647510 **MSC2CIcC101x** **Seat No :_____**

M.Sc.(Chem.) Semester - 2 (*CBCS*) Examination
March/April– 2019 (New Course)
Inorganic Chemistry (CORE)

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

Instructions:

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

Unit-1 (14 marks)

Answer **ALL** questions

Q.1 (a)	**Answer the following.**	**4 Marks**
(1)	Write a short note on magnetic induction.	2
(2)	Give the characteristic of paramagnetic substances.	2
Q.1 (b)	**Answer any two question out of three.**	**10 Marks**
(1)	Explain the theory of spin magnetic moment and orbital magnetic moment.	5
(2)	Derive the Russell-Saunders coupling and explain with the help of p^2 system.	5
(3)	Write a note on magnetic properties of Lanthanide series.	5

Unit-2 (14 marks)

Answer **ALL** questions

Q.2 (a)	**Answer the following.**	**4 Marks**
(1)	Calculate the number of ligands "n" in following metal complexes. (I) $[Co(CO)_n]^-$ (II) $[Cu(\eta^5\text{-}CP)_n]$ (III) $[Rh(CO)_n]^-$ (IV) $[Fe(CO)_n]$	
Q.2 (b)	**Answer any two question out of three.**	**10 Marks**
(1)	Discuss on ligands similar to carbonyl (CO).	5
(2)	Write a note on Wacker (Smidt) process.	5
(3)	Write a note on hydrogenation of alkene by Wilkinson Catalyst.	5

Unit-3 (14 marks)

Answer **ALL** questions

Q.3 (a)	**Answer the following.**	**4 Marks**
(1)	Write a short note on importance and deficiency of calcium and sodium.	2
(2)	Write a short note on BAL and DTPA.	2
Q.3 (b)	**Answer any two question out of three.**	**10 Marks**
(1)	Explain metalloenzymes with its functions and example.	5
(2)	Explain role of Hemoglobin(Hb) and Myoglobin(Mb) in oxygen transport with its function.	5
(3)	Discuss in detail: Cytochrome	5

Unit-4 (14 marks)

Answer **ALL** questions

Q.4 (a)	**Answer the following.**	**4 Marks**
(1)	Discuss the structure of phosphazenes.	

Q.4 (b)	**Answer any two question out of three.**	**10 Marks**
(1)	Explain the manufacturing of silicones.	5
(2)	Discuss the properties of phosphazenes.	5
(3)	What is zeolites? Give its types and application.	5

Unit-5 (14 marks)

Answer **ALL** questions

Q.5 (a)	**Answer the following.**	**4 Marks**
(1)	Write a note on types and classification of nanomaterials.	

Q.5 (b)	**Answer any two question out of three.**	**10 Marks**
(1)	Discuss the properties of metal oxide nano materials.	5
(2)	Write a detail note on following instruments for nanoparticle characterization. (I) SEM (II) XRD	5
(3)	Discuss the cause of interest in nanomaterials.	5

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