

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**  
**(For candidates admitted during the academic year 2015-16 & thereafter)**

**SUBJECT CODE: 15CH/AC/FB43**

**B.Sc. DEGREE EXAMINATION, APRIL 2018**  
**BRANCH V.A. – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**  
**BRANCH VI.A. – ADVANCED ZOOLOGY AND BIOTECHNOLOGY**  
**FOURTH SEMESTER**

**COURSE : ALLIED – CORE**  
**PAPER : FUNDAMENTALS OF BIOCHEMISTRY - II**  
**TIME : 3 HOURS** **MAX. MARKS : 100**

**SECTION – A**

**ANSWER ALL QUESTIONS: (30 X 1 = 30)**

**I. CHOOSE THE CORRECT ANSWER:**

1. Which of the following is/are unsaturated fatty acids  
a) Linoleic acid    b) oleic acid    c) Palmitic acid    d) all of these
2. Liquid form of triglycerides at room temperature are called  
a) Oils    b) liquor    c) fats    d) none of these
3. Amino acids are linked together by  
a) Hydrogen bonds    b) peptide bonds    c) ionic bonds    d) glycosidic bond
4. Haemoglobin has \_\_\_\_\_ structure  
a) Primary    b) secondary    c) tertiary    d) quaternary
5. Which of the following is a function of insulin?  
a) Agonistic to insulin    b) decreases glycogen storage in liver and muscle  
c) reduces hyperglycemia    d) all of these
6. An example of steroidal hormone  
a) insulin    b) Thyroxin    c) Oestrogen    d) none
7. Which of the following is a purine?  
a) Cytosine    b) Adenine    c) Thymine    d) Uracil
8. Left handed DNA is  
a) A-DNA    b) B-DNA    c) C-DNA    d) Z-DNA
9. Risk of high cholesterol and heart diseases in women is best seen after the age of  
a) 16yrs-20yrs    b) 25yrs-30yrs    c) 50yrs-55yrs    d) above 65yrs
10. The platelet count is vital in the case of  
a) Typhoid    b) Cholera    c) Dengue    d) Dysentery

**II. FILL IN THE BLANKS:**

11. The adjacent nucleotides of DNA are joined by \_\_\_\_\_ bond .
12.  $\beta$ - Oxidation takes place in the \_\_\_\_\_.
13. Disulphide bonds are formed between two \_\_\_\_\_ amino acids.
14. The transfer of an amino group from an amino acid to a keto acid is called \_\_\_\_\_.
15. Epinephrine and norepinephrine are produced by the adrenal \_\_\_\_\_.
16. \_\_\_\_\_ number of non-essential amino acids are synthesized in our body.
17. The adjacent nucleotides of DNA are joined by \_\_\_\_\_ bond.
18. Nucleic acids can be analysed experimentally by their absorption of \_\_\_\_\_ light.
19. A combination of cholesterol and protein is called a \_\_\_\_\_.
20. HbA1c is used routinely to monitor long term glycemic control in people with \_\_\_\_\_.

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

21. Arachidonic acid is an essential amino acid.
22. The primary structure represents the helical structure of proteins.
23. The mammary gland is part of the endocrine system.
24. A nucleotide consists of paired bases.
25. After menopause a women's LDL cholesterol goes up and increases the risk of heart diseases.

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

26. What are waxes?
27. Give the structure of any one aromatic amino acid.
28. What are hormones?
29. What are the types of RNA?
30. What does an increase in TSH levels indicate?

**SECTION – B****ANSWER ANY FIVE QUESTIONS:****(5x6 = 30)**

31. Classify lipids.
32. Write a note on the digestion and absorption process of lipids.
33. List out and explain the Urea Cycle.
34. Illustrate the secondary and tertiary structure of proteins.
35. Elaborate on the mechanism of action of insulin on glucose metabolism.
36. Draw a neat labeled diagram of the DNA and explain its structure.
37. Explain the significance of HbA1c. What should be the normal value of HbA1c?

**SECTION – C****ANSWER ANY TWO QUESTIONS:****(2x20 = 40)**

38. Describe the steps in  $\beta$ - oxidation of fatty acids and explain its bioenergetics.
39. Classify amino acids based on their R groups.
40. Write short notes on: a) Functions of thyroxin, b) DNA replication.



