LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **NOVEMBER 2013**

CH 3104 - CHEMISTRY FOR BIOLOGISTS - I

Date : 16/11/2013   Dept. No. [   ]   Max. : 100 Marks
Time : 9:00 - 12:00

Part-A

Answer all questions. Each question carries two marks.

1. Define lattice energy.

2. Mention any four properties of covalent bond.

3. State the principle of volumetric analysis.

4. Calculate the pH of 0.0001M HCl solution.

5. Give two examples for first order reaction.

6. What is meant by heterogeneous catalysis? Give an example.

7. What are lyophilic colloids? Give an example.

8. Define Tyndall effect.

9. Arrange the following bases in the increasing order of basicity

   R_2NH, RNH_2, NH_3, and R_3N.

10. How is nylon-6,6 prepared?

Part-B

Answer eight questions. Each question carries five marks.

11. Discuss the various factors affecting the formation of ionic bond.

12. Write a note on dipole – induced dipole interaction.

13. Explain the shape of ammonia and water based on VSEPR theory.

14. What are primary and secondary standard solutions? Give an example each.

15. Define buffer solution? Explain its types with an example.

16. Differentiate between order and molecularity.

17. What are enzymes? Explain its application in various industries.

18. Write a note on electrophoresis.

19. Explain various types of colloids with examples.

20. Describe two types of polymerisation with an example.

21. How will you convert natural rubber into hard rubber?

22. Discuss the optical isomerism exhibited by lactic acid.

Part-C

Answer four questions. Each question carries ten marks.

23a. Describe the structure of KCl.

  b. Explain the types of hydrogen bonding with examples.   (6+4)

24a. Discuss the geometrical isomerism observed in octahedral complexes.

  b. Explain any four important characteristics of catalyst.   (6+4)

25a. Define molarity and mole fraction.

  b. Differentiate between HDPE and LDPE.   (5+5)

26a. What is inductive effect? Explain its types.

  b. What are diastereomers and enantiomers?   (6+4)

27a. Derive an expression for the determination of rate constant of second order reaction.

  b. Calculate the half-life period of first order reaction.   (6+4)

28a. Write the differences between coagulation and peptisation.

  b. What are elastomers? Give an example   (6+4)

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