C. U. SHAH UNIVERSITY Winter Examination-2022

Subject Name : Inorganic Chemistry-II

Subject Code : 4SC04ICH1		Branch: B.Sc. (Chemistry)		
Semester: 4	Date: 21/09/2022	Time: 02:30 To 05:30	Marks: 70	
 Instructions: (1) Use of Programmable calculator & any other electronic instrument is prohibited. (2) Instructions written on main answer book are strictly to be obeyed. (3) Draw neat diagrams and figures (if necessary) at right places. (4) Assume suitable data if needed. 				
Q-1	Attempt the following questions:		(14)	
a)	Give any two examples of coordinati	on compound used in medicine	. 1	
b)	Which of the following complex do r		1	
	i) $[Fe(CN)_6]^{4-}$ ii) Ni(CO) ₄	iii) $[Fe(CN)_6]^{3-}$ iv) $[Cr(CO)_6]$		
c)	Define: Eigen value	W [CI(CO) ₆]	1	
	Define: Zeise salt		1	
	Give any one postulate of Werner's t		1	
f)				
g)	The operator ∇ is called ope		1	
) Laplacian		
b)	ii) Poisson iv Define: Alloy	y) vector	1	
i)	Which of the following complex has	the highest oxidation state of m		
•)	i) Mn(CO) ₅ Cl	iii) K[Mn(CO) ₅]		
	ii) $Na_2[Fe(CO)_4]$	iv) $(\eta^6 - C_6 H_6)_2 Cr$		
j)	The d-electron configurations of Cr ²			
	and d' respectively. Which one of t	the following will exhibit mini	mum	
	paramagnetic behaviour?	$-(1+0)^{2+}$		
	i) $[Fe(H_2O)_6]^{2+}$ iii) $[Co(H_2O)_6]^{2+}$ iii) M_2	$Cr(H_2O)_6]^{2+}$		
k)	ii) $[CO(H_2O)_6]^{2+}$ iv) M Ψ is symbol for	$n(H_2O)_6]^{2+}$	1	
K)		iii) wave function	1	
		iv) None		
l)	Define: Organometallic compound	,	1	
,	Define: Zero potential energy		1	
n)	Give third postulate of wave mechani	ics.	1	



Attempt any four questions from Q-2 to Q-8

Q-2		Attempt all questions	(14)
	A B	Explain Werner's theory. Discuss structural isomerism in detail.	07 07
Q-3		Attempt all questions	(14)
	A B	Write a note on classification of d-block elements. Discuss optical isomerism in 6 coordinated complexes.	07 07
Q-4		Attempt all questions	(14)
	Α	Give IUPAC name of given complexes. i) $K[Cr(NH_3)_2(NCS)_4]$ ii) $K_3[Fe(CN)_6]$ iii) $[CO(NH_3)_6]Cl_3$ iv) Cr (en)_3 Cl_3 v) $K_3[Cr(OX)_3]$ vi) $K[PtBrCl(NH_3)(NO_2)]$ vii) $[Mn(H_2O)_6]^{2+}$	07
	В	Give various preparations of Organo-beryllium and Organo-aluminium.	07
Q-5		Attempt all questions	(14)
	Α	Give any one preparation of Zeise salt and explain the structure of Trimethyl Aluminium in detail.	07
	В	Write a note on formation of interstitial compound.	07
Q-6		Attempt all questions	(14)
	Α	Define the terms with example: Addition of operators, Subtraction of operators, Multiplication of operators, and Linear Operators.	07
	В	Derive energy equation for a particle moving in one dimensional box.	07
Q-7		Attempt all questions	(14)
	A B	Give the properties and applications of Organolithium compounds. Derive equation for electron in a ring.	07 07
Q-8	A B	Attempt all questions Explain any four physicochemical properties of transition metals. Discuss the magnetic properties of transition metal ions.	(14) 07 07

