



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

**B.Sc. DEGREE EXAMINATION – ADVANCED ZOOLOGY AND PLANT BIOLOGY**

**THIRD SEMESTER – APRIL 2018**

**16UCH3AL03- GENERAL CHEMISTRY FOR BIOLOGY-I**

Date: 03-05-2018  
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

**Part-A**

*Answer ALL questions.*

**(10 × 2= 20)**

1. Write the precautions to be considered in handling ethers.
2. Define accuracy in chemical analysis.
3. Mention the hybridization and structure of CH<sub>4</sub> molecule.
4. What are the stabilizing forces in protein and DNA?
5. Write Henderson–Hasselbalch equation.
6. How is 1 Litre of 0.05N NaOH solution prepared?
7. Write an example for homogeneously catalyzed reaction.
8. Define the rate of a reaction.
9. What are Provitamins? Write an example.
10. Write the chemical names of the following biomolecules  
a) vitamin C b) vitamin A

**Part-B**

*Answer any EIGHT questions.*

**(8 × 5= 40)**

11. Discuss the methods of eliminating errors.
12. Explain the procedure for solvent extraction.
13. Describe the method of thin layer chromatography.
14. Discuss the structure of CsCl.
15. Write a note on hydrogen bonding.
16. What are the biological functions of hemoglobin?
17. What are buffer solutions? Explain with two examples how the buffer solutions act.
18. Explain the ionic product of water.
19. Distinguish between order and molecularity of reaction.
20. Derive the rate expression for the first order chemical reaction.
21. Explain the chemical reaction to show how triglyceride is formed from fatty acids and glycerol.
22. Discuss the structure, sources and functions of vitamin K.

### Part-C

Answer any **FOUR** questions.

(4 × 10= 40)

23. Explain absolute and relative errors in chemical analysis. (5+5)
24. Discuss the structure and function of chlorophyll. (5+5)
25. Explain the following methods of expressing concentration with an example each  
a) Normality b) Molarity c) Molality d. Parts per million (4 X 2.5)
- 26a. Write a note on the principle of volumetric analysis. (5)
- b. Explain the geometrical isomerism in the following types of coordination complexes  
(i)  $[Ma_4b_2]^{n\pm}$  (ii)  $[M(AA)_2b_2]^{n\pm}$  (2.5+ 2.5)
27. Discuss the characteristics and mechanism of heterogeneous catalysis.
- 28a. Explain the structure and the functions of Adrenaline.
- b. Write sources of Vitamin A, C, D and E. (6+4)

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