**SET 7**

**CHEMISTRY 233/1**

**MARKING SCHEME.**

1. C- unburnt gas √1

D- Blue greenish zone √1

2. (a) Reduction √1

(b) Oxygen is removed from Lead (ii) Oxide and it is reduced to √ ½ lead metal

(c) Hydrogen gass // Ammonia gas √1

3. (a) Ammonia gas reacts with water to form ammonia solution which is a weak alkali√1

NH3(g) + H2O(l) NH4OH(aq) // It ionizes partially producing hydroxyl ions OH- ions changes √1 red litmus to blue

(b) Provide a larger surface area of absorption of ammonia gas // prevents the sucking back of water as ammonia is very soluble in water √1

4(a) T ; 2.8.2 U ; 2 :8.3, V ; 2 :8 :4 W ; 2 :8 :5 X ; 2 :8 :6 Y ;2 :8 :7 √ (1 ½ )

(b) Ionic bond √ ½ element T is a metal and Y is a non-metal hence there is comlpete transfer of electrons from T to Y

5.(a) Prepared in an open field fume chamber

(b) Cl2(g) + H2O(l) HCl(aq) + HOCl(aq) √1

(c) the yellow solution gets discolourised √1

6) Mass of carbon = 12 x 0.786√ ½

 44

= 0.21436

Mass of hydrogen = 0.25-0.21436

=0.03564√ ½

Elements C H

Mass 0.21436 0.03564 √ ½

R.A.M 12 1

No. Of moles 0.21436 0.03564

 12 1√ ½

Mole ration 0.01786 0.03564√ ½

 0.01786√ ½

 0.01786

 0.01786

 1 : 1.9955√ ½

 1 : 2

E.F CH2 √ ½

7. (a) CaCO3 -H√1

CaO –J √1

(b) fertilizer/for liming/making motar /rising √1 PH of soil

8. The reaction formed an insoluble salt of lead √1

Q- HCl(aq) or H2SO4(aq)

9.(a) Rate of diffusion is direclty proportional to the square root of density

(b) ROW = RMMX

ROX RMMN

12 = 44

 X 16 √ ½

X= 12 x √16 √ ½

 √44 2

X= 7.2365cm3/s√1

10. (a) N- Sodium ethanoate √1 /CH3COONa/Sodium acetate

P- Methane gas √1 CH4

(b) Substitution reaction√1

11. (a) Cold √ ½ and dilute √ ½ sodium hydroxide at room temperature

(b) sterlizing of water √1

As a bleaching agent √1

12.In solution/molten √1 or fussed forms since the ions are free √1

13. P, S, Q, R √2

Decreasing reactivity

14

15. 2NaOH(aq) + H2X Na2X(aq) +2H2O(l)

Molarity of NaOH = 4

 40

=0.1M √ ½

No of moles of NaOH present in 22.2cm3

If 1000cm3 0.1moles

∴22.2cm3 22.2 x 0.1 √ ½

 1000

 =0.00222moles √ ½

No. Of moles of dibasic acid = ½ x 0.00111moles

If 0.00111moles 0.1g

∴1 mole 1 x 0.1√ ½

 0.00111

=90.09g √1

=90g

16. Magnesium nitride √ which is formed reacts with water to liberate Ammonia gas which dissolves is alkaline hence tuns red litmus paper blu

17.(a) Iron (ii) Sulphide and dilute hydrochloric acid √1

(b) Hydrogen sulphide √1

It reduces Sulphur (iv) Oxide to sulphur and itself is oxidised to water √ ½

(c) Vulcanization of rubber to make it harder, stronger and more durable

Manufacture of sulphur drugs

Match sticks]

Explosives

Gun powder

18.(a)(i) Zinc ions and copper ii ions Zn2+/Cu2+

(ii) Sulphate ions (SO42-)

(b) Zn(aq)  + 4OH-(aq)  Zn(OH)4 2- aq√1

19a)P3- 2 :8 :8, S2- 2 :8 :8, K+2 :8 :8

P3- is bigger than S2- √1 P3- has lees protons bonding to weaker nuclear attraction on electrons √ ½

20.(a) Pass the mixture in a container containing water√1 than for L to dissolve collect the gas by downward delivery method since its denser than air

21. (a) Phenolphenalein Acid Base

 Pink

Methyl orange pink

 (b) H+(aq) + OH(aq) H2O(l)

 (c) It gives the strength of the bases and acids

 | | | | | √ ½

H

22. (i) C = C - C - C - C - pent-tene √ ½

 | | | | |

H

H

H

H

H

H

H

H

H

H

H

H

H

H

H

H

H

H

 | | | √ ½

H

H

(ii) --C - C = C - C - C -

 | | | | | pent-2-ene√ ½

H

H

H

H

 | | | |

(iii) C = C - C - C - H 3-methylbut-i-ene√ ½

 | | |

H

 -

H

H

-

C

H

 |

H

(iv) H3 C - C = C - CH3 √ ½ 2-methylbut-2-ene

 | |

H

CH3

23.(i) A Rhombic Sulpur √ 1

B Monoclinic Sulphur √ 1

(ii) heat it to a temperature above 96oC√ 1

24. PCl(g) has a simple √ 1 molecular structure. Molecules are held together by weak Van Der Waals forces.

MgCl2 has giant ionic structure ions are held together by strong ionic bond√ 1

25(a) Sulphuric Oxide √ 1

(b)(i) The gas escaped through the thislte funnel √ 1

(ii) The gas delivery tube was immersed in the reagent √ 1

26.(i) Group V√ 1

(ii) Since its a liquida t room temperature, its melting point is below√ 1 the rooom temp due to weak inter-moleculer force√ of attraction hence a simple molecular structure

(iii) Both elements X and Bromine are non-metals because they don’t conduct √ 1 electricity hence they can only from a simlpe molecular structure

(iii) 12 electrons

27.(a) Black solid turns to bron √ ½

Colourless liquid formed to cooler parts of the tube √ ½

(b) 2H2(g) + O2(g) 2H2O(g)

(c) To prevent re-oxidation of cot Copper √ 1

28. V1=30cm3 V2= ?

T1= 0oC + 273 =273K T2=27+273=300

P1=10atm P2=1atm

P1V1 = P2V2

T1 T2

30 x 100 = 1 x V2

 273 300

V2= 300 x 10 x 30

 273

V2=329.67cm3

29. 1.4√ ½ 70%

0.6

4.4

1.4

42

42.6

 2

 0.6 30%

 2