

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – MATHS & PHYSICS

SECOND SEMESTER – APRIL 2013

CH 2102 - GENERAL CHEMISTRY FOR PHYSICS & MATHS

Date : 06/05/2013

Dept. No.

Max. : 100 Marks

Time : 9:00 - 12:00

Part-A

Answer **ALL** questions.

(10 x 2 = 20 marks)

1. What are polydentate ligands? Give an example.
2. Write the IUPAC name of following complexes.
a) $[\text{Pt}(\text{NH}_3)_4]\text{Cl}_2$ b) $[\text{Cr}(\text{CO})_6]$
3. How will you generate an electrophile in nitration of benzene?
4. What are conformational isomers?
5. State Raoult's law.
6. Define degree of freedom.
7. What are the purine nitrogenous bases present in RNA?
8. Draw the structure of adrenaline.
9. Give an equation for the preparation of PVC.
10. What is meant by vulcanization of rubber?

Part-B

Answer any **EIGHT** questions.

(8 x 5 = 40 marks)

11. Explain the variable valency & magnetic properties of d- block elements.
12. Discuss the geometrical isomerism in square planar complexes.
13. What is inductive effect? Explain its types.
14. Write the mechanism of Friedel-Craft's alkylation of benzene.
15. Describe the optical isomerism in tartaric acid.
16. Discuss the Phenol – water system.
17. Apply the phase rule to one component system
18. Differentiate between order & molecularity.
19. Describe the structure of DNA.
20. Write any three applications and three risk of genetic engineering.
21. Explain any two methods adopted to prevent corrosion.
22. What are natural & synthetic polymers? Give an example.

Part-C

Answer any **FOUR** questions.

(4 x 10 = 40 marks)

23. a) Write the important postulates of Werner's theory. (5)
b) Explain the structure of $[\text{Ni}(\text{CO})_4]$ using Pauling theory. (5)
24. a) Discuss the conformational isomerism in n- butane. (8)
b) Draw the resonance structure of phenol. (2)
25. a) Differentiate between thermal and photo chemical reactions. (6)
b) Define Grothus – Drapper's law. (4)
26. a) Derive an expression for the determination of rate constant of first order reaction. (6)
b) Explain any two methods used to determine the order of a reaction. (4)
27. a) Describe the replication of DNA. (5)
b) Explain the various types of RNA. (5)
28. a) Discuss the two different types of polymerisation with an example. (6)
b) Write an equation for the manufacture of Buna-S and mention its uses. (4)
