



# CHEMISTRY

## BOOKS - BITSAT GUIDE

### QUESTION-PAPERS-2012

#### Chemistry Single Correct Answer Type

1. The molar conductance of  $Ba^{2+}$  and  $Cl^{-}$  are 127 and  $76\text{ohm}^{-1}\text{cm}^{-1}\text{mol}^{-1}$  respectively

at infinite dilution. The equivalent conductance of  $BaCl_2$  at infinite dilution will be

A. 330

B. 203

C. 139.5

D. 51

**Answer: C**



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2. If the elevation in boiling point of a solution of 10 g of solute (molecular weight = 100) in 100 g of water is  $\Delta T_b$ , the ebullioscopic constant of water is

A.  $\frac{\Delta T_b}{10}$

B.  $\Delta T_b$

C.  $10\Delta T_b$

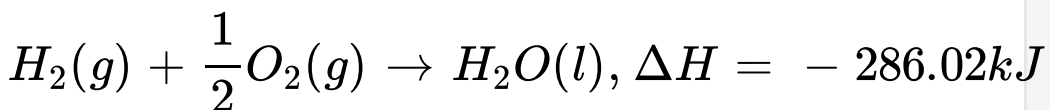
D.  $1000\Delta T_b$

**Answer: B**



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3. Given that ,



Then calculate the enthalpy of formation of

$OH^-$  at  $25^\circ C$

A.  $-22.8kJ$

B.  $-343.52kJ$

C.  $+228.8kJ$

D.  $+343.52kJ$

**Answer: A**



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4. The amount of heat evolved when  $500\text{cm}^3 0.1\text{M HCl}$  is mixed with  $200\text{cm}^3$  of  $0.2\text{M NaOH}$  is

A. 57.3 kJ

B. 2.865 kJ

C. 2.292 kJ

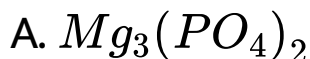
D. 0.573 kJ

**Answer: C**



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5. Which of the following will be the most effective in the coagulation of  $Fe(OH)_3$  sol ?

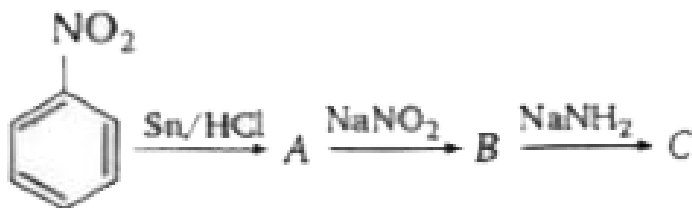


Answer: A



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6. Identify 'C' in the following reaction



A. benzamide

B. benzoic acid

C. chlorobenzene

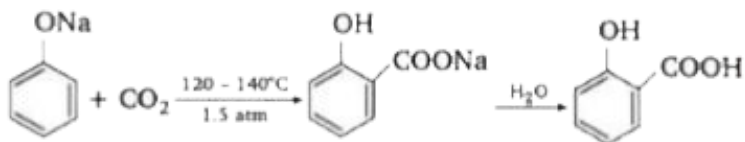
D. aniline

**Answer: D**



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7. The following reaction is known as



A. Friedel-Craft reaction

B. Kolbe reaction

C. Reimer-Tiemann reaction



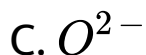
## D. Wittig reaction

**Answer: B**



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**8.** Which of the following is isoelectronic with carbon?



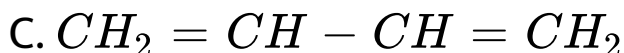
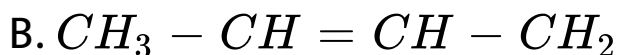
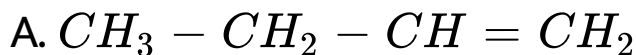
D.  $N^+$

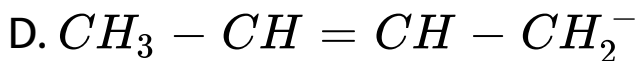
**Answer: D**



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**9.** In which of the following species only one type of hybridisation is present ?



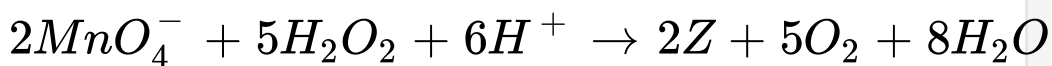


**Answer: C**



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**10.**



Identify Z in the above reaction.



C.  $Mn$

D.  $MnO_2$

**Answer: A**



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**11.** In the titration of  $NaOH$  and  $HCl$ , which of the following indicators will be used ?

A. Methyl orange

B. Methyl red

C. Both (methyl orange) and (methyl red)

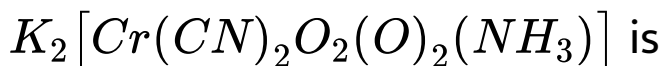
D. None of (methyl orange) and (methyl red)

**Answer: C**



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**12. The IUPAC name of**



A. Potassium

amminecyanoperoxodioxochromatic (IV)

B. Potassium

amminecyanoperoxodioxochromium (V)

C. Potassium

amminecyanoperoxodioxochromium (VI)

D. Potassium      amminedicyanodioxoper  
oxochromate (VI)

**Answer: D**



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**13.** Which of the following is process used for the preparation of acetone?

A. Waber process

B. Wacker process

C. Wolf-Kishner reduction

D. Gattermann-Koch synthesis

**Answer: B**



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14. Lindane can be obtained by the reaction of benzene with

A.  $CH_2Cl$ /anhydrous  $AlCl_3$

B.  $C_2H_4I$ /anhydrous  $AlCl_3$

C.  $CH_3COCl$ /anhydrous  $AlCl_3$

D.  $Cl_2$  in sunlight

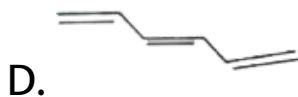
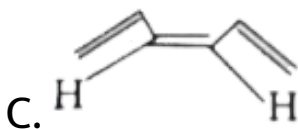
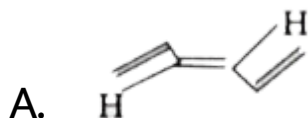
**Answer: D**



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15. The structure of cis-bis (propenyl) ethene is



**Answer: B**



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16. 5 moles of  $Ba(OH)_2$  are treated with excess of  $CO_2$ . How much  $BaCO_3$  will be formed?

A. 39.4 g

B. 197 g

C. 591 g

D. 985 g

**Answer: D**



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17. Diatomic molecule has a dipole moment of  $1.2D$  If its bond  $1.0\text{\AA}$  what fraction of an electronic charge exists on each atom ? .

A. 25% of  $e$

B. 50% of  $e$

C. 60% of  $e$

D. 75% of  $e$

**Answer: A**



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18. When a gas filled in a closed vessel is heated through  $1^{\circ}C$ , its pressure is increased by 0.4%. The initial temperature of the gas was

A.  $-23^{\circ}C$

B.  $+23^{\circ}C$

C.  $250^{\circ}C$

D.  $523^{\circ}C$

**Answer: A**



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19. For  $2NOBr(g) \rightleftharpoons 2NO(g) + Br_2(g)$  at equilibrium,  $P_{Br_2} = \frac{p}{q}$  and  $p$  is the total pressure, the ratio  $\frac{k_p}{p}$  will be

A.  $\frac{1}{3}$

B.  $\frac{1}{9}$

C.  $\frac{1}{27}$

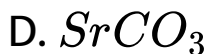
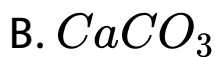
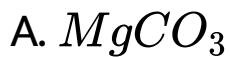
D.  $\frac{1}{81}$

**Answer: D**



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20. The decomposition temperature is maximum for



**Answer: C**



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21. When the same amount of zinc is treated separately with excess of sulphuric acid and excess of sodium hydroxide, the ratio of volume of hydrogen evolved is

A. 1 : 1

B. 1 : 2

C. 2 : 1

D. 2 : 3

**Answer: A**



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22. A compound 'X' when reacted with  $PCl_5$  and then with  $NH_3$  gives 'Y'. When 'Y' treated with  $Br_2$  and KOH produced 'Z'. Z on treatment with  $NaNO_2 + HCl$  at  $0^\circ C$  and then boiling produced ortho-cresol. Compound 'X' is:

A. o-chlorotoluene

B. o-toluic acid

C. m-toluic acid

D. o-bromotoluene



**Answer: B**



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**23.** Alizarin is an example of

A. triaryl dye

B. azo dye

C. vat dye

D. anthraquinone dye

**Answer: D**

24. What will be the main product when acetylene reacts with hypochlorous acid?

A. Trichloro acetaldehyde

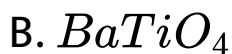
B. Acetaldehyde

C. Dichloro acetaldehyde

D. Chloro acetaldehyde

**Answer: C**

**25.** Barium titanate has the perovskite structure, i.e. a cubinc lattice with  $Ba^{2+}$  ions at the corners of the unit cell, oxide ions at the face centres and titanium ions at the body centred. The molecular formula of barium titante is



**Answer: A**



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**26.** Which of the following hormones, is responsible for the growth of animals?

A. Auxin

B. Insulin

C. Adrenaline

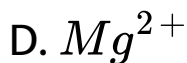
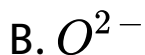
D. Somatotropin

**Answer: D**



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**27.** Which of the following has the largest ionic size?



**Answer: B**



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**28.** if the radius of H is  $0.53\text{\AA}$  then what will be the radius of  ${}_3\text{Li}^{2+}$  ?

A.  $0.17\text{\AA}$

B.  $0.36\text{\AA}$

C.  $0.53\text{\AA}$

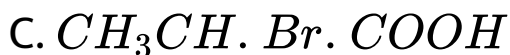
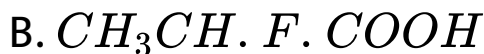
D.  $0.59\text{\AA}$

Answer: A



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29. Which of the following will have highest value of  $pK_a$  ?



**Answer: D**



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**30.**  $\text{Gas(A)} + \text{NaOH} \rightarrow \text{B} \xrightarrow{\Delta} \text{C} \xrightarrow{\Delta} \text{D}$  C and D decolourises acidified  $\text{KMnO}_4$ . Identify C and D.

A.  $\text{Na}_2\text{CO}_3$ ,  $\text{NaOH}$

B.  $(\text{COOH})_2$ ,  $(\text{COONa})_2$

C.  $(\text{COONa})_2$ ,  $(\text{COOH})_2$

D. None of these



**Answer: C**



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**31.** The polymer polyurethanes are formed by treating diisocyanate with

A. butadiene

B. isoprene

C. glycol

D. acrylonitrile

**Answer: C**



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**32.** What will be the volume of  $O_2$  Liberated at NTP by passing 5 A current For 193 sec. through acidified water.

A. 56 mL

B. 112 mL

C. 158 mL

D. 965 mL

**Answer: A**



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**33.**  $CO_2$  goes to air, causes green house effect and gets dissolved in water. What will be the effect on soil fertility and pH of the water?

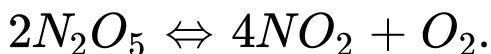
- A. Increase
- B. Decrease
- C. Remain same
- D. None of these

**Answer: B**



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**34.** Consider the following reaction



If rate and rate constant for above reaction are

$$2.40 \times 10^{-5} \text{ mol } L^{-1} s^{-1} \text{ and } 3 \times 10^{-5} s^{-1}$$

respectively, then calculate the concentration of  $N_2O_5$ .

**A. 1.4**

B. 1.2

C. 0.04

D. 0.8

**Answer: D**



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**35.**  $BF_3$  and  $NF_3$  both molecules, are covalent, but  $BF_3$  is non - polar and  $NF_3$  is polar. Its reason is

A. boron is a metal and nitrogen is a gas in uncombined state.

B.  $BF_3$  bonds no dipole moment whereas  $NF_3$  bond have dipole moment.

C. atomic size of boron is smaller than that of nitrogen

D.  $BF_3$  is symmetrical molecule whereas  $NF_3$  is unsymmetrical.

**Answer: D**



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**36.** 1.2 % NaCl solution is isotonic with 7.2 % glucose solution. What will be the van't Hoff factor,  $i$ ?

A. 0.5

B. 1

C. 2

D. 6

**Answer: C**



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**37. Green vitriol is**

- A. ferrous sulphate
- B. tin oxide
- C. zinc oxide
- D. ferrous carbonate

**Answer: A**



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**38.** 2-bromopentane with alcoholic KOH yields a mixture of three alkenes. Which of the following alkene is predominant?

- A. 1-pentene
- B. Cis-2-pentene
- C. Trans-2-pentene
- D. Cis-1-pentene

**Answer: C**



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**39.** In which of the following compounds, the bond length between hybridised carbon atom and other carbon atom is minimum?

A. Butane

B. Propyne

C. Propene

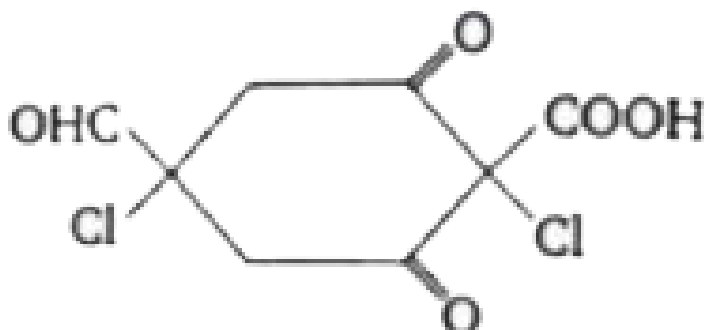
D. Butane

**Answer: B**



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40. Which of the following IUPAC name of compound?



A. 1, 4-dichloro-2, 6-dioxo-4-carbonyl-1-oic acid

B. 2,4-dioxo-1, 4-dichlorohexane-1-carboxylic acid

C. 1,1-dichloro-2, 4, 6-dioxocyclohexane-1-carboxylic acid

D. 1, 4-dichloro-4-formyl-2, 6-dioxy-cyclohexane-1-carboxylic acid

**Answer: D**



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