                      d) 5
10. The enzyme involved in the conversion of urea to ammonia is  
a) uricase                      b) urinase                      c) urease                      d) aminase

**II. FILL UP THE BLANKS:**

11. The body's acid load is predominantly eliminated in the form of \_\_\_\_\_
12. Water is the universal \_\_\_\_\_ effecting many chemical reactions.
13. The carbohydrate used to write the configuration of other carbohydrates is \_\_\_\_\_.
14. The a and b forms of glucose are referred to as \_\_\_\_\_.
15. The protein part of holoenzymes is called \_\_\_\_\_.
16. The place where the substrate binds to the enzyme is called \_\_\_\_\_.
17. The bonds responsible for a majority of high energy compounds are \_\_\_\_\_.
18. The relationship between free energy ( $\Delta G$ ), entropy ( $\Delta S$ ) and enthalpy ( $\Delta H$ ) is expressed by the equation \_\_\_\_\_.
19. \_\_\_\_\_ is a non-reducing disaccharide.
20. Enzymes lose their catalytic activity at high temperatures due to \_\_\_\_\_.

**III. STATE WHETHER TRUE OR FALSE:**

21. A buffer may be defined as a solution of an acid and its salt.
22. Dextrose is the solid form of glucose.
23. ATP is the most important high energy compound.
24. Specificity of an enzyme is not the property of the active site.
25. Furan ring structure is the normal cyclic form of glucose.

**IV. ANSWER IN ONE OR TWO SENTENCES:**

26. Define pH.
  
  
  
  
  
  
  
  
  
  
27. What are homopolysaccharides?
  
  
  
  
  
  
  
  
  
  
28. Define  $K_m$ .
  
  
  
  
  
  
  
  
  
  
29. What are high energy compounds?
  
  
  
  
  
  
  
  
  
  
30. Define coenzymes.

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**TIME : 2½ HOURS**

**MAX.MARKS : 70**

**SECTION – B**

**(5x6=30)**

**Answer any FIVE questions:**

1. Write a note on the biomedical importance of water.
2. Explain the digestion process of carbohydrates and the maintenance of blood glucose levels.
3. Write a note on Electron Transport chain.
4. List out and explain the factors that affect enzyme action.
5. Classify enzymes with examples.
6. Elucidate the role of ATP as a high energy compound.
7. Differentiate acidosis and alkalosis.

**SECTION – C**

**(2x20=40)**

**Answer any TWO questions:**

8. Write on the principle, technique and applications of SDS-PAGE.
9. Illustrate the steps in the anaerobic and aerobic breakdown of glucose.
10. Write notes on   a) Lock and Key mechanism    b) Induced fit mechanism  
                          c) Enzyme specificity                    d) Michaelis –Menten plot.

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