

STD XI- ENTERANCE TEST -2016
CHEMISTRY QUESTIONS:SOLUTIONS.

- 'A' is Fe_3O_4
 $3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2 \uparrow$
Molar mass of $Fe_3O_4 = 168 + 64 = 232/4 = 58$
Ans: 58
- $AgNO_3 + KBr \rightarrow AgBr \downarrow + KNO_3$

1M	1M
0.25M	0.25M

o.25M of AgBr = $108 + 80 = 188/4 = 47$
Ans: 47
- The element is Chlorine. It exists as Cl_{17}^{35} and Cl_{17}^{37} . Number of neutrons : 18,20.
Ans:02
- Temperature is constant.
 $P_1 = 0.2 \text{ atm}$ $P_2 = 15 \text{ atm}$
 $P_1 V_1 = P_2 V_2$.
 $0.2 * V_1 = 15 V_2$.
 $\frac{V_1}{V_2} = \frac{15}{0.2} = \frac{150}{2} = 75$
Ans: 75
- $2C_5H_{10} + 15O_2 \rightarrow 10CO_2 + 10H_2O$.
M=15
Ans:15
- $$\begin{array}{ccccccc}
 H_2C & = & C & - & C & = & C & - & CH_3 \\
 & & | & & | & & | & & \\
 & & H & & CH_3 & & H & &
 \end{array}$$
Ans:06
- $CH_3COONa(A) + NaOH \xrightarrow{CaO} CH_4(B) + Na_2CO_3$
Parent acid of CH_3COONa is CH_3COOH . Molar mass: 60
Ans: 60
- $Al_2O_3 \cdot 2H_2O(\text{Bauxite}) \rightarrow 2Al$.
Molar mass of $Al_2O_3 \cdot 2H_2O = 138$.
Weight loss for 1M of Bauxite = $\frac{60.87}{100} * 138 = 84.0006$.
Weight loss for 0.5M(69 g) of Bauxite = 42.003
Ans: 42
- 'A' is Phosphorous
 $P_2O_5 + 3H_2O \rightarrow 2H_3PO_4(B)$
Molar mass of $H_3PO_4 = 98$
Ans: 98
- $2FeSO_4 \rightarrow Fe_2O_3 + SO_2 \uparrow + SO_3 \uparrow$

1M	0.5 M	0.5M
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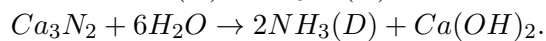
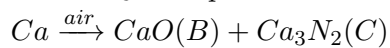
Molar mass of $SO_2 : 64 + SO_3 80 144/2 = 72$
Ans: 72

11. Reaction (i) : $AgCl + NaNO_3 \rightarrow Ag^+ + Cl^- + Na^+ + NO_3^-$ All four ions freely moving in the solution.

Reactions iii, v, vii, viii form insoluble hydroxides as by-products. Reactions ii,iv,vi form gaseous products along with NaCl.

Ans: 07

12. $CaHCO_3$ is responsible for temporary hardness of water . So 'A' is Ca.



Molar mass of NH_3 :17

Ans: 17

13. All except v,vi,ix.

Ans: 07

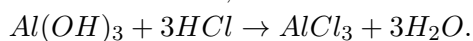
STD XI- ENTERANCE TEST -2015
CHEMISTRY QUESTIONS:SOLUTIONS.

1. $A : Cl_2, B : H_2, C : HCl$.

On electrolysis of $NaCl + H_2O \rightarrow Na^+, H^+, OH^-, Cl^-$ ions formed

At anode: Cl^-, OH^- liberated Cl^- evolves as Cl_2 , OH^- remains in the solution

At cathode: H^+, Na^+ liberated H^+ evolves as H_2 , Na^+ remains in the solution.

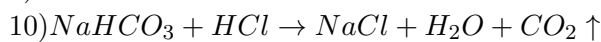
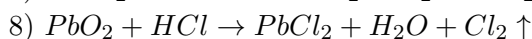
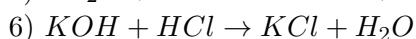
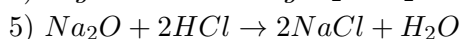
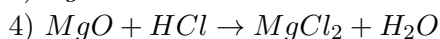
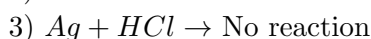
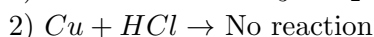
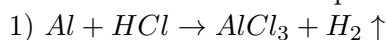


1M 3M

10 Molecules 30 Molecules.

Ans: 30

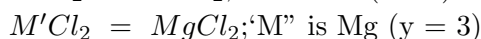
2. We need substances that produce gases. (water vapour is not gaseous at $60^\circ C$)



Reactions 1,7,8,9,10.

Ans: 05

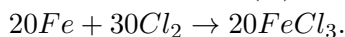
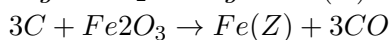
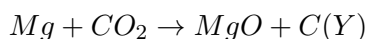
3. $MCl_2 = CaCl_2$; 'M' is Ca. (x= 4)



$$x + y = 3+4= 7$$

Ans: 07

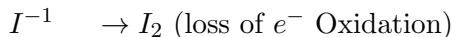
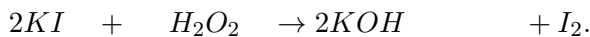
4. X is CO_2 .



1Fe transfers 3 electrons; 20 Fe will transfer 60 electrons

Ans: 60

5. $+1 - 1 \quad + 1 - 1 \quad + 1 - 2 + 1 \quad 0.$



Thus reaction 'd' is a redox reaction. H_2O_2 undergoes reduction.

Ans:34

6. HCl : acidic; $NaOH'$ $NaHCO_3'$ NH_4OH : basic; $NaCl$: neutral.

Ans: 03

7. Fullerene (Football shaped) have 6 membered rings (x=6) and 5 membered rings (y=5)

Ans: 11

8. $\frac{P_1}{T_1} = \frac{P_2}{T_2}$

$$P_1 = 1.8 \text{ atoms} \quad P_2 = 2.1 \text{ atoms} \quad T_1 = 300 \quad T_2 = ?$$

$$T_2 = \frac{2.1 * 300}{1.8} = 350K. = 77^\circ c$$

Ans: 77

9. Molecular weight of SO_3 : 80; $NaOH$: 40

Each molecule of SO_3 is double in weight of $NaOH$.

\therefore Number of molecules in 100g. SO_3 . = Number of molecules in 50g. $NaOH$.

OR 80 gms of SO_3 : 6×10^{23} molecules

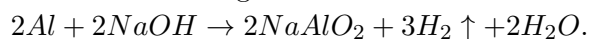
$$100g \rightarrow \frac{100}{80} * 6 \times 10^{23} \text{ molecules}$$

40 gm of $NaOH$: 6×10^{23} molecules

$$\therefore 40 * \frac{100}{80} * 6 \times 10^{23} \text{ molecules} = 50 \text{ g NaOH}$$

Ans: 50

10. 25 % of 720=180 g.



$$2M(54 \text{ g}) \qquad \qquad \qquad 3M(6 \text{ g}).$$

$$180g \qquad \qquad \qquad 20\text{gms.}(10 \text{ Moles})$$

Ans: 10

11. $MgCO_3 \rightarrow MgO + CO_2 \uparrow$

$$84g \qquad \qquad 40g$$

$$21g \qquad \qquad 10g.$$

\therefore 21g of pure $MgCO_3$ i.e 10% of 210 gms.

Ans: 10

12. $2NaHCO_3 + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O + 2CO_2 \uparrow$

$$2M \qquad \qquad 1M$$

$$0.6M \qquad \qquad 0.3M$$

\therefore we need 0.3M H_2SO_4 . for complete reaction.

Given 900 ml \rightarrow 3M. solution

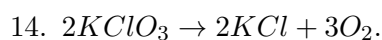
\therefore for 0.3 M we need 90 ml solution

Ans: 90

13. $C_3H_6 + H_2 \rightarrow C_3H_8$; Molecular weight of $C_3H_8 = 44$

Ans: 44

STD XI- ENTERANCE TEST -2014
CHEMISTRY QUESTIONS:SOLUTIONS.



$$\begin{array}{rcl} 245 \text{ gms} & & 96 \text{ gms.} \\ ? & & 0.384 \text{ gms} \end{array}$$

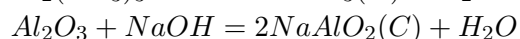
$$\frac{0.384 * 245}{96} = 0.980$$

0.98 gm of $KClO_3$ is decomposed.

$$0.98 = \frac{x}{100} * 4.90; x = 20$$

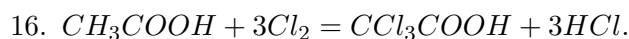
Ans: 20

15. 'A' is Aluminium.



Molecular weight of $NaAlO_2$:82

Ans: 82



$$1M(60 \text{ gm}) \quad 1M(163.5 \text{ gm}) (T)$$

$$T - 100.5 = 63$$

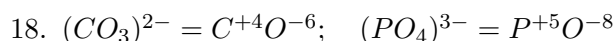
Ans: 63

17. Butane: C_4H_{10}

$$C : H = 4 : 10 = 48 \text{ gm} : 10 \text{ gm} = 24 \text{ gm} : 5 \text{ gm.}$$

Hence 5 g associated with 24 g carbon.

Ans: 24

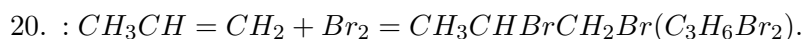


$$P = 5 \quad C = 4 \quad P - C = 01$$

Ans: 01

19. There are 14 elements in the actinide series. Actinium (89) to Lawrencium (103). These are in 7th period, 3rd group. Radium is 7th period, 2nd group. So the atomic number of Ra = 103 - 15 = 88

Ans: 88



$$\text{Mol wt of } C_3H_6Br_2 = 202 = 150 + 52$$

Ans: 52

21. Sample 'A' is 90% m/m

$$S(g) \text{ contains } \frac{90}{100} * 5 \text{ gms of acid}$$

Sample 'B' is 10 % m/m

$$5 \text{ g contains } \frac{5 * 10}{100} \text{ gms.} = 0.5 \text{ gms of acid.}$$

Resultant solution : 70% m/m

$$\frac{0.95 + 0.5}{S + 5} = \frac{70}{100}$$

$$s = 15$$

Ans: 15

22. If the mass of BaO is taken as 'X' gms, mass of CaO will be (X - 2.5)gms



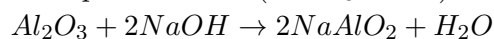
$$\begin{array}{cccc}
 153\text{g} & 56\text{g} & 233\text{g} & 136\text{g} \\
 \text{Xg} & (2.5-\text{X})\text{g} & 1.523\text{Xg} & 2.43(2.5-\text{X})\text{g}
 \end{array}$$

$$1.523\text{X gm} + 2.43(2.5-\text{X})\text{gm} = 4.713\text{g}; \text{X} = 1.5\text{g}$$

$$\% \text{ of X (BaO) in the mixture} = 1.5 \times 100 / 2.5 = 60$$

Ans: 60

23. 6.9% pure Bauxite ($\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$) = 69 gm in 1 Kg = 0.5 mol.



$$0.5\text{mole} \quad 1\text{mole}(40\text{g})$$

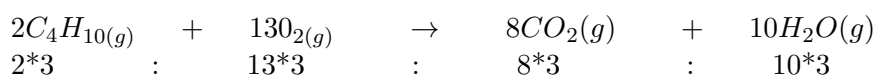
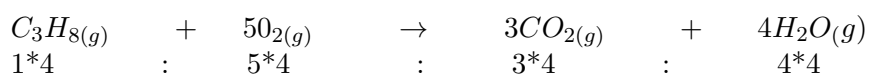
Ans: 40

24. Third member of the homologous series of HCHO ; $\text{C}_2\text{H}_5\text{CHO}$ will have molecular weight 30+14+14, as the difference in mol wt of any two members in homologous series is 14.

Ans: 58

25. Volume of propane in the mixture = $40 \times 10 / 100 = 4$ lit

$$\text{Volume of butane in the mixture} = 10 - 4 = 6 \text{ lit}$$



Total volume of carbon dioxide gas added to the atmosphere:

$$12 \text{ lit (from propane)} + 24 \text{ lit (from butane)} = 36 \text{ lit}$$

Ans: 36

26. $\text{XO}_2(g)$ gas bleaches blue litmus so it is sulphur dioxide gas.



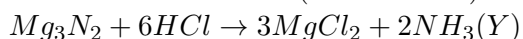
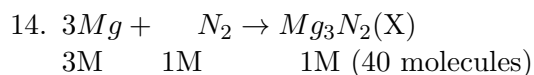
$$1.5\text{M} \qquad \qquad 1.5\text{M} (96 \text{ gm})$$

Ans: 96

STD XI- ENTERANCE TEST -2013
CHEMISTRY QUESTIONS:SOLUTIONS.

13. Atomic number 15: electronic configuration: 2, 8, 5. ; group 15

Ans: 15

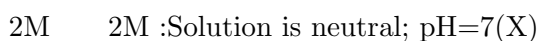
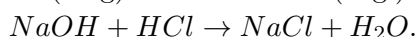
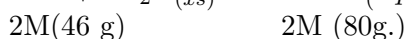
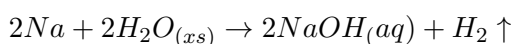


40 Molecules 80 Molecules

Ans: 80

15. (Correction in the Question paper : 73 grams of dry HCl)

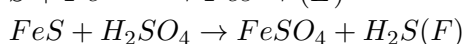
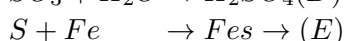
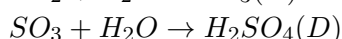
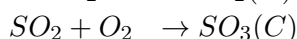
'B' is Na



$\therefore 6X=42$

Ans: 42

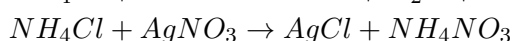
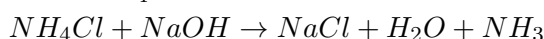
16. 'A' is Sulphur (S)



Molecular weight of H_2S (34) + Atomic weight of S (32)

Ans: 66

17. 'A' is NH_4Cl .

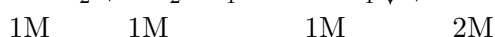


white ppt

Molecular weight of A = $14+4+35.5=53.5$ XY.5

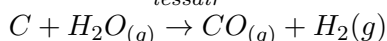
Ans: 53

18. $BaCl_2 + Na_2SO_4 \rightarrow BaSO_4 \downarrow + 2NaCl. + 20MNa_2SO_4(\text{unreacted})$



Ans:10

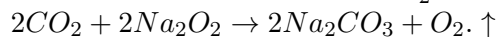
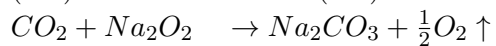
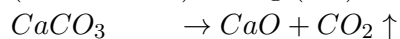
19. $CH_4 + O_2 \xrightarrow[\text{lessair}]{\Delta} C(X) + 2H_2O$



Sum of molecular weights of CO (28) + H_2 (2) =30

Ans: 30

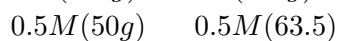
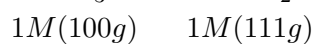
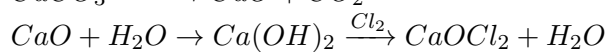
20. (75% of 800) = 600g (6M) $CaCO_3$



$$3M \ O_2 = 6.022 \times 10^{23} \times 3 = 18.066 \times 10^{23}.$$

Ans: 18

21. $CaCO_3 \rightarrow CaO + CO_2$



Ans: 50 g

22. 18.066×10^{23} molecules = 3M O_2 molecules

3M O_2 molecules = 2 moles of O_3 molecules

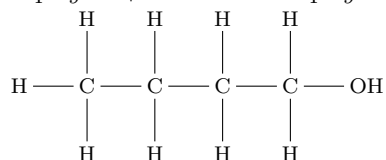
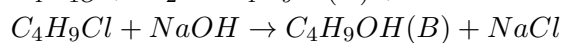
$$= 2 \times 6.022 \times 10^{23} = 12.044 \times 10^{23}$$

Ans: 12

23. It is Iodine

Ans: 53

24. $C_4H_{10} + Cl_2 \rightarrow C_4H_9Cl(A) + HCl.$

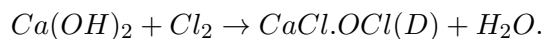


Ans: 09

STD XI- ENTERANCE TEST -2012
CHEMISTRY QUESTIONS:SOLUTIONS.

14. $CaO + H_2O \rightarrow Ca(OH)_2$; $Ca(OH)_2$ is 'X'
 $Ca(OH)_2 + 2HNO_3 \rightarrow Ca(NO_3)_2 + 2H_2O$. $Ca(NO_3)_2$ is 'Y'
- | | | | |
|----|----|----|----|
| 1M | 2M | 1M | 2M |
|----|----|----|----|
- 24 Molecules 48 Molecules
 Ans: 48
15. 'Y' is $Ca(NO_3)_2$
 Ans: 06
16. Loss of electrons means oxidation. i.e. \uparrow se in +ve valency.
 Here it is $Fe^{2+} \rightarrow Fe^{3+}$
 (I) (II)
 \therefore (II) must be Fe_2O_3 .
 $6Fe_2O_3 + 36HCl \rightarrow 12FeCl_3 + 18H_2O$.
 6 Fe_2O_3 gives 12 $FeCl_3$ i.e. $12 \times 3 = 36 Cl^-$ ions.
 Ans: 36
17. 'X' is $Al_2(CO_3)_3$
 $Al_2(CO_3)_3 \xrightarrow{\Delta} Al_2O_3 + 3CO_2 \uparrow$
 X Y
 $Al_2(CO_3)_3$ has 9 oxygen atoms.
 Ans: 09
18. $Ca(OH)_2 + 2CO_2 \xrightarrow{excess} Ca(HCO_3)_2$. (Z)
 Valency of $HCO_3 = -1$
 Ans: 01
19. $3Mg + N_2 \xrightarrow{\Delta} Mg_3N_2 \cdot \xrightarrow{6H_2O} 3Mg(OH)_2 + 2NH_3$
- | | | | | |
|------|------|----|----|----|
| 3M | 1M | 1M | 3M | 2M |
| 1.5M | 0.5M | | | 1M |
- Ans: 01
20. $Mg(OH)_2 + 2HNO_3 \rightarrow Mg(NO_3)_2 + 2H_2O$.
- | | |
|----|-----|
| 1M | 1M. |
| 3M | 3M. |
- It will be a neutral solution pH=07.
 Ans: 07
21. $SO_2 + 2H_2S \rightarrow 3S + 2H_2O$
- | | | |
|----|----|----|
| 1M | 2M | 3M |
|----|----|----|
- 10 Molecules+20 Molecules=30 atoms.
 Ans: 30
22. $NaCl$ in $H_2O \rightarrow Na^+, Cl^-, H^+, OH^-$ H^+ evolves at cathode, Cl^- at anode.
 NaOH is formed. $\therefore X = NaOH$.
 $2NaOH + CO_2 \rightarrow Na_2CO_3 + H_2O$.
 $Na_2CO_3 \cdot 10H_2O$ found in nature.
 Ans: 10

23. 'B' is Cl_2

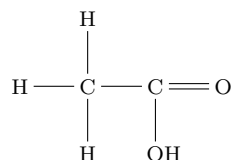
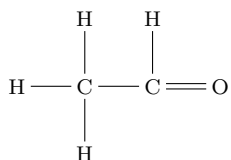
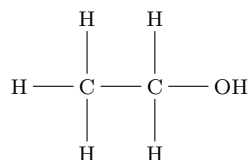


Ans: 01

24. Ethanol

Acetaldehyde

Acetic Acid



1 (C-O) single bond. No (C-O) Single bond 1 (C-O) single bond

$x=1$

$y=0$

$z=1$

$x + y + z = 2$

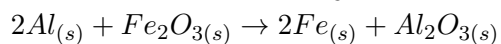
Ans: 02

25. $C_2H_5CONH_2$, Next homologue $C_3H_7CONH_2$.

Difference in Molecular Weight of homologues $(CH_2) = 12+2=14$

Ans: 14

26. 'X' is Al and 'Y' is Fe_2O_3



Fe Molar mass = 56

Ans: 56