

# Gurudas College

Internal Assessment Examination, 2021-22

Subject-CEMA, SEM-III

Paper- CC-3-6

Time: 30 Minutes

Full Marks:  $1 \times 10 = 10$

Answer any ten questions

1. Explain the trend in size:  $\text{Ni} < \text{Pd} \sim \text{Pt}$
2. Calculate the effective nuclear charge of 4s electron in Mn ( $A = 25$ ) using Slater's Rule.
3. F is the most electronegative element but electron affinity of  $\text{F} < \text{Cl}$ . Explain.
4. Justify the decrease in  $\text{IP}_1$  from P to S.
5. Lanthanides are accommodated in one position in the periodic table but first transition series are not – justify.
6. Which compound is called 'Inorganic Graphite' and why?
7. Write two names of electrically non-conducting graphite compounds and mode of preparation of any one of them.
8. Depict the structure of  $\text{NO}_2$  and write why they are susceptible to dimerization.
9. Show with a reaction that  $\text{N}_2\text{O}$  can act as a ligand.
10. Depict the structures of  $\text{P}_4\text{O}_6$  and  $\text{P}_4\text{O}_{10}$ .
11. Draw the probable resonating structures of tetrasulphur tetranitride.
12. Write about two properties which shows resemblance of pseudohalogens with halogens.
13. Write about the fluxional behaviour of  $\text{XeF}_6$ .
14. What are ambidentate ligands? Give one example.
15. Give IUPAC nomenclature of  $\text{K}_3[\text{Fe}(\text{CN})_5(\text{CO})]$
16. What is chelate effect?