Bachelor of Science (B.Sc.) Third Semester (Old) B.Sc. 2351 - Chemistry-I : Paper-I (Inorganic Chemistry)

P. Pages : 2 Time : Three Hours			urs * 0 9 7 1 *	GUG/W/18/1258 Max. Marks : 50	
	Note	es: 1. 2.	All the five questions are compulsory and carry equal marks. Draw diagram and write chemical equation wherever necessary.		
1.	a)	What exam	is polarization of ions? Discuss Fajan's rule and its consequences wit ple.	h suitable 5	
	b)	Expland s	ain band theory for metals. How it explains the differences in conduct emiconductors.	ors, insulators 5	
			OR		
	c)	What	is Hydrogen bonding? How it effects melting and boiling points.	21/2	
	d)	State	Radius ratio Rule. Give limitations of radius ratio rule.	21/2	
	e)	Discu	ass valance bond theory for metallic bonding.	21/2	
	f)	Write	e a note on metallic bond on the basis of electron sea theory.	21/2	
2.	a)	Discu	ass the electronic configuration of first transition series and explain	5	
		i)	Abnormal stability of few elements.		
		ii)	Variable oxidation state.		
	b)	Discu	ass the oxidation state and magnetic properties of Fe-Ru-Os.	5	
			OR		
	c)	Why	compounds of cu^{++} are coloured and cu^+ are colourless?	21/2	
	d)	Discu	uss the electronic configuration of 5d transition series.	21/2	
	e)	Expl	ain the streochemistry of Cr_Mo_W.	21/2	
	f)	Why	3d transition series elements show complex formation tendency?	21/2	
3.	a)	Discu and 4	uss the various steps involved in the rejection of suspected result on the d rule for the given values 10.0, 10.1, 10.2, 10.6 ml in volumetric An	the basis of 2.5d 5 alysis.	
	b)	Expl	ain:	5	
		i)	Theory of complexometric titration.		

ii) Quinoid theory for indicators by giving one example.

OR

	c)	Following values were obtained for percentage of magnese in the rock sample 5.66, 5.67, 5.33, 5.75, 5.46, 5.77 calculate Average and standard deviation.			
	d)	d) What are the main differences in between accuracy and precision?			
	e)	Explain oxidation Reduction in the estimation of Fe (II) by potassium dichromate.			
	f)) Discuss the selection of suitable indicator for weak acid strong base titration.			
4.	a) Discuss the following reaction in liquid NH ₃ used as non-aqueous solvent.				
		i) Neutralization reaction ii) Ammonolysis			
	b)	What is portland cement? Write its composition and function of Accelerators and retarders?	5		
		OR			
	c)	Write five advantages of chemical fertilizers.			
	d) Define compost and its advantages.		21/2		
e) What is concrete and its properties?		What is concrete and its properties?	21/2		
	f)	Write the advantages of liquid SO ₂ as solvent.			
5. Attempt any ten.		Attempt any ten.	1		
		1) Define fattice energy.	1		
		11) Why H_2S is gas while H_2O is liquid at room temperature.	1		
		iii) Write the factors effecting solvation.	1		
		iv) Write the electronic configuration of Ag ($z = 47$)	1		
		v) Calculate the magnetic moment of $z_n + 2$ ion.	1		
		vi) Why Iron, and Nickel show strong Paramagnetic properties.	1		
		vii) Define mean and Median.	1		
		viii) What is random error?	1		
		ix) Write two advantage of Internal Indicator.	1		
		x) Give two advantage of Manures.	1		
		xi) What is mortars and its composition?	1		
		xii) What is Calcinizing zone, What reaction are expected in this region?	1		
