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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2022-23 ONLY)

SUBJECTCODE 22 UCY 101

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : DECEMBER – 2022

B.Sc. – CHEMISTRY **MAXIMUM MARKS: 50**

I SEMESTER **TIME : 3 HOURS**

PART - III

CORE II – INORGANIC AND ORGANIC CHEMISTRY

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. Polarising power of cation is given by……

   a) Fajan's rule b) Einstein's theory

   c) Group theory d) Carnot's theorem

2. In Ice crystals the water molecules are held together by--------structure

   a) planar b) linear

   c) tetrahedral and 3 dimensional d) none of the above

3. Peroxide effect is…….

   a) an anti Markovnikov's addition b) Hoffmann's addition

   c) Saytzef's elimination d) Wittig reaction

4. 1,2 Propadiene is an example for------ dienes

   a) Isolated b) Cumulated c) Conjugated d) Simple

5. Which is an electrophile?

   a) NO_2^+ b) OH^- c) H_2O d) COO^-

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES. (K2)

6. Why are ionic compounds having high melting and boiling points?
7. Which are called interfering anions? Give examples
8. Define electrophiles and nucleophiles
9. How will you convert ethylene to ethane?
10. State Huckel's rule

SECTION – B (5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Solid NaCl does not conduct electricity but molten NaCl does. Give reason

(OR)

   b) Discuss London forces

12. a) Compare the merits of valence bond theory and molecular orbital theory

(OR)

   b) What is LCAO method? Summarize its rules

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13. a) Give the preparation of ethylene by Wittig reaction

(OR)

b) Describe Hoffmann's and Saytzeff's elimination

14. a) Explain 1,2 and 1,4 addition of HBr with 1,3 butadiene

(OR)

b) Write the preparation of cyclopentane by Dieckmann ring closure reaction

15. a) What is inductive effect? Explain its type with suitable example

(OR)

b) Explain nitration of benzene with mechanism

SECTION – C (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K4/K5)

16. a) How is lattice energy of an ionic crystal determined using Born-Haber cycle? Mention the factors that affect lattice energy

(OR)

b) Elaborate Fajan's rule used to study the percentage of covalent character in an ionic bond?

17. a) Make use of molecular orbital diagram to illustrate the magnetic behaviour and bond order of O_2 molecule

(OR)

b) Discuss the principles involved in separation of cations in to groups

18. a) Explain the mechanism of E_1 and E_2 reaction with suitable example

(OR)

b) Write notes on the following i) Markovnikov's rule ii) Ozonolysis

19. a) Hydrolysis of ethyl acetate is SN_2 reaction but hydrolysis of t- butyl chloride is SN_1. Justify with mechanism.

(OR)

b) What are Grignard reagents? Explain the methods of preparation and synthetic uses

20. a) Explain the role of inductive and mesomeric effect in electrophilic substitution reactions of nitrobenzene

(OR)

b) Write notes on the following i) Tropylium cation ii) Arenium ion mechanism

ETHICAL PAPER

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