



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION –ADV.ZOOLOGY & PLANT.BIOLOGY**

FIRST SEMESTER – NOVEMBER 2017

**CH 1100 - CHEMISTRY FOR BIOLOGISTS - I**

Date: 07-11-2017  
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

**Part-A**

*Answer ALL questions.*

**(10 × 2= 20)**

1. Differentiate between precision and accuracy.
2. Define  $R_f$  value.
3. Write the biological functions of haemoglobin.
4. What is meant by dipole-dipole interaction?
5. Calculate the normality of a solution containing 10 g of sodium hydroxide dissolved in 1000 mL of water.
6. What is buffer solution? Cite an example.
7. State rate law.
8. Mention any two enzymes used in industry.
9. What are hormones? Give an example.
10. Write the functions of vitamin A.

**Part-B**

*Answer any EIGHT questions.*

**(8 × 5= 40)**

11. What are the general rules to be observed in the storage and handling of chemicals?
12. Discuss the types of error.
13. Explain the principle of paper chromatography.
14. Explain the crystal structure of NaCl.
15. Discuss the hybridization and geometry of the following molecule i)  $\text{CH}_4$  ii)  $\text{H}_2\text{O}$
16. Describe the geometrical isomerism exhibited by square planar complexes.
17. What are the criteria of a primary standard? Cite an example.
18. Give the definitions of i) molarity ii)  $\text{pK}_a$
19. Write the differences between order and molecularity of a chemical reaction.
20. What are homogeneous and heterogeneous catalysts? Explain with suitable examples.
21. Write a note on saponification.
22. Write the functions of vitamin B and vitamin E.

**Part-C**

Answer any **FOUR** questions.

(4 × 10= 40)

23. Give an account on the principle and applications of thin layer chromatography.
24. a) What are the first aid procedures to be followed in the laboratory? (5)  
b) What are the postulates of Werner's theory? (5)
25. a) Give the structure of chlorophyll and mention its function. (5)  
b) Discuss the types of hydrogen bonding with suitable examples. (5)
- 26.a) Derive Henderson-Hasselbalch equation for an acidic buffer solution. Mention its significance. (8)  
b) Calculate the pH of 0.001N HCl. (2)
27. Derive an expression for the rate constant of a second order reaction of the type  
 $2A \rightarrow \text{Product}$ .
28. Draw the structure and discuss the functions of the following (5+5)  
i) Thyroxin                      ii) Vitamin C

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