**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**
**(For candidates admitted during the academic year 2019-20 & thereafter)**

**SUBJECT CODE: 19CH/AC/FB43**

**B.Sc. DEGREE EXAMINATION, APRIL 2022**
**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 not an essential fatty acid?
   a) palmitic acid b) linoleic acid c) Arachidonic acid d) Linolenic acid
2. The major site for fat digestion is the
   a) Large intestine b) small intestine c) stomach d) colon
3. Peptide bonds can be hydrolysed by
   a) proteins b) proteases c) peptone d) aminases
4. All genetic information is present in the
   a) RNA b) mRNA c) DNA d) hnDNA
5. The RNA called as adaptor mo;ecule
   a) mRNA b) rRNA c) tRNA d) all of these
6. C – 16 fatty acid undergoes the following number of BETA – oxidation
   a) 7 b) 8 c) 9 d) 6
7. Metabolic rate is controlled by _____
   a) thyroid b) pancreas c) pituitary d) liver
8. A tripeptide contains the following number of amino acids.
   a) 2 b) 4 c) 3 d) 5
9. The number of hydrogen bonds between guanine and cytosine are
   a) three b) two c) four d) five
10. HbA1c test is studied in _____patients
    a) Anemic b) Diabetic c) Cancer d) all of these

**II. FILL IN THE BLANKS:**

11. The chain length of the fatty acid is determined by _____
12. Ninhydrin reagent forms a _____ colour with amino acids.
13. The first step in protein synthesis is the transcription of mRNA from _____ in the nucleus
14. The RNA that encodes amino acid sequences of a polypeptide is _____
15. The hormone responsible for the fight or flight response is _____
16. Zwitter ion of glycine is _____
17. Ala-gly-val is a _____ peptide.
18. iodine value of an oil is defined as _____
19. Nucleosides are composed of nitrogenous base and _____sugar
20. Linoleic acid and Linolenic acid are examples for _____acids

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

21. Amino acids are amphoteric in nature.
22. Diabetes Mellitus is due to the deficiency of Glucagon
23. Information on the DNA is transcribed by mRNA.
24. Haemoglobin has four subunits held by protein –protein interaction.
25. Unsaturated fatty acids are long chain carboxylic acids containing only carbon-carbon single bonds.

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

26. Define Ketone bodies.
27. What is the function of rRNA?
28. List the steroid hormones.
29. What is Central Dogma?
30. Define centrifugation

**SECTION – B**

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

31. Define Iodine Value, Acid value & saponification value of lipids.
32. Explain the principle of paper chromatography. List any two applications of the same.
33. Classify lipids as saponifiable and non saponifiable lipids with suitable examples.
34. Discuss the sequential steps involved in Urea Cycle.
35. Draw and explain with a neat and labeled diagram the Watson and Crick model of DNA. List the functions of DNA.
36. Explain the action of amino acids with a) DNFB b) HCHO c) HCl
37. Discuss the source and functions insulin and thyroxin.

**SECTION – C**

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

38. a) Elucidate the primary, secondary and tertiary structure of proteins
    b) Discuss the process of digestion and absorption of proteins
    c) What is transamination ?Explain with an example (9+6+5)

39. Explain the following:
    a) β- oxidation of fatty acids
    b) steroidal and non-steroidal mechanism of hormone action (10+10)

40. Explain in detail the steps of transcription and translation involved in protein biosynthesis.