

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – CHEMISTRY
FIRST SEMESTER – NOVEMBER 2019
CH 107 – GENERAL CHEMISTRY - I

Date: 01-11-2019

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

Part-A

Answer ALL questions.

(10 × 2= 20)

1. What are polydentate ligands? Give an example.
2. Give the IUPAC name of the following coordination compounds
i) $K_3[Fe(CN)_6]$ ii) $[Cr(H_2O)_6]Cl_3$
3. Methylamine is a stronger base than aniline. Why?
4. Give the conditions for a compound to be optically active.
5. Define degrees of freedom.
6. State phase rule.
7. Give the structure of glucose.
8. What are the factors that affect the activity of an enzyme?
9. Define octane number.
10. Mention the use of DDT and 2,4,5-T.

Part-B

Answer any EIGHT questions.

(8 × 5= 40)

11. Explain the variable valency and magnetic properties of d-block elements.
12. Discuss EAN principle with an example.
13. What is inductive effect? Discuss any one of its applications.
14. Describe the optical isomerism in 2,3-dibromobutane.
15. Explain the conformational isomers of ethane.
16. Discuss the variation of mutual solubility of phenol and water with temperature.
17. State Raoult's law. Discuss the positive deviation of a real solution from its ideal behavior.
18. How is N-terminal sequence of amino acids determined by Sanger's method?
19. Discuss the classification of enzymes with suitable examples.
20. How are carbohydrates classified?
21. Explain the following a) thermal cracking b) catalytic cracking
22. Discuss the various types of soil.

Part-C

Answer any FOUR questions.

(4 × 10= 40)

23. a. Write the postulates of Werner's theory of coordination compounds.
b. Discuss the geometrical isomerism in square planar complexes. (5+5)
24. Explain the S_N1 and S_N2 reaction mechanism of alkyl halides.
25. a. Write the mechanism of Friedel Craft's alkylation of benzene.
b. Explain the structure of $[Ni(CO)_4]$ using Pauling theory. (5+5)
26. Describe in detail the phase diagram of the following systems.
i) Water ii) Pb-Ag
27. a. Discuss the secondary structure of proteins.
b. Explain the lock and key mechanism of enzymes. (5+5)
28. What are fertilizers? How are the following fertilizers synthesized?
i) urea ii) ammonium sulphate.
