

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2015–16 & thereafter)

SUBJECT CODE: 15CH/MC/BC54

B.Sc. DEGREE EXAMINATION, NOVEMBER 2017
BRANCH IV- CHEMISTRY
FIFTH SEMESTER

COURSE : MAJOR CORE
PAPER : BIOCHEMISTRY
TIME : 3 HOURS

MAX.MARKS : 100
(30x1=30)

SECTION - A

Answer ALL questions.

I Choose the correct Answer:

1. The fluid fraction of blood is known as _____
a) plasma b) erythrocytes c) platelet d) leuckocytes
2. Which of the following is not an anti-coagulant?
a) coumarine b) vitamin K c) heparin d) citric acid
3. The inter nucleotide linkage present in a polynucleotide is _____
a) 3'-5' phosphodiester linkage b) 3'-5' diphosphoether linkage
c) 3'-phosphate linkage d) 5' phosphate linkage
4. An example for a saponifiable lipid is _____
a) Cholestrol b) lecithin c) vitamin A d) carotene
5. The number of peptide bonds in a tripeptide is _____
a) three b) two c) one d) five
6. A person with phenylketonuria cannot convert _____
a) phenylalanine to tyrosine b) phenylalanine to isoleucine
c) phenol to ketones d) phenylalanine to lysine.
7. Catalase belongs to the class of enzymes called _____
a) transferases b) lyases c) oxido-reductases d) hydrolases
8. K_m is equal to _____
a) $V-1$ b) $[S]$ when $V=V_m$ c) $[S]$ when $V=0$ d) $[S]$ when $V=1/2V_m$
9. A hormone which inhibits the contraction of uterus during pregnancy is _____
a) progesterone b) estrone c) testosterone d) androsterone
10. Endemic Goitre is caused by _____
a) lack of iodine b) excess of thyroxine c) lack of thyroxine d) excess of chlorine

II Fill in the blanks:

11. The number of molecules of ATP synthesized by the complete oxidation of glucose is _____.
12. The pH of blood is _____.
13. Linseed oil is a _____ oil since it has a high iodine value.
14. Sanger's reagent is _____.
15. Bile acids help to _____ the fat molecules in the food.
16. The formation of glucose from glycogen is known as _____.
17. The enzyme which has absolute specificity is _____.
18. The non-protein part of a holoenzyme is called _____.
19. The β cells of islets of Langerhans secrete _____ hormone.
20. An example of catechol amine hormone is _____.

III State whether true or false:

21. Anaemia is due to iron deficiency.
22. RNA polymerase helps in transcription.
23. A net gain of 2 ATP molecules is obtained by anaerobic oxidation of one molecule of glucose to pyruvate.
24. TPP is an apoenzyme.
25. Adrenal medulla secretes steroid hormones.

IV Answer the following in a line or two:

26. How is the pH of blood maintained?
27. Give the structure of NADP.
28. Define isoelectric point.
29. Mention the significance of Ramachandran plot?
30. What are endocrine glands?

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

31. What is the mechanism of blood coagulation?
32. What are lipids? How are phospholipids classified?
33. Explain the TCA cycle.
34. How are hormones classified? Explain with suitable examples.
35. Describe the factors affecting enzyme action in detail.
36. Predict the products of the reactions of amino acids with
 - a) formaldehyde
 - b) Cu^{2+}
 - c) action of heat on α -aminoacids
37. What are the different kinds of RNA? Give their functions.

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

38. a) Elaborate on the primary and secondary structures of proteins. (13)
 b) What is Sickle cell anaemia? How is it caused? (3)
 c) How is glycine synthesized using Gabriel's synthesis? (4)
39. a) Explain the different types of enzyme inhibition. (12)
 b) Elaborate on the different models of enzyme action. (8)
40. a) Write note on the biosynthesis of proteins. (12)
 b) Give an account of insulin with respect to its structure and functions. (4)
 c) Differentiate between acidosis and alkalosis. (4)
