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

B.Sc. DEGREE EXAMINATION, APRIL 2024
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
SUBJECT CODE : 19CH/AC/FB43

TIME : 3 HOURS MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS: (30 X 1 = 30)

I. CHOOSE THE CORRECT ANSWER:

1. ---------- is an essential fatty acid
   a. Butryic acid b. Palmitic acid c. Linolenic acid d. Stearic acid
2. The number of fatty acids in triglyceride ----------
   a. 3 b. 2 c. 1 d. 0
3. The number of molecules of ninhydrin required to form ruhemans purple is ---------
   a. 3 b. 2 c. 1 d. 0
4. ---------- is the pH at which an aminoacid has equal number of cations and anions
   a. pI b. [H]+ c. [OH]- d. None
5. ---------- is the pentose sugar present in RNA
   a. Deoxyribose b. Hexose c. Ribose d. Both a and c
6. According to Erwin chargaff's rule the ratio of A/T is -------
   a. 3 b. 2 c. 1 d. 0.5
7. An example for ovarian hormone is ----------
   a. Aldosterone b. Thyroxine. c. Testosterone d. Estrone
8. ---------- hormone reduces the blood sugar level
   a. Glucagon b. Insulin c. Both a and b d. None
9. Underactivity of thyroid hormones leads to ----------
   a. Diabetes b. Cancer c. Blindness d. Cretinism
10. The number of milligrams of KOH required to neutralize free fatty acid in oil or fat is
    a. Acid Value b. Saponification value c. RM value d. Iodine value

II. FILL IN THE BLANKS:

11. Rancidity of fat is ----------.
12. The number of double bonds in linolenic acid is ----------
13. The process of regaining normal protein properties by a denatured protein is called as ----------
14. An example of acidic amino acid ----------
15. Guanine bonds with cytosine by ---------number of hydrogen bonds.
16. ---------RNA is called adaptor molecule
17. ---------- glands release their secretions by means of ducts.
18. 3,5,3',5' tetra iodothyronine is also called as ----------.
19. The technique involving migration of charged species in electric field is ----------
20. ---------- is the technique of separation of substances based on the partition coefficient between two immiscible phases.

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III. MATCH THE FOLLOWING:

21. LDL	a. RNA
22. Cysteine	b. Replication
23. Uracil	c. Sulphur aminoacid
24. Proteins	d. Bad cholesterol
25. DNA polymerase	e. Electrophoresis

IV. DEFINE THE FOLLOWING:

26. Hormones
27. Peptide bond
28. RM value
29. Translation
30. Dialysis

SECTION – B

ANSWER ANY FIVE QUESTIONS: (5x6 = 30)

31. Describe the functions and clinical significance of the hormones produced by thyroid gland.
32. Discuss the secondary structure of protein.
33. Explain transamination and oxidative deamination reactions with an example.
34. Explain how fatty acids are oxidized by β-oxidation pathway.
35. Highlight the salient features of B-DNA
36. Differentiate the types of RNA with their structure and functions.
37. Explain the principle and applications of SDS-PAGE technique.

SECTION – C

ANSWER ANY TWO QUESTIONS: (2x20 = 40)

38. (a) Discuss in detail about the biosynthesis of fatty acids. (10)
    (b) Explain how lipids are digested and absorbed in the biological system. (10)

39. (a) Discuss the reactions of urea cycle and state its significance. (10)
    (c) Discuss about the classification of amino acids based on side chain. (10)

40. (a) Discuss the principle and working of HPLC (10)
    (b) Explain the process of transcription and translation in protein synthesis. (10)