AP EAMCET Chemistry Previous Questions with Key – Test 8

121)The ratio of de Broglie wave lengths of two particles, having mass ratio 1 : 3 and kinetic energy ratio 2 : 1 is

1)3 : 2

2)$\sqrt{3} : \sqrt{2}$

3) $\sqrt{2} : \sqrt{3}$

4)2 : 3

122)If uncertainities in the measurement of position and momentum of a microscopic object of mass 'm' are equal, then the uncertainity in the measurement if velocity is given by the expression

1)$\sqrt{\dfrac{h}{4\pi m}}$

2)$\sqrt{\dfrac{h}{4\pi}} \times \dfrac{1}{m}$

3)$\dfrac{h}{4\pi} \times \sqrt{\dfrac{1}{m}}$

4)$\sqrt{\dfrac{h}{2\pi m}}$

123)In lanthanides, with increase in atomic number atomic radius decreases, except for the element X, what X?

1)Gd

2)Eu

3)Tm

4)Dy

124)Dipole moment order of which of the following pairs of molecules is not correct?

1)$HF > HCl$ 2)$H_2S > CO_2$ 3)$NH_3 > NF_3$ 4)$CH_4 > CHCl_3$

125) X and Y are the two covalent molecules in which the hybridization of the central atoms is same, but shapes are different. X and Y are

1) XeF_4, NH_3

2) XeF_2, PF_5

3) BF_3, H_2O

4) CH_4, $BeCl_2$

126) At same temperature and pressure, the rate of diffusion of gas 'X' is $3\sqrt{3}$ times that of a gaseous hydrocarbon of molar mass 54g mol^{-1}. The molar mass of X in g mol^{-1} is

1) 16

2) 2

3) 32

4) 28

127) From the given reaction

$2KMnO_4 + 3H_2SO_4 + 5H_2O_2 \rightarrow K_2SO_4 + 2MnSO_4 + 8H_2O + 5O_2$
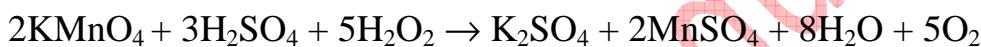
Find the normality of H_2O_2 solution, if 20mL of it is required to react completely with 16mL of 0.02 M$KMnO_4$ solution. (Molar mass of $KMnO_4$ = 158 g mol^{-1})

1) 4×10^{-2} N

2) 2×10^{-2} N

3) 6×10^{-2} N

4) 8×10^{-2} N

128) At the temperature T(K) for the reaction $X_2O_{4(l)} \rightarrow 2XO_{2(g)}$ ΔU = xkJ mol^{-1}, ΔS = y Jk^{-1} mol^{-1}. Gibbs energy change for the reaction is

(Assume X_2O_4, XO_2 are ideal gases)

1) 1000 x + 2R (T - y)J mol^{-1}

2) 1000 x + T (2R - y)J mol^{-1}

3) x + T (2R - y)J mol^{-1}

4) x + 2R (T - y)J mol^{-1}

129)Arrange the aqueous solutions of the following salts in the increasing order of pH

CuSO$_4$ NaCNKCl

I   II   III

  1)I < II < III

  2)I < III < II
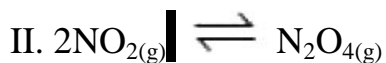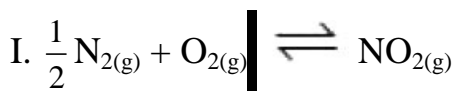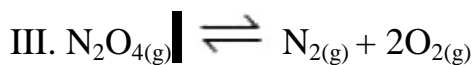
  3)III < II < I

  4)II < III < I

130)For the gaseous reactions (I) and (II), the equilibrium constants are X and Y respectively.

I. $\frac{1}{2}$N$_{2(g)}$ + O$_{2(g)}$ $\rightleftharpoons$ NO$_{2(g)}$

II. 2NO$_{2(g)}$ $\rightleftharpoons$ N$_2$O$_{4(g)}$

Using the above reactions the equilibrium constant Z for the reaction (III) given below is

III. N$_2$O$_{4(g)}$ $\rightleftharpoons$ N$_{2(g)}$ + 2O$_{2(g)}$

  1)Z = XY

  2)$Z = \frac{Y^2}{X}$

  3)$Z = \frac{1}{XY^2}$

  4)$Z = \frac{1}{X^2Y}$

131)Match the following

List – I	List-II
A) Electron deficient hydride	I) CH$_4$
B) Electron precise Hydride	II) B$_2$H$_6$
C) Electron rich hydride	III) CaH$_2$
D) Saline hydride	IV) NiH$_{0.6}$
	V) PH$_3$

The correct answer is

1)A – III; B – IV; C – II; D - V

2)A – II; B – I; C – III; D - IV

3)A – V; B – II; C – III; D – IV

4)A – II; B – I; C – V; D - III

132)Be and Al show similarities in properties due to diagonal relationship except in the property X given below. What is X?

1)Both form basic oxides and hydroxides

2)Ions of both have strong tendency to form complexes

3)In vapour phase chlorides of both have Cl^- bridged chloride structure

4)Chlorides of both are soluble in organic solvents

133)In the structure of B_2H_6, the number of BH_2 groups present in one plane, and the number of B-H bonds, B-B bonds, B-H-B bridge bonds are respectively

1)2, 0, 3, 2

2)3, 2, 2, 2

3)2, 4, 0, 2

4)2, 4, 2, 0

134)Identify the incorrect statements from the following

I. Tin in +2 state acts as reducing agent while lead in +4 state acts as strong oxidizing agent

II. Silicon exists as both $[SiF_6]^{2-}$ and $[SiCl_6]^{2-}$ forms

III. The hybridization of carbon in fullerene is sp^3
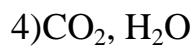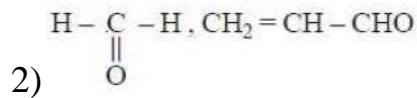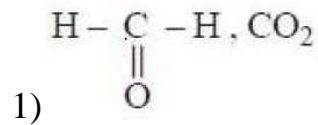
IV. Among Ge, Sn and Pb lowest melting point is for Sn

1)I, IV

2)II, IV

3)II, III

4)III, IV

135)Methane of the polluted air reacts with ozone and forms the compouns

1)
$$H - \underset{\underset{O}{\|}}{C} - H , CO_2$$

2)
$$H - \underset{\underset{O}{\|}}{C} - H , CH_2 = CH - CHO$$
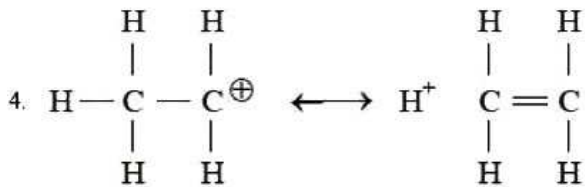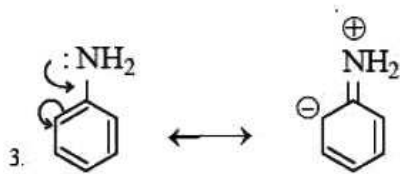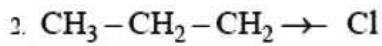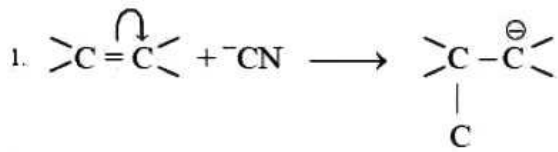
3)$CH_2 = CH\text{-}CHO, C_2H_5CHO$

4)CO_2, H_2O

136)Assertion (A): Propene on addition with hydrogen bromide in the presence of peroxide gives1-Bromopropane as the major product

Reason (R): 1-Bromopropane is the major product because it is formed through the stable carbocation

The correct answer is

1)(A) and (R) are correct, (R) is the correct explanation of (A)

2)(A) and (R) are correct but (R) is not the correct explanation of (A)

3)(A) is correct but (R) is not correct

4)(A) is not correct but (R) is correct

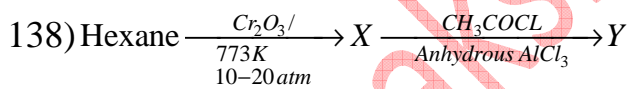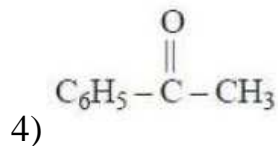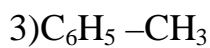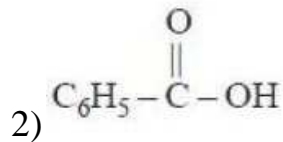137)Which of the following represents the hyperconjugation effect?

1. $\overset{\frown}{>C = C<}$ + ^-CN $\longrightarrow$ $>C - \overset{\ominus}{\underset{\underset{C}{|}}{C}}<$

2. $CH_3 - CH_2 - CH_2 \rightarrow Cl$

3. [benzene with $:NH_2$] $\longleftrightarrow$ [benzene with $\overset{\oplus}{NH_2}$ and $\ominus$ charge]

4. $H - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}\oplus$ $\longleftrightarrow$ H^+ $\overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} = \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}$

    1)1

    2)2

    3)3

    4)4

138) Hexane $\xrightarrow[\substack{773K \\ 10-20\,atm}]{Cr_2O_3/}$ X $\xrightarrow[Anhydrous\,AlCl_3]{CH_3COCL}$ Y

Y in the above sequence of reactions is

1) $C_6H_5 - \overset{\overset{O}{\|}}{C} - H$ 2) $C_6H_5 - \overset{\overset{O}{\|}}{C} - OH$

3)$C_6H_5 - CH_3$ 4) $C_6H_5 - \overset{\overset{O}{\|}}{C} - CH_3$
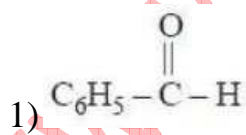
139)A metal crystallizes in two phases, one as fcc and other as bcc with unit cell edge lengths of $3.5\overset{o}{A}$ and $3.0\overset{o}{A}$ respectively. The ratio of density of fcc and bcc phases approximately is

    1)1.5 : 1.0

    2)1.0 : 1.5

    3)1.26 : 1

    4)1 : 1.26

140)When 36g of a non-volatile, non-electrolytic solute having the empirical formula CH_2O is dissolved in 1.2kg of water, the solution freezes at -0.93°C. The molecular formula of the solute is (K_f of water = 1.86 K kg mol^{-1})

    1)CH_2O

    2)$C_2H_4O_2$

    3)$C_3H_6O_3$

    4)$C_4H_8O_4$

141)Benzene and toluene form an ideal solution over the entire range of composition. The vapour pressure of pure benzene and toluene at T(K) are 50mm Hg and 40mm Hg respectively. What is the mole fraction of toluene in vapour phase when 117g of benzene is mixed with 46g of toluene ? (molar mass of benzene and toluene are 78 and 92g mol^{-1} respectively)

    1)0.78   2)0.2   3)0.64   4)0.35

142)The rate equation for a first order reaction is given by $[R] = [R]_0\ e^{-kt}$. A straight line with positive slope is obtained by plotting

([R]$_0$ = Initial concentration of reactant, [R] = concentration of reactant at time, t)

    1)$\log\dfrac{[R]_0}{[R]}$ Vs time   2)[R] Vs time

    3)log [R] Vs time   4)$\log\dfrac{[R]}{[R]_0}$ Vs time

143)For the oxidation of 0.2M $FeSO_4$ solution 0.965 amperes current is passed through it for 1 hour. The volume of the solution that is oxidized in mL is

    1)70

    2)80

    3)60

    4)90

144)Freundlich adsorption isotherms for the physical adsorption of a gas at temperature T_1, T_2 and T_3 are shown in the graph given below. The correct relationship between T_1, T_2 and T_3 is
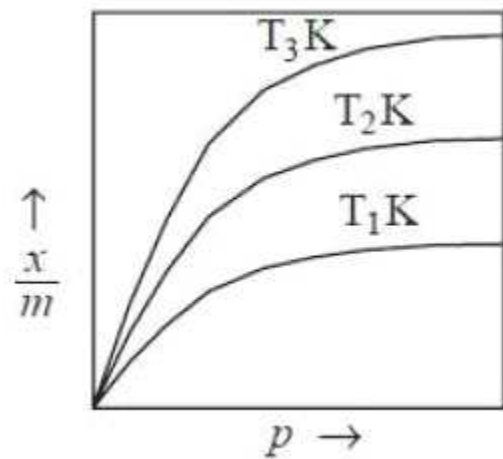
    1)$T_1 < T_2 < T_3$ 2)$T_3 < T_1 < T_2$

    3)$T_3 < T_2 < T_1$ 4)$T_2 < T_1 < T_3$

145)The ore which is concentrated by leaching

    1)PbS   2)$Al_2O_3, 2H_2O$

    3)SnO_2 4)Fe_2O_3

146)Hot concentrated sulphuric acid on reaction with which one of the following elements, produces two gaseous products?

    1)C

    2)S

    3)Cu

    4)Zn

147)The pair of xenon compounds which have same number of lone pairs of electrons on the central atom is

    1)XeO_3, XeF_6

    2)XeF_2, XeF_4

    3)XeF_4, XeO_3

    4)XeF_4, $XeOF_4$

148)Which of the following statements are correct?

I) P_4 molecule is very reactive because of angular strain

II) The basicity of H_3PO_3 is 3

III) In gas phase, all P-Cl bonds of PCl_5 have same bond length

IV) In solid state, PCl_5 exists as an ionic solid, in which anion $[PCl_6]^-$ has octahedral and cation $[PCl_4]^+$ has tetrahedral shape.

    1)I & II

    2)II & IV

    3)I & IV

    4)I & III

149)Arrange the following ligands in the order of increasing field strength

H_2O CO NH_3 I^- F^-

 I   II   III   IV   V

    1)IV < V < I < III < II

    2)IV < V < III < II < I

    3)V < IV < III < I < II

    4)IV < I < V < II < III

150)For which one of the following elements, M^{3+} | M^{2+} standard electrode potential is more positive?
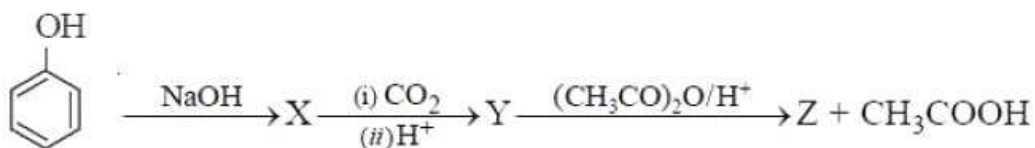
    1)V   2)Cr   3)Mn   4)Fe

151) Which one of the following structures represents the neoprene rubber?

1. $\left[\!\!\left[CH_2 - C\,(Cl) = CH - CH_2 \right]\!\!\right]_n$

2. $\left[\!\!\left[CH_2 - CH = CH - CH_2 - CH_2 - CH\,(CN) \right]\!\!\right]_n$

3. $\left[\!\!\left[NH - CO - NH - CH_2 \right]\!\!\right]_n$

4. $\left[\!\!\left[OCH_2 - CH_2OO\,C \diagdown \bigcirc \diagup CO \right]\!\!\right]_n$

    1) 1

    2) 2

    3) 3

    4) 4

152) The type of bond connecting two nucleotides is

    1) Peptide bond

    2) Hydrogen bond

    3) Phosphodiester bond

    4) Glycosidic bond

$$\underset{OH}{\bigcirc} \xrightarrow{\text{NaOH}} X \xrightarrow[(ii)\,H^+]{(i)\,CO_2} Y \xrightarrow{(CH_3CO)_2O/H^+} Z + CH_3COOH$$

153)

The correct statements about Z from the following are
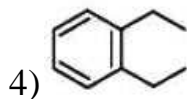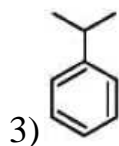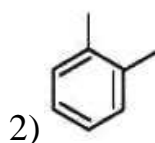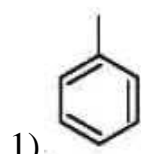
I) It is o-Hydroxybenzoic acid

II) It is a non-narcotic analgesic

III) It acts as antipyretic

IV) It acts as antihistamine

    1) II & III   2) I & IV   3) II & IV   4) I & II

154)Identify the halogen exchange reaction from the following

    1)Finkelstein reaction

    2)Sandmeyer reaction

    3)Fitting reaction

    4)Wurtz - Fittig reaction

155)Which of the following structures represents cumene?

1)   2)

3)   4)

156)In which of the following reactions, benzaldehyde is formed from benzoyl chloride chloride and hydrogen in the presence of Pd-BaSO$_4$?

    1)Stephen reaction

    2)Etard reaction

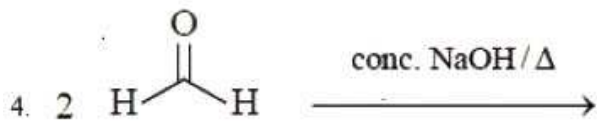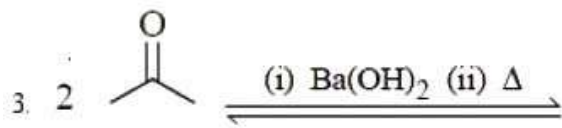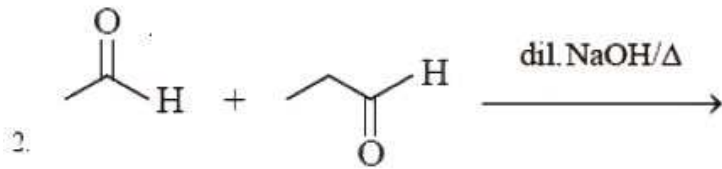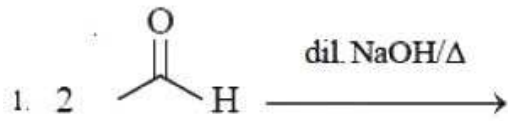   3)Gatterman – Koch reaction

    4)Rosenmund reduction reaction

157)The reagent used for the conversion of allyl alcohol to propenal is

    1)O_3/H_2O –Zn dust

    2)DIBAL - H

    3)CrO_2Cl_2/H_3O^+

    4)$C_5H_5NH^+ CrO_3Cl^-$

158)The compound which does not respond to iodoform test is

    1)CH_3 - CHO

    2)$CH_3 CH (OH) CH_3$

    3)$C_2H_5 – CO – C_2H_5$

    4)$C_6H_5COCH_3$

159) Which of the following reactions does not represent the aldol condensation reaction?

1. 2 $\underset{H}{\overset{O}{\parallel}}$CH $\xrightarrow{\text{dil. NaOH/}\Delta}$

2. $\underset{H}{\overset{O}{\parallel}}$CH + $\underset{O}{\overset{H}{}}$CH $\xrightarrow{\text{dil. NaOH/}\Delta}$

3. 2 $\overset{O}{\parallel}$ $\underset{\Longrightarrow}{\xrightarrow{\text{(i) Ba(OH)}_2 \text{ (ii) } \Delta}}$

4. 2 H$\underset{H}{\overset{O}{\parallel}}$H $\xrightarrow{\text{conc. NaOH/}\Delta}$
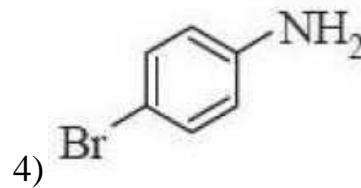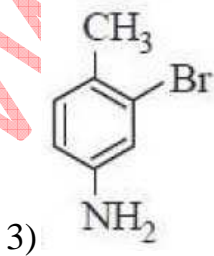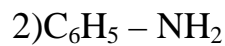
    1) 1

    2) 2

    3) 3

    4) 4

160) The amine which does not react with chloroform and ethanolic potassium hydroxide is

1) $CH_3 - \underset{\underset{CH_3}{|}}{CH} - NH - CH_3$
                        2) $C_6H_5 - NH_2$

3)

4)
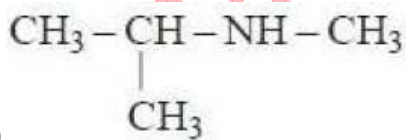
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