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FIRST REVISION TEST, JANUARY - 2020

STANDARD - XII

CHEMISTRY

Marks: 70

Time : 3.00 hrs

Part - I

Note:- 1) Answer all the questions. ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.  $15 \times 1 = 15$

- The metal oxide which cannot be reduced to metal by Carbon is  
a) PbO                      b)  $Al_2O_3$                       c) ZnO                      d) FeO
- The basic structural unit of silicates is  
a)  $(SiO_3)^{2-}$                       b)  $(SiO_4)^{2-}$                       c)  $(SiO)^-$                       d)  $(SiO_4)^{4-}$
- Among the following which is the strongest oxidising agent?  
a)  $Cl_2$                       b)  $F_2$                       c)  $Br_2$                       d)  $I_2$
- How many moles of  $I_2$  are liberated when 1 mole of potassium dichromate react with Potassium iodide?  
a) 1                      b) 2                      c) 3                      d) 4
- Which type of isomerism exhibited by  $[Pt(NH_3)_2Cl_2]$ ?  
a) Co-oxidation isomerism                      b) Linkage isomerism  
c) Optical isomerism                      d) Geometrical isomerism
- The vacant space in bcc Lattice unit cell is  
a) 48%                      b) 23%                      c) 32%                      d) 26%
- For a first order reaction, the rate constant is  $0.6909 \text{ min}^{-1}$ . The time taken for 75% conversion in minutes is  
a)  $(3/2) \log 2$                       b)  $(2/3) \log 2$                       c)  $(3/2) \log (3/4)$                       d)  $(2/3) \log (4/3)$
- Dissociation constant of  $NH_4OH$  is  $1.8 \times 10^{-5}$ , the hydrolysis const of  $NH_4Cl$  would be  
a)  $1.8 \times 10^{-19}$                       b)  $5.5 \times 10^{-10}$                       c)  $5.55 \times 10^{-5}$                       d)  $1.80 \times 10^{-5}$
- Among the following cells,  
I) Leclanche cells                      II) Nickel Cadmium cells  
III) Lead Storage battery                      IV) Mercury cell  
Primary Cells are  
a) I and IV                      b) I and III                      c) III and IV                      d) II and III



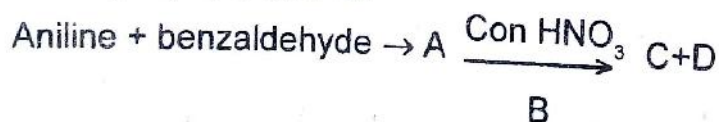


- 20) Define equivalent conductance.<sup>(^)</sup>
- 21) How will you prepare phenol using Dow's process.
- 22) Give the differences between Primary and Secondary structure of Proteins.
- 23) What is therapeutic index?
- 24) Calculate the  $P^{K_b}$  of  $NH_4OH$ , if the  $P^H$  of a buffer solution containing 0.1N  $NH_4OH$  and 0.1M  $NH_4Cl$  is 9.25.

## Part - III

Answer any six questions. Question No.33 is compulsory:-  $6 \times 3 = 18$

- 25) Explain Van-Arkel method for refining Zirconium/titanium.
- 26) Write short note on Holme's signal.
- 27) Explain why compounds of  $Cu^{2+}$  are coloured but those of  $Zn^{2+}$  are colourless
- 28) Aluminium crystallizes in Cubic close packed structure. Its metallic radius is 125 pm. Calculate the edge length of the cell.
- 29) Derive Nernst Equation.
- 30) What is the difference between homogeneous and heterogeneous catalysis.
- 31) How will you convert benzaldehyde into following compounds.  
i) benzophenone    ii) Benzoic acid    iii)  $\alpha$ -hydroxy phenol acetic acid
- 32) What are narcotic and non-narcotic drugs. Give examples.
- 33) Identify A, B, C and D.



## Part - IV

Answer all the questions:-

- 34) a) i) Write short note on aluminothermic process.  $5 \times 5 = 25$   
ii) Explain the preparation of Potash atom.
- b) i) How is nitric acid manufactured using Ostwald's process? [or]  
ii) What are inner transition elements?

## 4 XII- Chemistry

- a) i) Write the postulates of Werner's theory. [or]  
 ii) Write short note on metal deficiency defect.
- b) i) Drive an expression for Ostwald's dilution Law.  
 ii) State Faraday's Law of electrolysis.

- 3) a) i) Differentiate Physisorption and Chemisorption. [or]  
 ii) Write a note on electro osmosis.

- b) How are the following conversions effected  
 i) Phenol  $\rightarrow$  P.hydroxy azobenzene ii) Phenol  $\rightarrow$  Phenolphthalein  
 iii) glycol  $\rightarrow$  1, 4 dioxon

- 37) a) Write short note on,  
 i) Hoffmann's bromamide reaction ii) Schotten-Baumann Reaction  
 iii) Combreg reaction. [or]

- b) Elucidate the structure of glucose.
- 38) a) i) In a first order reaction  $A \rightarrow$  product 60% of the given sample of A decomposes in 40 min. What is the half-life of the reaction.  
 ii) A saturated solution, prepared by dissolving  $\text{CaF}_2(s)$  in water has  $[\text{Ca}^{2+}] = 3.3 \times 10^{-4} \text{M}$ . What is the  $K_{sp}$  of  $\text{CaF}_2$ .
- b) An alkene (A) on ozonolysis gives propanone and aldehyde (B). When (B) is oxidised (C) is obtained. (C) is treated with  $\text{Br}_2/\text{P}$  gives (D). Which on hydrolysis gives (E). When propanone is treated with HCN followed by hydrolysis gives (E). Identify A, B, C, D and E.

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