

Roll No. _____

[Total No. of Pages :3

SIS- N 058 B-18

B.Sc. Ist Semester (CBCS) Degree Examination

CHEMISTRY

Paper -1

(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer all questions from section A,B, and C.

SECTION-A

I. Answer all the following.

(15×1=15)

1. State Heisenberg uncertainty principle.
2. Give electronic configuration of copper. (atomic no:29)
3. Which element has highest electro negativity?
4. Write Born - Lende equation for the calculation of Lattice energy.
5. What is the shape of ammonia molecule.
6. Define Vander-Waal radii.
7. What is Polarising Power.
8. Write the resonating structure of CO₂.
9. What is Heterolysis.
10. How many pi-electrons are there in Naphthalene.
11. What are free radicals.
12. What is Huckel's rule.
13. What is meant by meso compound.
14. What are Paraffins.
15. What is ozonolysis.

SECTION - B

II. Answer any five.

(5×5=25)

16. Explain the significance of quantum numbers.
17. Classify elements in the periodic table according to s, p, d, f blocks.
18. Based on VSEPR theory explain Shape and geometry in H₂O, NH₃ and CH₄ molecules
19. Draw the molecular orbital diagram of NO and predict the bond order and Magnetic property.
20. Explain electrometric effect and Inductive effect with example.
21. Define geometrical isomerism and optical isomerism. Write isomeric structure of maleic acid and Fumaric acid.
22. Explain the addition of hydrogen halide (HX) on alkene using Markowni koff's and anti Markowni koff's rule.

SECTION - C

III. Answer any Five

(5×8=40)

23. a. Explain the Hydrogen Spectrum. (5)
b. Give possible values of l, m and m_s when n=3. (3)
24. a. Define ionic and atomic radii give reason, why the size of cation is less than its parent atom. (4)
b. Explain relative energies of atomic orbital's and anomalous electronic configuration. (4)
25. a. What is Sp³d² hybridization explain with an example. (5)
b. Distinguish between Valance bond theory and molecular orbital theory. (3)
26. a. Explain E/Z nomenclature for C=C system. (4)
b. Explain the method of preparation of alkanes' by (4)
 - i. Catalytic hydrogenation and
 - ii. Kolbe's reaction.
27. a. What are electrophiles and nucleophiles? Give example for each. (4)
b. Explain the comparative study of Strength of organic acids. Wtih reference to electron releasing and electron with drawing group. (4)

28. a. Explain Cis-addition and trans addition reactions of alkenes. (4)
b. How acetylene is prepared from CaC_2 and by dehalogenation of tetra halides. (4)
29. a. Explain Hyper conjugation effect with example. (4)
b. Explain D and L system of nomenclature of Isomers. (4)
