

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
May/June-2022 (NEW COURSE)
Inorganic Chemistry (CORE)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 (a)	Answer the following	04
(1)	Derive the equation for spin magnetic momentum of single electron.	
Q.1 (b)	Answer any two questions out of three.	10
(1)	Derive the equation for Multiplet width comparable to kT .	
(2)	Explain the magnetic properties of Lanthanide series elements.	
(3)	Explain the magnetic susceptibility measurement by Faraday's method and NMR method.	
Q.2 (a)	Answer the following.	04
(1)	What is hapticity? Explain with example.	
(2)	Discuss the use of Collman's reagent.	
Q.2 (b)	Answer any two questions out of three.	10
(1)	Discuss reductive elimination by Pd-Catalyst and sigma bond metathesis reaction in OMC.	
(2)	Explain the addition and dissociation reaction in OMC.	
(3)	Write a note Ligands Similar to CO.	
Q.3 (a)	Answer the following.	04
(1)	Give the classification, distribution, and importance of elements in biological system.	
Q.3 (b)	Answer any two questions out of three.	10
(1)	Write a note on metalloporphyrin and oxygen carrier.	
(2)	Explain metalloenzymes and its function in living organisms with example.	
(3)	Discuss the detoxification and chelating agents in medicine.	
Q.4 (a)	Answer the following.	04
(1)	Write a note on Zeolites.	
Q.4 (b)	Answer any two questions out of three.	10
(1)	Discuss the preparation and physical properties of silicones.	
(2)	Discuss structure and preparation of triphosphonitrilic chloride.	
(3)	Write a note on silicates containing discrete, chain and layered anion.	
Q.5 (a)	Answer the following	04
(1)	What is nanomaterial? Give the brief history.	
Q.5 (b)	Answer any two questions out of three.	10
(1)	Discuss the application of nanomaterials.	
(2)	Discuss any four synthesis pathway of nanomaterial.	
(3)	Write a note on properties of nanometal oxides.	
