G.C.E. A/L Examination March - 2017

Conducted by Field Work Centre, Thondaimanaru
In Collaboration with
Provincial Department of Education, Northern Province.

FWC

Grade :- 12 (2018)	CHEMISTRY	Time :- Three hours

Part- I

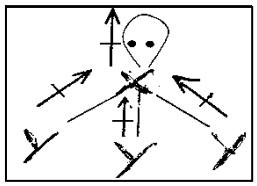
- **Answer the all questions.**

$N_A = 6.022 \times 10^{23}\ mol^{-1}$, $R = 8.314 J mol^{-1} K^{-1}$

1) How many electrons can have $l=2$ for n=3

(1) 5 *(2)* 2 *(3)* 12 *(4)* 10 *(5)* 14

2) XY_3 is the molecule produced by the elements X and Y. Which is false statement in the following on the basis of the structure given below.

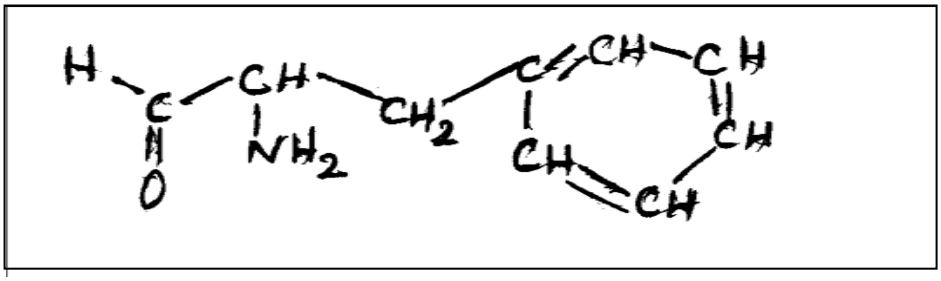


(1) Electro negativity of X is greater than Y
(2) The resultant dispole moment is not zero.
(3) Electron geometry and shape are tetrahedral and trigonal pyramid respectively.
(4) X and Y are non metal
(5) Element X is in group VI.

3) $C^aH_2 = C^b = C^cH - C^dH_3$ Which is thee correct order of electrone gativity of C in the molecule.

(1) c >d > b>a 2) b > c > d >a 3) b > c > a >d 4) c > a > b > d 5) a > d > b >c

4) Which is not the oxidation number of C atoms in the following molecule.



(1) -1 *(2)* 0 *(3)* +1 *(4)* -2 *(5)* +2

5) Composition of Fe^{2+} in an aqueous solution is 14ppm. What is the concentration of Fe^{2+} in the solution in $mmoldm^{-3}$?

(1) 2.5 *(2)* 0.25 *(3)* 0.025 *(4)* 0.50 *(5)* 1.00

6) Standard enthalpy of combustion of $Al_{(s)}$, $S_{(s)}$ and $SO_{2(g)}$ are a,b and c kjmol^{-1} standard enthalpy of formation of $Al_2(SO_4)_3$ is d kJmol^{-1}

$Al_2O_{3(s)} + 3S0_{3(s)} \longrightarrow Al_2(SO_4)_{3(s)}$

Enthalpy change of the above reaction is

1. d – 2a – 3b – 3c
2. 2a + 3b + 3c – d
3. a – 2b + c + d
4. d – a – b – c
5. No suitable answer.,

7) Which of the following statement is false?

(1) The highest first ionization element is He

(2) Elements in period 4 and 6 consist of elements in three physical states.

(3) $CO_{2(s)}$ is non polar molecular lattice

(4) Non - polar covalent bond exist is in liquid of Argon.

(5) H_2O_2 function as oxidizing agents and disinfectant.

8) $KHC_2O_4 . H_2C_2O_4$ reacts with $KMnO_4$ in acidic medium and forms Mn^{2+}, K^+, CO_2, and H_2O as the products stocniometric radio between and $KMnO_4$ and $KHC_2O_4 . H_2C_2O_4$

(1) 4 : 5 *(2)* 8: 5 *(3)* 5: 4 *(4)* 4: 10 *(5)* 1: 5

9) Number of atoms of oxygen in a drop of water coming from burette.

1) $^1/_{18}$x 6.022x10^{23} *2)* $^1/_{18}$x 6.022x10^{22} 3) $^5/_{18}$x 6.022x10^{21}

4) $^5/_{18}$x 6.022x10^{23} *5)* $^1/_{18}$x 6.022x10^{21}

10) Which of the following equations is not redox reaction.

1) $3CuO + 2NH_3 \rightarrow 3Cu + N_2 + 3H_2O$

2) $Na_2S_2O_8 + 2NaI \rightarrow I_2 + 2Na_2SO_4$

3) $Mg + ZnSO_4 \rightarrow MgSO_4 + Zn$

4) $2Pb(NO_3)_2 \rightarrow 2PbO + 4NO_2 + O_2$

5) $K_2CO_3 + 2HCl \rightarrow 2KCl + H_2O + CO_2$

11) $CH_3OH_{(2)} \rightleftharpoons CH_3OH_{(g)}$ $\Delta H = +35.3 kJmol^{-1}$

The equation represents the equilibrium between liquid methanol and methanol vapour of 338K given the $\Delta H = +35.3 kJmol^{-1}$ enthropy change when methanol is vaporized is,

1) $-104.4 JK^{-1}mo^{-1}$ *2)* $+104.4 JK^{-1}mo^{-1}$ 3) $+208.8 JK^{-1}mo^{-1}$

4) $+52.2 JK^{-1}mo^{-1}$ 5) $208.8 JK^{-1}mo^{-1}$

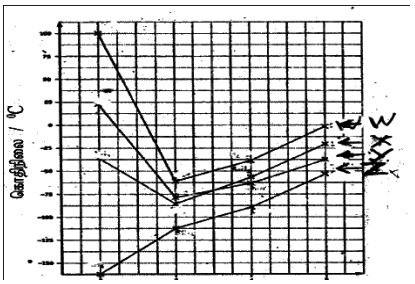
12) 0.025mol of a metal sulphate has a mass of 4.60 g . Identify the metal ion in the sample.

(1) Ca^{2+} *(2)* Be^{2+} *(3)* Sr^{2+} *(4)* Ba^{2+} *(5)* Mg^{2+}

13) Which of the following statements is false?

1. No exchange of energy, matter or work in an isolated systems.
2. Gases show ideal behaviour at high temperatures and low pressure.
3. Ionic compounds do not conduct electricity in solid state.
4. Heat capacity is an intensive property.
5. Standard enthalpy of $Ca_{(s)}$ is zero.

14) Boiling points of hydrides of P block elements in groups 14, 15,16 and 17 are indicated by the graphs W,X,Y and Z the correct order of the groups 14,15,16 and 17 respectively.



1) W , X , Y, Z
2) Z , X , W, Y
3) X , Y , W, Y
4) Z , Y , X , W
5) W , Z , X , Y

15) 5.20 g sample of Cu - Zn alloys reacts with HCl and to produce hydrogen gas If the hydrogen gas has a volume 0.50dm^3 at 27^{0}C and 1x 105 Nm^{-2}. What is the percentage of Zn in the alloy (C u does not react with HCl) (Zn = 65)

(1) 33.3% *(2)* 25% *(3)* 50% *(4)* 75% *(5)* 66.7%

❖ **For each the questions 16 to 20 follow this instructions**

(1)	*(2)*	*(3)*	*(4)*	*(5)*
Only (a) & (b) are correct	Only (b) & (c) are correct	Only (c) & (d) are correct	Only (d) & (a) are correct	Any other number or combination of response is correct

16) Which of the following statements indicating the increasing order of the properties is or are true.

(a) C – O bond length CO < CO_2 < CO_3^{2-}

(b) Electro negativity of N atom NH_3 < NO_3^- < NO^-_2

(c) Bond angle S_1Cl_4 < ICl_4^- < NCl_3

(d) Melting points KCl< NaCl < LiCl

17) Which of the following statement regarding to NO_2^+ ion is or are true?

(a) ,It has two N = O bond.

(b) NO_2^+ and H_2S have the same shape

(c) N_2O_5 (s) contains NO_2^+ and NO^-_3 ions.

(d) N has no lone pair electrons.

18) Which of the following ions has three unpaired electrons.

(a) Cr^{3+} (b) Co^{2+} (c) Fe^{3+} (d) Ni^{2+}

19) Secondary forces that found in CH_3CH_2Cl

(a) Hydrogen bond

(b) London force

(c) Dipole - dipole interaction

(d) convalent bond

20) Which of the following reaction releases energy.

(a) $CaC_2O_{4(s)} \rightarrow CaCO_3 + CO_{(S)}$

(b) $N_{2(g)} + O_{2(g)} \rightarrow 2NO_{(g)}$

(c) $CH_{4(g)} + 2O_{2(g)} \rightarrow CO_{2(g)} + 2H_2O_{(l)}$

(d) $Ba(OH)_2 + H_2SO_{4(m)} \rightarrow BaSO_{4(s)} + 2H_2O_{(l)}$

❖ **In question number 21 to 25 two statements are given in respect of each questions.**

Response	First statement	Second statement
(1)	True	True and correctly explains the first statement
(2)	True	True, but does not explain the first statement
(3)	True	False
(4)	False	True
(5)	False	False

	First statement	Second statements
21)	Na(s) forms $Na_3N(s)$ when heated with $N_2(g)$	N≡N bond energy is high.
22)	$I_2(s)$ is more soluble in KI(aq)	I_3^- is stable.
23)	Boiling point of Xe is higher than CH_4	Molarmass of Xe is greater than CH_4
24)	Reactions that have negative free energy change ($\Delta G < 0$) are spontaneous.	ΔG of a reaction that has negative values of ΔH and ΔS is always negative
25)	BeO reacts with strong acid and strong base	BeO is amphoteric