TS EAMCET Chemistry Previous Questions with Key – Test 2

121)Calculate the number of protons, neutrons and electrons respectively in $^{14}_{7}N^{3-}$

1)7, 10, 7

2)7, 7, 10

3)10, 7, 7

4)7, 7, 7

122)The order of filling of electrons in orbital in Ti is

1)1s, 2s, 3s, 3p, 3d and 4s

2)1s, 2s, 2p, 3s, 3p, 4s and 3d

3)1s, 2s, 2p, 3s, 4s, 3p and 3d

4)1s, 2s, 2p, 3s, 3d, 3p and 4s

123)The symbol of an element is Une. Its atomic number is

1)110

2)109

3)101

4)108

124)Statement(a): $Na_2O < MgO < Zno < P_4O_{16}$ – Acidic property

Statement (b): F > Cl > Br – electron gain enthalphy

Statement (c): $M^{2-} > M^{-} > M^{+} > M^{2+}$ ionic size

Statement(d): The second ionization enthalpy of Cu is more than second ionization enthalpy of K.

Which of the following is the correct representation of True (T)/ False (F) for the given statements?

1)a-T, b-T, c-F, d-F

2)a-F, b-T, c-F, d-T

3)a-F, b-F, c-F, d-T

4)a-T, b-F, c-T, d-F

125)Group the molecules/ ions according to bond order

1) $\left(O_2^{2-}, Li_2O_2^{2+}\right)\left(F_2, N_2, He_2^{2+}\right)$

2) $\left(F_2, O_2^{2+}, N_2\right)\left(O_2^{2-}, H_2^{2+}, Li_2\right)$

3) $\left(O_2^{-}, Li_2, F_2, He_2^{2+}\right)\left(N_2, O_2^{2+}\right)$

4) $\left(Li_2, F_2, O_2^{2+}\right)\left(N_2, O_2^{2-}, He_2^{2+}\right)$

126)Match the bond order for the following molecules.

List-I	List-II
a)Li_2	i)3
b)N_2	ii)1.5
c)Be_2	iii)1.0
d)O_2	iv)0
	v)2

The correct answer is

1)a-ii, b-iii, c-i, d-v

2)a-iii, b-i, c-iv, d-v

3)a-iv, b-i, c-v, d-iii

4)a-iii, b-ii, c-v, d-i

127)Helium molecule is two times heavier than hydrogen molecule at 298 K. According to kinetic theory, the average kinetic energy of helium at 298 K is

1)Two times higher than a hydrogen molecule

2)Four times higher than a hydrogen molecule

3)Same as that of a hydrogen molecule

4)Half of a hydrogen molecule

128)The ratio between the most probable speed of N_2 at 400 K and CO at 800 K is (molar mass of N_2 = 28 g mol^{-1}, molar mass of CO = 28 g mol^{-1})

1)0.75

2)0.25

3)0.707

4)1.414

129)Relative abundance (in percentage) of ^{14}C isotope is

1)1.1

2)2×10^{-10}

3)2×10^{-4}

4)2×10^{-5}

130)Calculate the molality of 1 litre solution of 93% H_2SO_4 by w/v. [d_{H2SO4} = 1.84 g/cc]

1)3.71

2)8.5

3)12.4

4)10.42

131)Amongst the chemical reactions given below, the reactions with increasing entropy are

a)$H_2O_{(1)} \rightarrow H_2O_{(g)}$

b)$C_{(s)}+CO_{2(g)} \rightarrow 2CO_{(g)}$

c)$2H_{2(g)}+O2_{(g)} \rightarrow 2H_2O_{(1)}$

d)$N_{2(g)+}O2_{(g)} \rightarrow$ Mixture of N2 and O_2

1)a, b, c, d

2)a, b, c

3)a, b, d

4)b, c, d

132)For the formation of NH_3 form N_2 and H_2 at 500 K, the concentration of N_2, H_2 and NH_3 at equilibrium are 1.5×10^{-2} M, 3.0×10^{-2} M, 1.2×10^{-2} M respectively. The equilibrium constant for the reverse reaction is

1)3.56×10^{2}

2)2.81×10^{-3}

3)3.56×10^{-2}

4)2.81×10^{3}

133)Estimate the approximate pK_a of 0.5 MCH_3COOH. Degree of dissociation (ionization) is 0.15. (log 1.32 = 0.12)

1)2.0

2)1.5

3)1.88

4)0.15

134)The natural relative abundance of isotopes of hydrogen is

1) ${}_1^1H = 99.985\%; {}_1^2D = 0.015\%$

2) ${}_1^1H = 99.985\%; {}_1^2D = 0.15\%; {}_1^3T = 10^{-16}\%$

3) ${}_1^1H = 99.100\%; {}_1^2D = 0.900\%$

4) ${}_1^1H = 99.900\%; {}_1^2D = 0.010\%; {}_1^3T = 10^{-15}\%$

135)Calcium on heating in N_2 yields an ionic compound A, which reacts with water to give $Ca(OH)_2$ and a gas B. Identify A and B

1)CaN_2, NO

2)$Ca3N_2$, NH_3

3)CaN_2, NH_3

4)$Ca3N_2$, NO

136)The formula of Borax is

1)$Na_2B4O_7.5H_2O$

2)$Na_2B4O_7.7H_2O$

3)$Na_2B4O_7.10H_2O$

4)$Na_2B4O_7.2H_2O$

137)In which allotrope of carbon does each carbon atom form four bonds with other carbon atoms?

1)Graphite

2)Graphite and C_{60}

3)Diamond

4)Diamond and C_{60}

138)Which of the following chemicals is NOT involved in photochemical smog formation

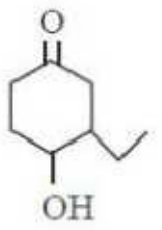
1)SO_2

2)O_3

3)NO_2

4)NO

139)The IUPA name of the following compound is



1)2-Hydroxy -5-oxoethylcyclohexane

2)2-ethyl-4 oxocyclohexanol

3)3-Ethyl-4-hydroxycyclohexanone

4)5-Hydroxy-3-oxethylcyclohexane

140)Number of possible constitutional isomers of alkane with formula C_6H_{14} is

1)3

2)5

3)2

4)10

141)In the process of formation of nitronium ion, nitric acid acts as

1)a base

2)an acid

3)a catalyst

4)a solvent

142)NaCl is heated in an atmosphere of sodium vapour. The resultant yellow colour is du tot the formation of

1)Frenkel defect

2)Schottky defect

3)F-centers

4)Impurity defects

143)Calculate the approximate ΔT_b (in K) for 0.001) molal KCl solution if its van't Hoff factor is 1.98 [k_b of water is 0.52 K kg mol^{-1}]

1)1.03

2)1.03×10^{-3}

3)1.03×10^{-5}

4)1.03×10^{-1}

144)Henry's law constant for CO_2 in waters is 1.67 kbar at 25°C. The quantity of CO_2 in 1000 mL of soda water when packed under 5 bar CO_2 pressure at 25°C is

1)0.084 mol

2)0.167 mol

3)0.252 mol

4)0.336 mol

145)Which of the following correctly represents Nernst equations?

1) $\Delta G = \Delta G^\circ + 2.303\, RT \log \frac{[P]}{[R]}$

2) $\Delta G = \Delta G^\circ - 2.303\, RT \log \frac{[P]}{[R]}$

3) $\Delta G^\circ = \Delta G + 2.303\, RT \log \frac{[R]}{[P]}$

4) $\Delta G^\circ = \Delta G - 2303\, RT \log \frac{[R]}{[P]}$

146)For a particular reaction, the rat constant becomes double in increasing temperature from 27°C to 37°C. Calculate the approximate activation energy (in kcal mol^{-1})

1)1289

2)12.89

3)1.28

4)53.41

147)Identify the correct statements from the following

a)in the oxidation of oxalic acid with $KMnO_4$ in acid medium. Mn^{2+} acts as auto catalyst

b)CdS colloidal solution ca be precipitated by the addition of Cl^- ions

c)The gold number of three protective colloids (A, B, C) is 0.03, 25 and 0.25 respectively. Their protective power follows the order A > C > B

d)Physisorption is an irreversible process

1)a, d

2)b, c

3)a, c

4)a, b, c

148)The oxidizing and reducing agents respectively for the cyanide extraction of silver from argentite ore are?

1)O_2, CO

2)HNO_3, CO

3)O_2, Zn dust

4)HNO_3, Zn dust

149)Aqueous ammonia readily dissolves AgCl because

1)NH_3 molecules readily solvate Ag^+ and Cl^- ions

2)NH_3 molecules abstract chloride from AgCl to form NH_4Cl

3)A soluble complex $Ag(NH_3)^+_6$ is formed

4)A soluble complex $Ag(NH3)^+_2$ is formed

150)What is the final chemical form of Gold (Au) when it is dissolved in aqua regia?

1)Au 2)AuCl 3)$AuCl_2$ 4)$[AuCl_4]^-$

151)Identify the correct actinide series form the following

1)Nd, Np, No

2)Pr, Pa, Pu

3)Pa, Lr, Pu

4)Lu, Lr, Th

152)Consider the complexes

a)[Pd(NH_3)2Cl Br]

b)[Pd(NH_3)2Cl_2]

c)[pd(en)Cl_2]

d)[Pd(en)Cl Br]

e)[Pd$(en)_2$]Cl_2

(en = enthylenediamine)

The total number of geometrical isomers of (a) is same as the total number of geometrical isomers of

1)b

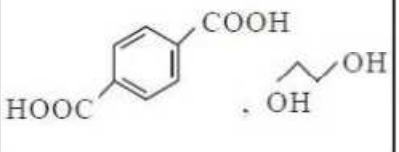
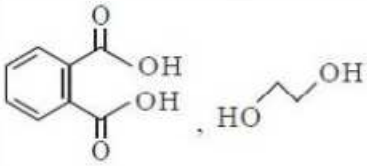
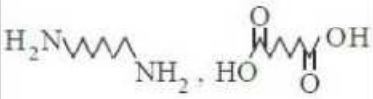
2)c

3)d

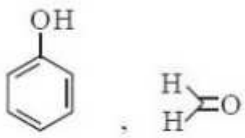
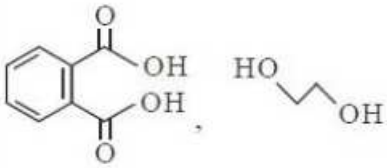
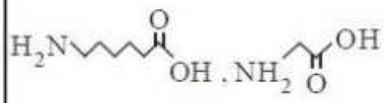
4)e

153)Identify the monomers used in the manufacture of glyptal (X), Dacron (Y) and nylon 2-nylon 6 (Z)

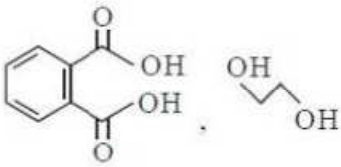
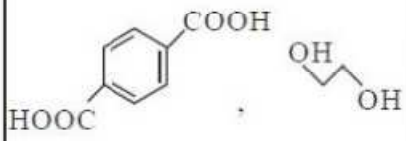
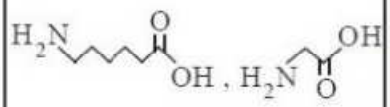
1)

(X)	(Y)	(Z)
		

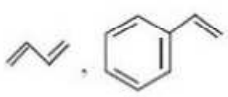
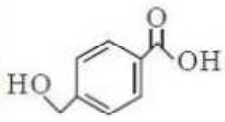
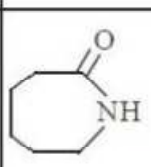
2)

(X)	(Y)	(Z)
		

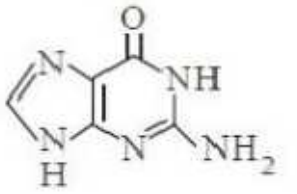
3)

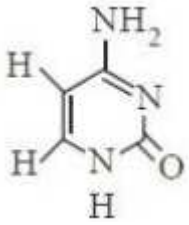
(X)	(Y)	(Z)
		

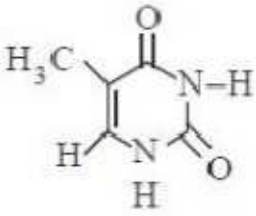
4)

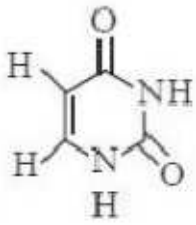
(X)	(Y)	(Z)
		

154)Which of the following is present in RNA only?

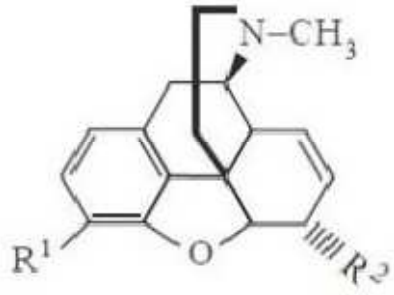
1) 

2) 

3) 

4) 

155)Opiates have the following general structure



The correct representation of R^1 and R^2 for codeine (X) and heroin (Y) is

1)

(X)		(Y)	
R^1	R^2	R^1	R^2
OCH_3	OH	OAc	OAc

2)

(X)		(Y)	
R^1	R^2	R^1	R^2
OH	OCH_3	OCH_3	OAc

3)

(X)		(Y)	
R^1	R^2	R^1	R^2
OAc	OH	OH	OH

4)

(X)		(Y)	
R^1	R^2	R^1	R^2
OAc	OH	OH	OH

156)Match the following

List-I	List-II
a)The reaction of 1, 6- dibromo hexane with Zn	i)$H_3C-C\equiv CH$
b)Reaction of ethanol with concentrated H_2SO_4 at 443K	ii)$H_2C = CH_2$
c)Major product in the reaction of propene with HBr in the presence of benzoyl peroxide	iii) 
d)The reaction of 1, 1-dibromopropane $NaNH_2$ at 433K	iv) 

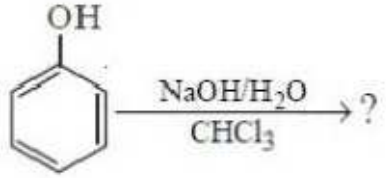
1)a-iv, b-ii, c-iii, d-i

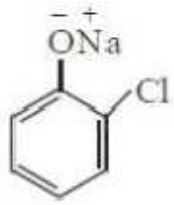
2)a-iii, b-I, c-ii, d-iv

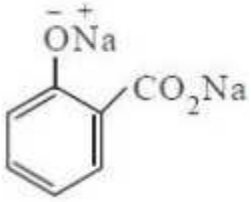
3)a-ii, b-iii, c-I, d-iv

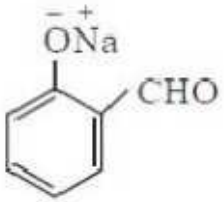
4)a-I, b-ii, c-iv, d-iii

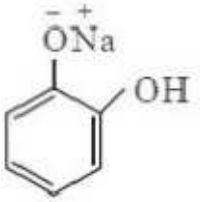
157)The major product of the following reaction is



1) 

2) 

3) 

4) 

158)Which of the following reaction leads to the formation of benzonitrile?

1)Reaction of bromobenzene with KCN

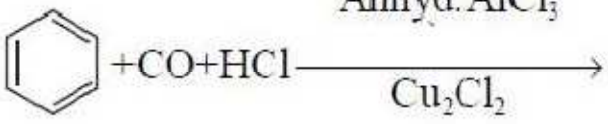
2)Reaction of aniline with $NaNO_2$ and HCl at 273 K followed by the reaction with CuCN

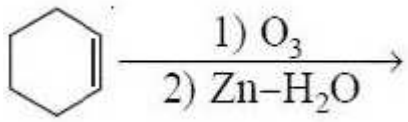
3)Reaction of bromobenzene with $NaNO_2$ and HCl at 273 K followed by the reaction with CuCN

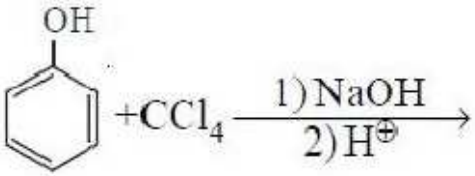
4) Reaction of aniline with KCN

159)From the following reaction, identify the reaction that give carboxylic acids as products

i) $CH_3CH_2CH_2CH_2OH \xrightarrow[2)\,dil.\,H_2SO_4]{1)\,KMnO_4/KOH}$

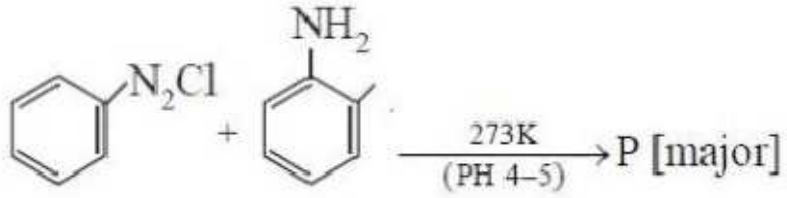
ii) 

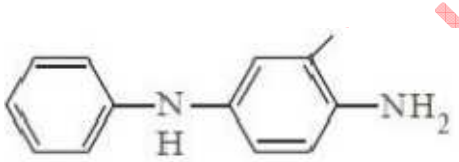
iii) 

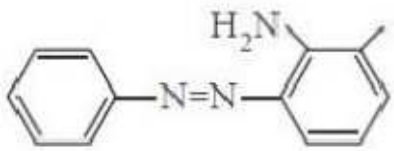
iv) 

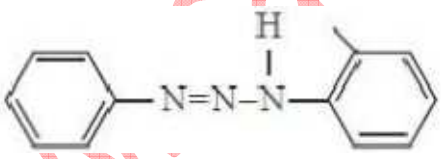
1)i, iii 2)i, iv 3)ii, iii 4)ii, iv

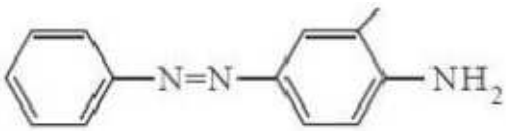
160)In the following reaction, the major product (P) formed is



1) 

2) 

3) 

4) 

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