

# RAMAKRISHNA MISSION VIDYAMANDIRA

Belur Math, Howrah – 711 202

## ADMISSION TEST – 2013

### INDUSTRIAL CHEMISTRY (Honours)

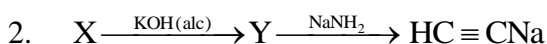
Date : 15-06-2013

Full Marks : 50

Time : 1.30 p.m – 2.30 p.m

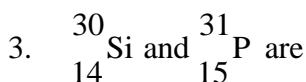
**Each question carrying 2 marks.** Candidates have to select the correct choice by **black/ blue pen** only in the Optical Mark Recognition (OMR) to be provided during the written test. Marking should be dark and should completely fill one blank box against the corresponding question number. Incomplete filling or multiple filling of boxes will reject the answer to that question. Once an answer is marked in OMR, there is no scope to alter the choice. Doing rough work or using erasers, blades, whiteners etc. on the Optical Mark Recognition (OMR) is strictly prohibited.

1. In which of the following compounds does Hydrogen exhibit a negative Oxidation state?  
a) LiH                                      b) H<sub>2</sub>O                                      c) H<sub>2</sub>SO<sub>4</sub>                                      d) None of these



The compound (X) in the above sequence may be

- a) C<sub>2</sub>H<sub>5</sub>OH                                      b) 1, 2 dibromoethane                                      c) Chloroform                                      d) C<sub>2</sub>H<sub>5</sub>NH<sub>2</sub>



- a) Isotopes                                      b) Isobars                                      c) Isomorphs                                      d) Isotones

4. Which of the following is isomorphous with MgSO<sub>4</sub>.7H<sub>2</sub>O?

- a) Zinc Sulphate Heptahydrate                                      b) Blue vitreol  
c) Glauber Salt                                      d) None of these

5. The IUPAC name of the compound CH<sub>2</sub>(OH) CHNH<sub>2</sub> COOH is

- a) 2-Amine-3-Hydroxy Propanoic acid                                      b) 1-Hydroxy-2 Amino Propan-3-oic acid  
c) 2-Amino-3 Hydroxy Propanoic acid                                      d) 1-Amino-2 Hydroxy Propanoic acid

6. Which oxide is used in producing metal carbonyls?

- a) Both CO<sub>2</sub> and CO                                      b) CO                                      c) CO<sub>2</sub> only                                      d) CO<sub>2</sub> and C<sub>3</sub>O<sub>2</sub>

7. Which of the following is known as vinegar?

- a) A dil. solution of Acetic acid                                      b) Grape juice  
c) Orange juice                                      d) None of these

8. Which of the following reactions is possible at Anode?

- a)  $2\text{Cr}^{+3} + 7\text{H}_2\text{O} \rightarrow \text{Cr}_2\text{O}_7^{-2} + 14\text{H}^+$                                       b)  $\text{F}_2 \rightarrow 2\text{F}^-$   
c)  $\frac{1}{2}\text{O}_2 + 2\text{H}^+ \rightarrow \text{H}_2\text{O}$                                       d) None of these

9. In the reaction  $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 3\text{S} + 2\text{H}_2\text{O}$ . The element oxidized is

- a) H<sub>2</sub>S                                      b) SO<sub>2</sub>                                      c) S                                      d) H<sub>2</sub>O



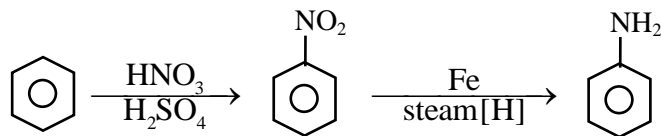
22.  $\text{PCl}_5$  dissociates as follows, in a closed reaction vessel



If the total pressure at equilibrium of the reaction mixture is P and degree of dissociation of  $\text{PCl}_5$  is x, the partial pressure of  $\text{PCl}_3$  will be

- a)  $\left(\frac{x}{x+1}\right)P$       b)  $\left(\frac{2x}{1-x}\right)P$       c)  $\left(\frac{x}{x-1}\right)P$       d)  $\left(\frac{x}{1-x}\right)P$

23. Aniline is synthesised from Benzene in a Plant. via Nitrobenzene route



Assuming the overall yield of Aniline is 90% calculated on benzene, what quantity of Benzene is required for production of 100Kg Aniline?

- a) 78.2 Kg      b) 93.2 Kg      c) 112 Kg      d) 103 Kg
24. A perfect gas at 340 K is heated at constant pressure until its volume has increased by 18 percent. The final temperature of the gas is
- a) 401.2 K      b) 204 K      c) 340 K      d) None of these
25. 0.64 g calcium oxalate was dissolved in dil. and hot  $\text{H}_2\text{SO}_4$  required 100 ml  $\frac{N}{10}$   $\text{KMnO}_4$  solution for appearance of pink colour stable for 1 minute. Calculate percentage purity of the sample of Calcium Oxalate.
- a) 96      b) 100      c) 84      d) None of these

