Reg.No. _____

Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : 16CH2001 **Semester : 2016-17 ODD**
Sub. Name : Chemical Bonding and concepts of acids and bases **Duration : 3hrs**
Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Compare and contrast between ionic and covalent bonds?	CO II	**10**
	b.	Define the co-ordinate bond? Illustrate with an example?	CO I	**4**
	c.	Write the Lewis structure of the following ionic compounds, H_2, O_2, N_2?	CO II	**6**
		(OR)		
2.	a.	Explain the AX_2 model ionic bond with suitable example?	CO I	**10**
	b.	Write a short note on metallic bond?	CO I	**5**
	c.	What is the condition for formation of co-ordinate bonds?	CO II	**5**
3.	a.	Briefly discuss the order of energy level in the molecular orbital diagram?	CO I	**10**
	b.	Why bond angle of H_2O and NH_3 are different when compared to BF_2 and CH_4? Give valid reasons?	CO II	**10**
		(OR)		
4.	a.	Briefly discuss the effect of electro negativity in VSEPR theory with suitable example?	CO I	**12**
	b.	Find out the structure of the following compounds using valence bond theory : i) CH_4, ii) PF_5.	CO II	**8**
5.	a.	Explain the valence bond theory with suitable examples?	CO I	**10**
	b.	Find out the bond order and magnetic properties of B_2 and C_2 homonucleus diatomic molecules using molecular orbital theory?	CO II	**10**
		(OR)		
6.	a.	Write short notes on i) Hund's rule ii) Aufbau priniciple iii) Pauli exclusion principles	CO I	**8**
	b.	Find out the bond order and magnetic properties of CO and NO heteronucleus diatomic molecules using molecular orbital theory?	CO II	**12**
7.	a.	State that the dual behavior of water with examples?	CO II	**10**
	b.	Describe the Lewis acid –base concept with suitable examples?	CO I	**10**
		(OR)		
8.	a.	Describe the Arrhenius concept of acids and bases with suitable examples?	CO I	**10**
	b.	Explain the HSAB concept with suitable examples?	CO I	**10**
		Compulsory:		
9.	a.	Explain the various types of silicates with neat diagram?	CO I	**10**
	b.	Write short notes on bulky ball carbon allotrope and carbon nano tubes?	CO II	**10**

ALL THE BEST