# CHEMISTRY

## BOOKS - MODERN PUBLICATION

## SAMPLE PAPER 2011

**Exercise**

**1.** For which of the following reactions $K_P$ is less than $K_C$?

A. $PCl_5 \rightarrow PCl_3 + Cl_2$

B. $H_2 + Cl_2 \rightarrow 2HCl$

C. $2SO_2 + O_2 \rightarrow 2SO\&(3)$

D. None of the above

**Answer:**

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**2.** Which of the following reactions is the reaction of first order ?

A. $2NO + O_2 \rightarrow 2NO_2$

B. $H_2 + Cl_2 \rightarrow 2HCl$

C. $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$

D.

$$CH_3COOC_2H_5 + NaOH + CO2 \rightarrow CH_3COONa + C_2H_5OH$$

**Answer:**

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**3.** Which of the following conditions is correct for a spontaneous reaction ?

A. $\Delta G$ is -ve

B. $\Delta G$ is +ve

C. $\Delta G$ is 0

D. None of the above.

**Answer:**

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**4.** To which isomers the following compounds belong?

$[Co(NO_2)(NH_3)_5]Cl_2$ and $[Co(ONO)(NH_3)_5]Cl_2$

A. Geometrical isomers

B. Linkage isomers

C. Ionisation isomera

D. Ligand isomers

**Answer: B**

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**5.** The electrophile in the nitration of benzene is

A. $NO_2^+$

B. $NO_2^-$

C. $NO^+$

D. $NO^-$

**Answer:**

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**6.** the colour of the transition metal or its ion is due to

A. d-d transition

B. p-p translation

C. paired electrons

D. None of the above

**Answer: A**

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**7.** Name the product C in the following reactions

$C_6H_5CH_3 \xrightarrow{Oxidation} A \xrightarrow{NaOH} B \xrightarrow{Soda\,lime} C$

A. $C_6H_6$

B. $C_6H_5COOH$

C. $C_6H_5CH_2OH$

D. $C_6H_5CHO$

**Answer: A**

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**8.** Find the number of coulombs required for conversion of one mole of $MnO_4^-$ to one mole of $Mn^{2+}$.

A. 96500

B. 96500 × 3

C. 96500 × 5

D. 96500 × 7

**Answer: C**

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**9.** At room temperature HCl is gas, while HF is a liquid. This is because

A. $H - F$ bond is covalent

B. $H - F$ Bond is ionic

C. $H - F$ has metallic bond

D. $H - F$ has hydrogen bond

**Answer: D**

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**10.** Which of the following is not a condensation polymer?

A. Bakelite

B. Nylon

C. Decron

D. Teflon

**Answer: D**

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**11.** Fill in the blanks : Acid rain contains ..... And ..... acid.

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**12.** $U_{92}^{298} + n_0^1 \rightarrow U_{92}^{238} +$ _____ .`

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**13.** Complete the following reaction,

$C_2H_5NH_2 + \ldots + 3KOH \rightarrow C_2H_5N \Longrightarrow C + 3KCl + \ldots$

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**14.** Fill in the blanks : pH of $1MNa_2SO_4$ solution is ..... .

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**15.** The unit of rate constant for a zero order reaction is_____

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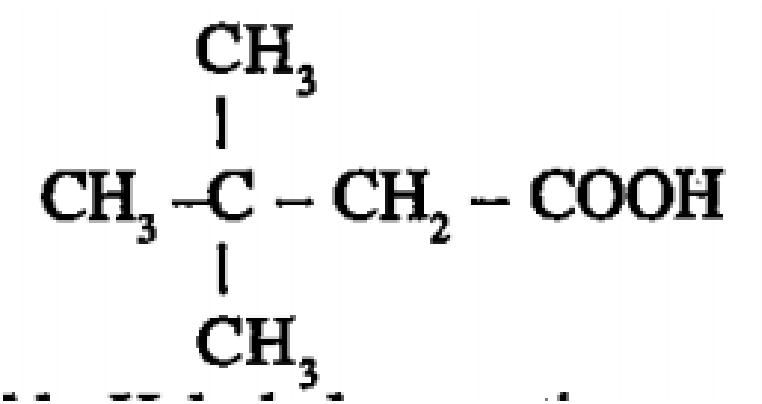
**16.** Name the following compound by IUPAC system :



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**17.** Write Gibb's Helmholtz equation ?

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**18.** What is German silver ?

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**19.** What is vinegar?

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**20.** Write the IUPAC name of $Na\left[Al(OH)_4\right]$.

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**21.** How can convert benzene to benzoic acid ?

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**22.** What are soaps and detergents?

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**23.** Identify x and y and name the reaction :

`2C_(6)H_(5)_CHO + NaOH (conc) to x + y

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**24.** What is the difference between Solubility and Solubility product ?

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**25.** State and explain Huckel' s rule with an example .

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**26.** Give two applications of Kohlrausch Law.

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**27.** Explain why $CuSO_4$ solution cannot be stored in Zn vessel ?

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**28.** What is Rosenmund reduction reaction?

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**29.** Write Henderson equation for finding pH of acidiuc and basic buffer .

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**30.** Suggest two tests to distinguish between ethanol and phenol.

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**31.** What happens when chlorine gas is passed through cold solution of NaOH?

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**32.** How is methylamine converted to trimethyl amine?

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**33.** What happens when $SO_2$ gas is passed through $H_2S$ dissolved in water ?

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**34.** Why $ClF_3$ exists, whereas $FCl_3$ does not exist explain?

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**35.** How is acetaldehyde converted to acetone ?

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**36.** Name two rhodenticides and two antipyretic drugs.

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**37.** Define' specific and equivalent conductance'. How are they related ? $0.05M\ NaOH$ solution offered a resistance of $31.6ohm$ in a conductivity cell at $298K$. If the cell constant of the cell is $0.376cm^{-1}$, calculate the molar conductance of the $NaOH$ solution.

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**38.** Write short notes on : Molecularity and order of reaction

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**39.** (b) Le Chatelier principle

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**40.** Discuss the principle of manufacture of sulphuric acid by contact process. Why is $H_2S$ not dried over concentrated $H_2SO_4$? How does concentrated $H_2SO_4$ react with (i) copper and (ii) sugar?

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**41.** Name two important ores of iron. Describe the principle of extraction of iron from an important ore. How does iron react with dilute and concentrate nitriacid separately ?

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**42.** How is acetaldehyde prepared from calcium salt of organic acid ? Suggest a test to distinguish between acetyldehyde and

formaldehyde. How does it react with (i) dilute $NaOH$, (ii) Tollens' reagent and (iii) $NaHSO_3$

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**43.** How is phenol obtained from benzene ? Explain the acidic character of phenol

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**44.** Write short notes on :

(i) Carbylamine reaction

Friedel Craft reaction

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