

SC

(45 & A-13)

No. of Printed Pages : 2

**SARDAR PATEL UNIVERSITY**  
**B.Sc. - VI Semester**  
**US06CCHE03 : Inorganic Chemistry**  
**Saturday, 31<sup>st</sup> March - 2018**

Time : 10:00am. To 01:00pm.

Total Marks : 70

**Q.1 Multiple choice Questions.**

[10]

- (1) Which of the given compounds below is a zeise's salt ?  
 (a)  $[\text{PtCl}_2(\text{C}_2\text{H}_4)_2]$  (b)  $\text{K}_2\text{PtCl}_4$   
 (c)  $\text{K}[\text{PtCl}_3(\text{C}_2\text{H}_4)]$  (d) none of them
- 2 Cyclopentadienyl complexes are also known as \_\_\_\_\_.  
 (a) metallocenes (b) zeise's salt  
 (c) alkene complex (d) sandwich compounds
- 3 The colour of ferrocenium is \_\_\_\_\_.  
 (a) yellow (b) purple  
 (c) yellow green (d) Blue green
- 4 Urease enzyme contains which metal ?  
 (a) Zn (b) Mg  
 (c) Ni (d) Cu
- 5 \_\_\_\_\_ is important for bacterial nitrogen fixation.  
 (a) Pb (b) Mo  
 (c) Zn (d) Mn
- 6 Which protein transfers iron from stomach to various parts of the body ?  
 (a) Transferrin (b) ferrichromes  
 (c) ferrioxaminos (d) all given
- 7 A catalyst is a substance that \_\_\_\_\_ the rate of reaction but is not itself consumed.  
 (a) decrease (b) stop (c) increases (d) delay
- 8 Silica gel is prepared from the \_\_\_\_\_ of silicates to produce  $\text{Si}(\text{OH})_4$   
 (a) Crystallization (b) absorption  
 (c) addition (d) acidification
- 9 The extraction of metal from its ore by a process involving melting is termed \_\_\_\_\_.  
 (a) distillation (b) smelting  
 (c) fluxing (d) crystallization
- 10 In blast furnace \_\_\_\_\_ may be lined with carbon blocks for durability  
 (a) Hearth (b) Chimney (c) hopper (d) tayeres

**Q.2 Answer the following short questions . (Any ten) .**

[20]

- (1) What is metallation reaction ? explain with suitable examples.
- (2) Sketch the three dimensional polymeric structure of organometallic compound of Mg containing one alkyl and alkoxy group .
- (3) Define : organometallic compound
- (4) Draw the structure of ATP and chlorophyll.
- (5) Explain : carbonic anhydrase.
- (6) List the chief heme group proteins.

(P.T.O)

- (7) Define : Homogeneous catalyst and Heterogeneous catalyst.
- (8) Give the four requirements of a successful catalytic process .
- (9) Explain : alkene metathesis.
- (10) Write advantages of open-hearth process over the Bessemer process.
- (11) Define : Minerals and ores.
- (12) List the natural ores of copper
- Q.3** (a) Discuss the structure and bonding in Ferrocene . (05)  
 (b) Give general properties of organometallic compounds. (05)
- OR**
- Q.3** (a) Give an account on :organometallic compounds of Al (Aluminium) (05)  
 (b) Discuss the structure and bonding in alkene complexes. (05)
- Q.4** (a) Explain the role of magnesium as metal ion in the functioning of chlorophyll. (05)  
 (b) Give an account on : Important role of metallic elements in bioinorganic Chemistry. (05)
- OR**
- Q.4** (a) write a note on : iron sulfur protein in detail. (05)  
 (b) write a short note on hemoglobin. (05)
- Q.5** Give an account on Monsanto acetic acid synthesis. Describe wacker oxidation of alkene. (10)
- OR**
- Q.5** Discuss the hydroformylation reaction of alkenes by cobaltcarbonyl catalyst. (10)
- Q.6** (a) Describe the extraction of nickel by orford's process. What are its industrial Applications ? (05)  
 (b) Discuss on Froth flotation process for the concentration of ore. (05)
- OR**
- Q.6** (a) Which are the principal types of furnaces used in extraction of metals ? (05)  
 Describe the blast furnace in detail.  
 (b) Give an account on : Silvering of mirror. (05)

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