

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2019–20 & thereafter)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023
BRANCH IV- CHEMISTRY
FIFTH SEMESTER

COURSE : MAJOR CORE
PAPER : BIOCHEMISTRY
SUBJECT CODE : 19CH/MC/BC54
TIME : 3 HOURS

MAX.MARKS : 100

SECTION - A

(30x1=30)

Answer ALL questions.

I Choose the correct Answer:

1. The work horses in a living cell are
a) Carbohydrates b) Proteins c) Nucleic Acids d) Minerals
2. Sickle Cell Anaemia is due to the replacement of Glutamic acid by
a) Glutamine b) Glycine c) Valine d) Aspartic Acid
3. Peptide bond is formed with the liberation of
a) CO₂ b) NH₃ c) H₂O d) COOH
4. The deliberate contamination of oils and fats can be identified by checking its
a) RM value b) Iodine value c) Saponification value d) Acid value
5. Which of these enzymes catalyses the reverse reaction in glycogen metabolism
a) Phosphoglucomutase b) Glucokinase
c) Glycogen phosphorylase d) Glucose-6-phosphatase
6. Albinism is caused due to the lack of
a) Albinase b) Tyrosinase c) Melanase d) Allinase
7. The enzymes that catalyse the interconversion of molecules are
a) Ligases b) Isomerases c) Transferases d) Lyases
8. Allosteric site means
a) Active site b) Inhibition site c) Same site d) Another site
9. Which of the following is a water-soluble vitamin?
a) Vitamin A b) Vitamin D c) Vitamin E d) Vitamin C
10. Which of the following is a non-steroid hormone?
a) Testosterone b) Aldosterone c) Estriol d) Calcitonin

II Fill in the blanks:

11. Factor IV involved in blood clotting is _____.
12. _____ studies the chemical composition of the living body and hence important in medicine.
13. An ion that contains both positive and negative electrical charges is a _____.
14. The free hydroxyl groups in oils and fats can be measured by _____ value.
15. The TCA cycle occurs in the _____ of the cell.
16. The degradation process where one amino acid is converted to another amino acid is called _____.
17. Kinases usually need _____ ions as cofactor.
18. The induced fit model was proposed by _____.
19. _____ is known as the “fight or flight hormone.”
20. Vitamin H is also called _____.

III State whether true or false:

21. The study of biochemistry involves the chemical reactions occurring in plants and animals.
22. FDNB is converted to DNP derivative in Sanger's reaction.
23. Energy is produced in the form of ADP at the end of oxidative phosphorylation.
24. Formation of a product is independent of concentration of substrate and enzyme.
25. Vitamin K is an essential Vitamin.

IV Answer the following in a line or two:

26. Define pH.
27. What happens when proteins get denatured?
28. What is gluconeogenesis?
29. Expand TPP.
30. What is the disease caused by the deficiency of vitamin C.

SECTION - B**(5x6=30)****Answer any FIVE questions:**

31. Elucidate on the composition of blood.
32. Differentiate between Acidosis and Alkalosis.
33. Describe the primary and secondary structure of proteins.
34. Elaborate on the types of RNA.
35. Explain the steps in Urea Cycle.
36. Differentiate and explain competitive and non-competitive inhibition.
37. Identify the source and functions of insulin and thyroxin.

SECTION - C**(2x20=40)****Answer any TWO questions:**

38. Write a note on DNA replication and synthesis of proteins. (10+10)
39. Explain the steps in a) glycolysis and b) Gabriel synthesis. (12+8)
40. Write a note on a) Classification of enzymes and
b) Structure and Functions of Carboxypeptidase. (8+12)
