LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **ADV. ZOOLOGY & PLANT BIO. AND BIOTECH.**

FIRST SEMESTER – **APRIL 2016**

CH 1100 - CHEMISTRY FOR BIOLOGISTS - I

Date: 05-05-2016   Dept. No.   Max. : 100 Marks
Time: 01:00-04:00

Part-A

Answer ALL questions.   **(10 x 2= 20)**

1. What is meant by precision of a measurement?
2. Give any two advantages of thin layer chromatography over paper chromatography.
3. Why is boiling point of butane higher than 2-methylpropane?
4. Mention any two functions of hemoglobin.
5. Distinguish between the terms, end point and equivalence point.
6. What is buffer solution? Cite an example.
7. State 'rate law'.
8. Write any two enzymes involved in biological system.
9. Define the term saponification.
10. Give the structure of vitamin A.

Part-B

Answer any EIGHT questions.   **(8 x 5= 40)**

11. Write the general rules in the storage and handling of chemicals.
12. Discuss the types of error.
13. How is paper chromatographic separation carried out?
14. Explain the hybridization and geometry of the following molecule i) NH_3 ii) H_2O
15. Discuss the optical isomerism present in octahedral complexes.
16. Write a note on Van der Waal's forces with suitable examples.
17. Define the following terms a) Normality b) ppm
18. Enlist the requirements for a good primary standard.
19. Differentiate between order and molecularity of a chemical reaction.
20. Discuss homogenous and heterogeneous catalysts with suitable example.
21. What are vitamins? How are they classified?
22. Write the functions of vitamin D and K.

Part-C

Answer any FOUR questions.   **(4 x 10= 40)**

23. Give an account on the principle and applications of column chromatography. **(10)**
24a. What are the first aid procedure to be followed in the laboratory?   **(5)**
  b. Explain the crystal structure of sodium chloride.   **(5)**
25a. Write the postulates of Werner's theory.   **(5)**
  b. Discuss the types of hydrogen bonding with suitable examples.   **(5)**
26a. Derive Henderson equation and mention its significances.   **(7)**
  b. How will you prepare 500 mL of 1N $K_2Cr_2O_7$ solution? (Equivalent mass of $K_2Cr_2O_7$ = 49.02)
                                                                                 (3)
27. Derive an expression for the rate constant of a second order reaction of the type
       $2A \rightarrow$ product.
28. What are hormones? Give the structures of adrenaline and thyroxin .Mention their biological functions.
                                                                                 (2+4+4)

****