

9/3/2015

B.N. Bandodkar College of Science, Thane  
 Four<sup>th</sup> Semester End examination, March-2015

Chem II

## USCH402

Duration: 2 hrs and 30 min.

Total Marks:75

N. B. :

1. All the questions are compulsory
2. Figures to the right indicates full marks
3. Use of log table/ non programmable calculator is allowed

- Q.1
- a What are advantages and limitations of Arrhenius theory of acid-base? 4  
 OR
- a What is Pearson's concept of acid- base? 4
- b Write a note on hydrides of group 15 elements. 4  
 OR
- b Explain trends in the following properties 4  
 i) Atomic size ii) Metallic character iii) Density iv) Conductivity with respect to group 16 elements.
- c Give one method of preparation for each of the following 4  
 i)  $\text{Ni}(\text{CO})_4$  ii)  $\text{Fe}(\text{CO})_5$  iii)  $\text{Fe}_2(\text{CO})_9$  iv)  $\text{Fe}_3(\text{CO})_{12}$ .
- OR
- c Write a note on 18 electron rule. 4
- d Explain acid and base on basis of Lewis theory. 4  
 OR
- d Write a note on conjugate acid -base pair . 4
- e Explain Usanovich concept of acid-base. 4  
 OR
- e Give the electronic configuration of first four elements of group 16. 4
- Q. 2
- a Write a short note on Hemoglobin. 4  
 OR
- a Give any one preparation, properties, structure and bonding in  $\text{XeF}_2$ . 4
- b Discuss the trends in physical properties of 17 group elements. 4  
 OR
- b Give the method of preparation of Selenocyanogen and explain its properties and uses. 4
- c Write a short note on chlorophyll . 4  
 OR
- c Discuss the structure of  $\text{XeOF}_4$ . 4
- d What are pseudohalogens? 4  
 OR
- d Explain the colour of group 17 elements 4
- e Discuss the trends in periodic properties of halogens with respect to the following Oxidation states. 4  
 OR
- e Discuss the trends in periodic properties of halogens with respect to the following Electronegativity. 4

P.T.O

- Q.3 a What is corrosion? Give an account of direct and indirect loss due to the corrosion. 4  
**OR**  
a What is soil pollution? Explain its causes. 4  
b Write a short note on types of corrosion. 4  
**OR**  
b Explain the treatment of waste water. 4  
c What is the mechanism and essential requirements of electrochemical corrosion. 4  
**OR**  
c Write a short note on air pollution act. 4  
d What are the method of protection of corrosion explain any one? 4  
**OR**  
d What is water pollution explain its effect? 4  
e Explain the factor which influences the corrosion? 4  
**OR**  
e Explain how the central government can plays a role in the control of pollution. 4
- Q. 4 a Give the electronic configuration of last three elements of group 15. 3  
**OR**  
a What are metal carbonyls? Give its two examples. 3  
b Give the preparation of  $\text{XeF}_4$  3  
**OR**  
b Give the properties of thiocyanogen. 3  
c Explain the differential aeration principle. 3  
**OR**  
c What is the role of individual in the prevention of pollution? 3  
d Give any four applications of organometallic compounds. 2  
**OR**  
d Give any two chemical reactions of  $\text{Ni}(\text{CO})_4$ . 2  
e Name the different types of Xenon flurides. 2  
**OR**  
e Name the type of hybridization in  $\text{XeF}_6$  . 2  
f What is sacrificial coating? 2  
**OR**  
f What are the effects of soil pollution? 2

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