

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY
FIRST&THIRD SEMESTER – NOVEMBER 2009
CH 107 / CH 351 - GENERAL CHEMISTRY - I

Date & Time: 09/11/2009 / 9:00 - 12:00 Dept. No.

Max. : 100 Marks

PART A

Answer all the questions

10 × 2 = 20

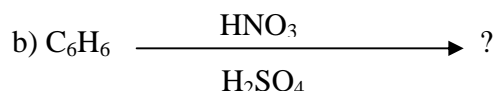
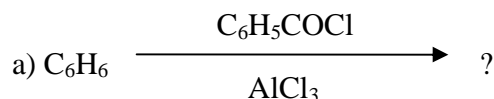
1. "All transition metals exhibit variable valency". Explain.
2. Give the formulae for the following
 - a) potassium hexacyanoferrate (II)
 - b) nickel tetracarbonyl
3. Define steric effect with example.
4. What are activating and deactivating groups?
5. Define a chiral carbon.
6. State Henry's law.
7. Differentiate between ideal and real solution.
8. What are carbohydrates? Give one example.
9. What are conjugated proteins? Give one example.
10. Define octane number of fuels.

PART B

Answer any eight questions

8 × 5 = 40

11. Write note on the colour and magnetic properties of transition elements.
12. State the postulates of Pauling's theory of coordination compounds.
13. Predict the product and mechanism of the following:



14. a) What are conformers? b) Draw the conformers of ethane and explain their stabilities.
15. a) explain why the basicity of $\text{Me}_3\text{N} > \text{MeNH}_2$ while $\text{Et}_3\text{N} < \text{EtNH}_2$.
b) Define inductive effect and resonance effect.

16. Define critical solution temperature. Draw the phase diagram of phenol-water system and Explain.
17. State phase rule and define the terms present in it.
18. Explain the lock and key model for enzyme action.
19. Write note on the secondary structure of protein.
20. What are renewable and nonrenewable resources?
21. Define the following with example.
 - a) pesticide
 - b) herbicide
 - c) fungicide

PART C

Answer any four questions

4 × 10 = 40

22. Discuss the merits and defects of Sidwick's theory.
23. Define resolution and outline the methods of resolving a racemic mixture.
24. Draw the conformers of cyclohexane and discuss their stabilities.
25. Describe e-terminal and N-terminal amino acid determination.
26. How are following fertilizers manufactured?
 - a) urea
 - b) superphosphate of lime
 - c) triple super phosphate
27. Draw the phase diagram of one component system and explain the features.
