B. N. BANDODKAR COLLEGE OF SCIENCE, THANE

FIRST TERM END EXAMINATION, OCTOBER -2011.

S. Y. B. Sc.

Chemistry-II

Time : 2 hrs **Marks: 60**

N.B. : 1) All questions are compulsory
2) Figures to the right indicate full marks.
3) Use of log table/non-programmable calculator is allowed.

Q. 1 A a) What are bonding and antibonding orbitals? 2

OR

a) Give the assumptions on the basis of which valence bond theory explains bonding in complexes. 2

b) Explain bond order of O_2^+ molecular ions of oxygen. 2

c) Give one example of complex with coordination No.5 1

B a) Explain co-precipitation by occlusion during gravimetric analysis. 2

Or

a) Explain the process of digestion in gravimetric analysis. 2

b) Define inner orbital complexes. 1

Or

b) Define dsp^3 hybridisation. 1

c) Mention the geometry of the molecule involving d^2sp^3 hybridisation. 1

d) What are transition elements? 1

C a) Define –i) Ore ii) Gangue. 2

OR

a) Give oxidation and reduction reactions involved in the electrorefining of aluminium. 2

b) Explain reduction using suitable reducing agents in pyrometallurgy. 2

c) Give the name and formula of any one Silver ore. 1

Q 2	A	Describe the molecular orbital energy level diagram for CO molecule.	3
	B	Attempt **ANY THREE** questions of the following. a)Explain the structure of $BaCl_2$ on the basis of VBT. b)Explain the diamagnetic nature of O_2^{2-} on the basis of MOT. c) Draw molecular orbital energy level diagram for O_2 molecule with respect to magnetic behaviour and bond order. d)Explain the various conditions for writing resonating structures. e) Draw molecular orbital energy level diagram for N_2 molecule with respect to magnetic behaviour and bond order.	12
Q3	A	Discuss the oxidation property of the elements of first transition series.	3
	B	Attempt **ANY THREE** questions of the following. a)Explain the hybridization in $Ni[(CO)_4]$. b)Discuss the principles underlying Ignition of precipitate in gravimetric analysis. c)Explain the use of oxine reagent in gravimetric analysis. d)Explain the role of common ion effect gravimetric analysis e) Write a note on electroneutrality principle.	12
Q 4	A)	.How will you concentrate a sulphide ore?	3
	B)	Attempt **ANY THREE** questions of the following. a) Explain anode effect. b) Explain the effect of space velocity and catalyst with respect to manufacture of ammonia. c) How will you convert blister copper into pure copper? d) Explain roasting and bassemerisation with respect to the extraction of copper. e) Write a note on use of V_2O_5 as a catalyst and mention its advantages.	12

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