

## WEEKLY EXAM 2080/06/07

Subject: Chemistry

GRADE XII (SCIENCE)

F.M.: 40

Time : 1:30 hrs.

SET A

P.M.: 20

### Group A

#### Multiple choice questions:

[7×1 = 7]

1. The rate constant of a reaction is  $2.1 \times 10^{-2} \text{ mol}^{-2} \text{ L}^2 \text{ min}^{-1}$ . The order of the reaction is  
a) zero      b) first      c) second      d) third
2. How much water should be evaporated from 400 ml of  $\frac{N}{10}$  HCl to make it exactly 2N?  
a) 360mL      b) 370mL      c) 380mL      d) 390mL
3. The unit of rate constant depends upon  
a) Number of reactant      b) Concentration  
c) Order of reaction      d) Molecularity
4. Alcohol vapour can be dehydrated by passing over heated  
a)  $\text{Al}_2\text{O}_3$       b) CaO      c)  $\text{CaCl}_2$       d)  $\text{Ca}(\text{OH})_2$
5. Iodo form is formed when  
a) Acetone reacts with  $\text{I}_2$  and alkali  
b)  $\text{C}_2\text{H}_4$  reacts with  $\text{I}_2$  in  $\text{CCl}_4$   
c) Methyl alcohol reacts with alkaline hypo-iodite  
d) Formaldehyde reacts with alkali
6. Halo forms are trihalogen derivatives of  
a) Ethane      b) Methane      c) Propane      d) Benzene
7. Bell metal is an alloy of  
a) Cu, Pb and Sn      b) Sn and Cu  
c) Zn and Pb      d) Zn, Cu and Sn

### Group B

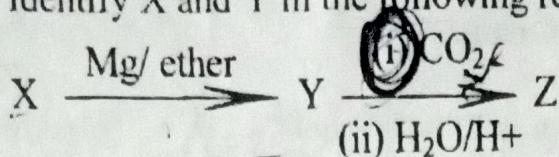
[5×5=25]

1. What is meant by acidimetry? A solution of conc. HCl contain 38% HCl by mass.
  - i) What is the molarity of this solution if the density of solution is 1.19g/cc.
  - ii) What volume of the conc. HCl is required to neutralize one litre of 0.1M NaOH solution? [1+2+2]
2. Distinguish between order and molecularity. Derive integrated rate law equation for zero order and also derive its half life period. [2+2+1]



3. An aliphatic halo alkane (A) gives compound (B) when heated with aq. NaOH. The compound (B) reacts with HBr to give major product (C) on heating compound (C) with sodium in the presence of dry ether yields 2, 3-dimethyl butane. What product will you expect when the compound (B) is subjected to ozonolysis? Compound A gives secondary alcohol with aq. NaOH. [5]

4. a) Identify X and Y in the following reaction. [2]



Compound X gives butane when heated with Na in the presence of dry Ether.

- b) Convert: i) Bromo ethane to ethyne [2]  
ii) ethanol to methanol

5. The following data are given for the reaction  $2x + y \rightarrow z$  [2+1+1+1]

Exp. No	[X] mol L <sup>-1</sup>	[Y] mol L <sup>-1</sup>	Initial rate mol L <sup>-1</sup> S <sup>-1</sup>
1	0.1	0.1	$7 \times 10^{-3}$
2	0.3	0.2	$8.4 \times 10^{-2}$
3	0.3	0.4	$3.36 \times 10^{-1}$
4	0.4	0.1	$2.8 \times 10^{-2}$

Calculate:

- i) The order with respect to X and Y  
ii) Rate constant  
iii) Half life of reaction with respect to x  
iv) Rate of formation of product when [X] = 0.6 mol L<sup>-1</sup> and Y = 0.3 mol L<sup>-1</sup>

### Group C

[1×8=8]

1. An alcohol (P) having molecular formula  $C_4H_{10}O$  undergoes Victor – Meyer's test to give blue colour at the end of reaction when added KOH solution.
- Draw structure formula and write IUPAC name of P. [1]
  - Write down complete chemical reaction for the Victor Meyer test of P. [2]
  - How would you prepare (P), starting from  $CH_3MgBr$ ? [2]
  - What product would you obtain when P is oxidized? [1]
  - Convert propan-1-ol into propan-2-ol [2]