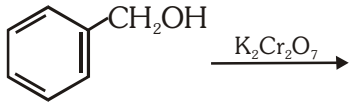
NEET(UG)–2019 (ODISHA) FINAL EXAMINATION

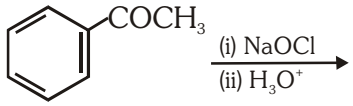
(Held On Monday 20th MAY, 2019)

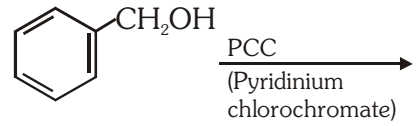
CHEMISTRY

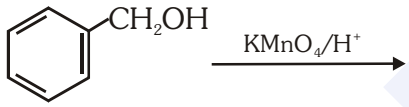
TEST PAPER WITH ANSWER

91. The reaction that **does not** give benzoic acid as the major product is :-

(1) 

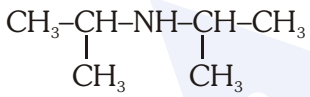
(2) 

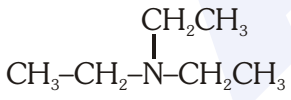
(3) 

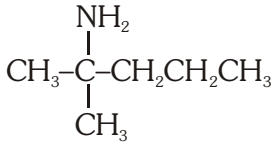
(4) 

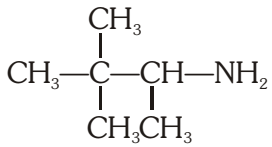
Ans. (3)

92. The amine that reacts will Hinsberg's reagent to give an alkali insoluble product is :-

(1) 

(2) 

(3) 

(4) 

Ans. (1)

93. Which structure(s) of proteins remains(s) intact during denaturation process ?

(1) Both secondary and tertiary structures
(2) Primary structure only
(3) Secondary structure only
(4) Tertiary structure only

Ans. (2)

94. The polymer that is used as a substitute for wool in making commercial fibres is :-

(1) Melamine (2) nylon-6, 6
(3) polyacrylonitrile (4) Buna-N

Ans. (3)

95. The artificial sweetner stable at cooking temperature and does not provide calories is :-

(1) Saccharin (2) Aspartame
(3) Sucralose (4) Alitame

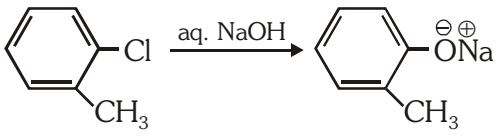
Ans. (3)

96. The liquified gas that is used in dry cleaning along with a suitable detergent is :-

(1) Water gas (2) Petroleum gas
(3) NO_2 (4) CO_2

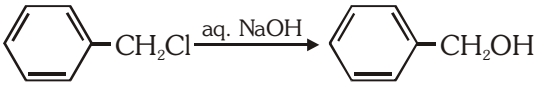
Ans. (4)

97. The hydrolysis reaction that takes place at the slowest rate, among the following is :-

(1) 

(2) $H_3C–CH_2–Cl \xrightarrow{\text{aq. NaOH}} H_3C–CH_2–OH$

(3) $H_2C=CH–CH_2Cl \xrightarrow{\text{aq. NaOH}} H_2C=CH–CH_2OH$

(4) 

Ans. (1)

98. When vapours of a secondary alcohol is passed over heated copper at 573 K, the product formed is :-

(1) a carboxylic acid
(2) an aldehyde
(3) a ketone
(4) an alkene

Ans. (3)

99. The major products C and D formed in the following reactions respectively are :-

$$H_3C–CH_2–CH_2–O–C(CH_3)_3 \xrightarrow[\Delta]{\text{excess HI}} C + D$$

(1) $H_3C–CH_2–CH_2–I$ and $I–C(CH_3)_3$
(2) $H_3C–CH_2–CH_2–OH$ and $I–C(CH_3)_3$
(3) $H_3C–CH_2–CH_2–I$ and $HO–C(CH_3)_3$
(4) $H_3C–CH_2–CH_2–OH$ and $HO–C(CH_3)_3$

Ans. (1)

100. Match the oxide given in column A with its property given in column B:

	Column-A	**Column-B**
(i)	Na_2O	(a) Neutral
(ii)	Al_2O_3	(b) Basic
(iii)	N_2O	(c) Acidic
(iv)	Cl_2O_7	(d) Amphoteric

Which of the following options has all correct pairs?
(1) (i)-(b), (ii)-(a), (iii)-(d), (iv)-(c)
(2) (i)-(c), (ii)-(b), (iii)-(a), (iv)-(d)
(3) (i)-(a), (ii)-(d), (iii)-(b), (iv)-(c)
(4) (i)-(b), (ii)-(d), (iii)-(a), (iv)-(c)

Ans. (4)

101. Match the catalyst with the process :-

	Catalyst	**Process**
(i)	V_2O_5	(a) The oxidation of ethyne to ethanal
(ii)	$TiCl_4+Al(CH_3)_3$	(b) Polymerisation of alkynes
(iii)	$PdCl_2$	(c) Oxidation of SO_2 in the manufacture of H_2SO_4
(iv)	Nickel complexes	(d) Polymerisation of ethylene

Which of the following is the correct option ?
(1) i-c, ii-d, iii-a, iv-b
(2) i-a, ii-b, iii-c, iv-d
(3) i-a, ii-c, iii-b, iv-d
(4) i-c, ii-a, iii-d, iv-b

Ans. (1)

102. The most stable carbocation, among the following is :-

(1) $(CH_3)_3C–\overset{\oplus}{C}H–CH_3$

(2) $CH_3–CH_2–\overset{\oplus}{C}H–CH_2–CH_3$

(3) $CH_3–\overset{\oplus}{C}H–CH_2–CH_2–CH_3$

(4) $CH_3–CH_2–\overset{\oplus}{C}H_2$

Ans. (3)

103. The alkane that gives only one mono-chloro product on chlorination with Cl_2 in presence of diffused sunlight is :-
(1) 2,2-dimethylbutane (2) neopentane
(3) n-pentane (4) Isopentane

Ans. (2)

104. In the following reaction,

$$H_3C–C\equiv CH \xrightarrow[873\ K]{\text{red hot iron tube}} A,$$

the number of sigma(σ) bonds present in the product A is :-
(1) 21 (2) 9 (3) 24 (4) 18

Ans. (1)

105. Aluminium chloride in acidified aqueous solution forms a complex 'A', in which hybridisation state of Al is 'B'. What are 'A' and 'B', respectively ?
(1) $[Al(H_2O)_6]^{3+}$, sp^3d^2
(2) $[Al(H_2O)_4]^{3+}$, sp^3
(3) $[Al(H_2O)_4]^{3+}$, dsp^2
(4) $[Al(H_2O)_6]^{3+}$, d^2sp^3

Ans. (1)

106. Which of the following compounds is used in cosmetic surgery?
(1) Silica (2) Silicates
(3) Silicones (4) Zeolites

Ans. (3)

107. Identify the incorrect statement.
(1) The scientific and technological process used for isolation of the metal from its ore is known as metallurgy
(2) Minerals are naturally occurring chemical substances in the earth's crust
(3) Ores are minerals that may contain a metal
(4) Gangue is an ore contaminated with undesired materials

Ans. (4)

108. A compound 'X' upon reaction with H_2O produces a colorless gas 'Y' with rotton fish smell. Gas 'Y' is absorbed in a solution of $CuSO_4$ to give Cu_3P_2 as one of the products. Predict the compound 'X'
(1) Ca_3P_2 (2) NH_4Cl
(3) As_2O_3 (4) $Ca_3(PO_4)_2$

Ans. (1)

109. Which of the following oxoacids of phosphorus has strongest reducing property?
(1) $H_4P_2O_7$ (2) H_3PO_3
(3) H_3PO_2 (4) H_3PO_4

Ans. (3)

110. Identify the correct formula of oleum from the following

(1) $H_2S_2O_7$ (2) H_2SO_3

(3) H_2SO_4 (4) $H_2S_2O_8$

Ans. (1)

111. When neutral or faintly alkaline $KMnO_4$ is treated with potassium iodide, iodide ion is converted into 'X'. 'X' is -

(1) I_2 (2) IO_4^-

(3) IO_3^- (4) IO^-

Ans. (3)

112. The Crystal Field Stabilisation Energy (CFSE) for $[CoCl_6]^{4-}$ is 18000 cm^{-1}. The CFSE for $[CoCl_4]^{2-}$ will be-

(1) 6000 cm^{-1} (2) 16000 cm^{-1}

(3) 18000 cm^{-1} (4) 8000 cm^{-1}

Ans. (4)

113. Following limiting molar conductivities are given as

$\lambda^0_{m(H_2SO_4)} = x\ S\,cm^2\,mol^{-1}$

$\lambda^0_{m(K_2SO_4)} = y\ S\,cm^2\,mol^{-1}$

$\lambda^0_{m(CH_3COOK)} = z\ S\,cm^2\,mol^{-1}$

λ^0_m (in $S\,cm^2\,mol^{-1}$) for CH_3COOH will be-

(1) $x - y + 2z$ (2) $x + y - z$

(3) $x - y + z$ (4) $\frac{(x-y)}{2} + z$

Ans. (4)

114. A first order reaction has a rate constant of $2.303\times10^{-3}\ s^{-1}$. The time required for 40g of this reactant to reduce to 10 g will be-

[Given that $\log_{10} 2 = 0.3010$]

(1) 230.3 s (2) 301 s

(3) 2000 s (4) 602 s

Ans. (4)

115. For a reaction, activation energy $E_a=0$ and the rate constant at 200K is $1.6\times10^6 s^{-1}$. The rate constant at 400K will be-

[Given that gas constant]

$R = 8.314\ J\,K^{-1}\,mol^{-1}$

(1) $3.2\times10^4\ s^{-1}$

(2) $1.6\times10^6\ s^{-1}$

(3) $1.6\times10^3\ s^{-1}$

(4) $3.2\times10^6\ s^{-1}$

Ans. (2)

116. The correct option representing a Freundlich adsorption isotherm is

(1) $\frac{x}{m} = kp^{0.3}$ (2) $\frac{x}{m} = kp^{2.5}$

(3) $\frac{x}{m} = kp^{-0.5}$ (4) $\frac{x}{m} = kp^{-1}$

Ans. (1)

117. Which of the following is paramagnetic ?

(1) N_2 (2) H_2

(3) Li_2 (4) O_2

Ans. (4)

118. Which of the following is the correct order of dipole moment ?

(1) $NH_3 < BF_3 < NF_3 < H_2O$

(2) $BF_3 < NF_3 < NH_3 < H_2O$

(3) $BF_3 < NH_3 < NF_3 < H_2O$

(4) $H_2O < NF_3 < NH_3 < BF_3$

Ans. (2)

119. Crude sodium chloride obtained by crystallisation of brine solution does not contain

(1) $MgSO_4$ (2) Na_2SO_4

(3) $MgCl_2$ (4) $CaSO_4$

Ans. (1)

120. Which of the alkali metal chloride (MCl) forms its dihyrate salt ($MCl.2H_2O$) easily ?

(1) LiCl (2) CsCl

(3) RbCl (4) KCl

Ans. (1)

121. The pH of 0.01 M NaOH (aq) solution will be

(1) 7.01 (2) 2

(3) 12 (4) 9

Ans. (3)

122. Which of the following cannot act both as Bronsted acid and as Bronsted base ?

(1) HCO_3^- (2) NH_3

(3) HCl (4) HSO_4^-

Ans. (3)

123. The molar solubility of CaF_2 ($K_{sp} = 5.3\times10^{-11}$) in 0.1 M solution of NaF will be

(1) 5.3×10^{-11} mol L^{-1}

(2) 5.3×10^{-8} mol L^{-1}

(3) 5.3×10^{-9} mol L^{-1}

(4) 5.3×10^{-10} mol L^{-1}

Ans. (3)

124. The oxidation state of Cr in CrO_6 is :

(1) −6 (2) +12

(3) +6 (4) +4

Ans. (3)

125. The number of hydrogen bonded water molecule(s) associated with $CuSO_4 . 5H_2O$ is :-
(1) 3 (2) 1
(3) 2 (4) 5

Ans. (2)

126. Formula of nickel oxide with metal deficiency defect in its crystal is $Ni_{0.98}O$. The crystal contains Ni^{2+} and Ni^{3+} ions. The fraction of nickel existing as Ni^{2+} ions in the crystal is
(1) 0.96 (2) 0.04
(3) 0.50 (4) 0.31

Ans. (1)

127. Which of the following statements is correct regarding a solution of two compounds A and B exhibiting positive deviation from ideal behaviour?
(1) Intermolecular attractive forces between A-A and B-B are stronger than those between A-B.
(2) Δ_{mix} H = 0 at constant T and P
(3) Δ_{mix} V = 0 at constant T and P
(4) Intermolecular attractive forces between A-A and B-B are equal to those between A-B.

Ans. (1)

128. In water saturated air the mole fraction of water vapour is 0.02. If the total pressure of the saturated air is 1.2 atm, the partial pressure of dry air is :
(1) 1.18 atm (2) 1.76 atm
(3) 1.176 atm (4) 0.98 atm

Ans. (3)

129. The standard electrode potential (E^-) values of Al^{3+}/Al, Ag^+/Ag, K^+/K and Cr^{3+}/Cr are –1.66 V, 0.80V, –2.93 V and –0.74 V, respectively. The correct decreasing order of reducing power of the metal is :
(1) Ag > Cr > Al > K
(2) K > Al > Cr > Ag
(3) K > Al > Ag > Cr
(4) Al > K > Ag > Cr

Ans. (2)

130. The density of 2 M aqueous solution of NaOH is 1.28 g/cm^3. The molality of the solution is [Given that molecular mass of NaOH = 40 g mol^{-1}]
(1) 1.20 m (2) 1.56 m
(3) 1.67 m (4) 1.32 m

Ans. (3)

131. Orbital having 3 angular nodes and 3 total nodes is :-
(1) 5 p (2) 3 d
(3) 4 f (4) 6 d

Ans. (3)

132. In hydrogen atom, the de Broglie wavelength of an electron in the second Bohr orbit is :-
[Given that Bohr radius, a_0 = 52.9 pm]
(1) 211.6 pm
(2) 211.6 π pm
(3) 52.9 π pm
(4) 105.8 pm

Ans. (2)

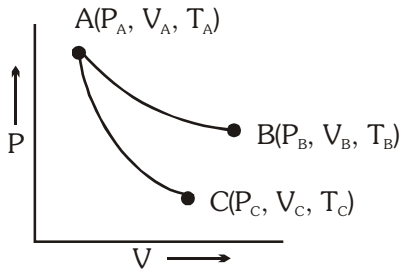
133. The volume occupied by 1.8 g of water vapour at 374 °C and 1 bar pressure will be :-
[Use R = 0.083 bar L K^{-1}mol^{-1}]
(1) 96.66 L
(2) 55.87 L
(3) 3.10 L
(4) 5.37 L

Ans. (4)

134. An ideal gas expands isothermally from 10^{-3} m^3 to 10^{-2} m^3 at 300 K against a constant pressure of 10^5 Nm^{-2}. The work done on the gas is :-
(1) +270 kJ (2) –900 J
(3) +900 kJ (4) –900 kJ

Ans. (2)

135. Reversible expansion of an ideal gas under isothermal and adiabatic conditions are as shown in the figure.



AB → Isothermal expansion
AC → Adiabatic expansion
Which of the following options is **not** correct ?
(1) $\Delta S_{isothermal} > \Delta S_{adiabatic}$
(2) $T_A = T_B$
(3) $W_{isothermal} > W_{adiabatic}$
(4) $T_c > T_A$

Ans. (4)