	Enrollm	ent No:			Ex	am S	eat No:			
			C.U.	SHAH	I UNI	VI	ERSITY			
	Summer Examination-2017 Subject Name: Inorganic Chemistry-I									
	Subject Code: 4SC05CHC1				Branch: B.Sc. (Chemistry)			y)		
	Semester: 5		Date : 22/03/2017		Ti	me :	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: a) Define Horizontal plane of symmetry (σ_h) b) Is Tetrahedral complex always in high spin or low spin? c) Define: Amphiprotic solvents d) Define Identity (<i>E</i>) e) Give the formula for magnetic momentum. f) Calculate the high spin & low spin electrons in [Cr(NH₃)₆]⁺² octahedral complex. g) What is HSAB Principle? h) Define Hard bases i) Define Glass transition temperature (<i>T_g</i>) j) DefinePairing energy (P) k) Is d-orbital in tetrahedral complexes gerade or ungerade? l) Give the electronic configuration of [Fe(CN)₆]⁻³. m) Define: Heat of fusion n) Give the structure of ResCla 								 (14) (1) 	
		Attemp	ot any four qu	estions from	n Q-2 to Q-	8				
Q-2	1) 2)	Atten Give a) b) c) b) c) b) c)	Ipt all questionthe symmetricules.AcridineEclipse ferroceBenzenehe symmetryXeOF4NH3 I	ons y elements ene elements and	and point d) e) point group	grou 0-0 1,8 0 with d) e)	p with structure dichloro benzene B-Dichloro naphthal n figure of following Cl H_2O	of following ene g molecules.	(14) (5) (5)	
	3)	Give t	he difference	between σ_h , o	σ_v and σ_d .			Page 1 ((4) of 2	
					No.					

Q-3		Attempt all questions	(14)			
-	1)	Discuss steric effect, solvation effect and resonance effect briefly.	(5)			
	2)	Explain Lewis concept.	(5)			
	3)	Effect of solvent on relative strength of acids and bases.				
Q-4		Attempt all questions	(14)			
	1)	Give chemical reactions in liquid hydrogen fluoride.	(5)			
	2)	Explain various types of acid-base reactions in liquid ammonia.	(5)			
	3)	Give advantages & limitations of liquid ammonia as solvents.	(4)			
Q-5		Attempt all questions	(14)			
	1)	Write a short note on low nuclearity carbonyl clusters.	(5)			
	2)	Explain dinuclear cluster.	(5)			
	3)	Explain zinti ions & cheveral phases.	(4)			
Q-6		Attempt all questions				
	1)	Explain elastomers.	(5)			
	2)	Discuss polymeric nitride polymer in detail.	(5)			
	3)	Give the general properties of inorganic polymers.	(4)			
Q-7		Attempt all questions	(14)			
	1)	Discuss the factors affecting the splitting energy.	(5)			
	2)) Splitting energy (Δ_0) of d orbitals in [Cr (CN) ₆] ⁴⁻ is 26300 cm ⁻¹ and pairing energy is 23500 cm ⁻¹ . Find out C.F.S.E and magnetic momentum (83.7 cm ⁻¹ = $\frac{1}{2}$ kL : mol ⁻¹)				
	3)	Explain high spin and low spin complexes.	(4)			
Q-8		Attempt all questions	(14)			
-	1)	Give the symmetry elements and point group with figure of following molecules. a) PCl_5 b) Eclips ethane c) $PtCl^{-2}$ b) Cl^{-2}	(5)			
	2)	C.F.S.E value in $[Fe(CN)_6]^{-4}$ is = -26400 cm ⁻¹ and d orbital splitting energy is 33000 cm ⁻¹ . Find out the pairing energy.	(5)			
	3)	Explain the splitting of d-orbital in octahedral field.	(4)			

