·	ame: Chemistry-II			
Subject Co	v			
	ode: 4SC02CHC1/4SC02CHE1	Branch: B.Sc. (All)		
Semester: 2 Date: 09/05/2017		Time: 02:00 To 05:00 Mark	s: 70	
(2) In: (3) Di	se of Programmable calculator & an structions written on main answer braw neat diagrams and figures (if nessume suitable data if needed.	· · · · · · · · · · · · · · · · · · ·		
Q-1	Attempt the following questi	ions:	(14)	
	a) Define: Unit cell		(1)	
	b) Define: Ungerade Molecular ((1)	
	c) BMO is formed by addition atomic orbitals?	overlapping or subtractive overlapping of	(1)	
	d) What is the bond order of H_2^+	?	(1)	
	e) What is filterable solid?		(1)	
	f) Give the full form T.S.S.		(1)	
	g) Give the principle of Turbidity	y.	(1)	
	h) Define: Common ion effect		(1)	
	i) Define: Auto catalyst		(1)	
	j) Define: Half cellk) Complete following reaction.		(1)	

D	Draw the structure of 2-phenyl-ethanol.	(1)
m)	Write any two physical properties of ether.	(1)
n)	Give the IUPAC nomenclature of the following compound.	(1)
	H ₃ C _N -CH ₃	

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

Q-2		Attempt all questions	(14)
	a)	Describe the electronic configuration, bond order and magnetic	(5)
		properties of CO using MO energy level diagram.	
	b)	Give the differences between Valence bond theory and Molecular orbital	(5)



		theory.	
	c)	Discuss the molecular energy level diagram for N_2 .	(4)
Q-3		Attempt all questions	(14)
	a)	Explain Born-Haber cycle with example.	(7)
	b)	Discuss Schottky defects, Frenkel defect and its consequences.	(7)
Q-4		Attempt all questions	(14)
	a)	Discuss Dow's process and Cumene process for the production of phenol.	(5)
	b)	Explain Kolbe-Schmitt reaction and its mechanism.	(5)
	c)	Discuss the reaction of ethers with conc. H ₂ SO ₄ , HI, PCl ₅ and acetyl chloride.	(4)
Q-5		Attempt all questions	(14)
	a)	Discuss Hinsberg test for the analysis of amines.	(5)
	b)	Discuss various methods of preparation of amines.	(5)
	c)	Give conversion of	(4)
		i) 2,4,6-Tribromoaniline from benzene	
		ii) P-Bromo aniline from aniline	
Q-6		Attempt all questions	(14)
	a)	Discuss Nernst equation & its applications.	(5)
	b)	Explain acid-base catalyst and the application of catalyst.	(5)
	c)	Discuss Promoters and anticatalyst with suitable example.	(4)
Q-7		Attempt all questions	(14)
	a)	Give method to determination of acidity and alkalinity.	(5)
	b)	Give method for calculating of hardness of water.	(5)
	c)	Calculate ksp of Fe(OH) ₃ whose solubility is 1.0×10^{-3} .	(4)
Q-8		Attempt all questions	(14)
	a)	Draw the resonating structure of p-cresol and m-nitrophenol.	(5)
	b)	Write a note on defects and conduction.	(5)
	c)	200 ml of 1.3×10^{-3} M AgNO ₃ is mixed with $100 \text{ ml } 4.5 \times 10^{-5}$ M Na ₂ S	(4)
		solution will precipitation occur? (Ksp = 1.6×10^{-49})	

