Name ……………………………………………………………………centre/index No…….

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**RESOURCEFUL MOCK EXAMINATIONS 2016**

**CHEMISTRY**

**PAPER 1**

**TIME: 1 ½ hours**

**Instructions to candidates**

*This paper consists of 50 objective questions*

*Answer the questions by writing the correct alternative in the box on the right hand side*

1. Which one of the following nitrates when heated, does not produce oxygen?

A: Pb(NO3)2 B: KNO3 C: NH4NO3 D: AgNO3

1. Which one of the following statements is true about the reaction between hydrochloric acid and marble chips?

A: It proceeds at a constant rate

B: The rate increases with time

C: It does not start unless a catalyst is used

D: The rate slows down with time.

1. Which one of the following would be added to aqueous sodium bromide to release bromine?

A: Dilute sulphuric acid B: chlorine water

C: sodium hydroxide solution D: hydrochloric acid

1. On adding acidified barium nitrate solutions to a certain solution, a white precipitate forms showing the presence of a

A: chloride ion B: sulphate ion

C: sulphite ion D: Sulphide ion

1. Barium chloride reacts with potassium chromate according to the following equation

BaCl2(aq) + K2CrO4(aq) BaCrO4(s) + 2KCl(aq)

When 10.4g of barium chloride are dissolved in water and excess potassium chromate solution added, the mass of barium chromate solid formed is; (O = 16, Cr = 52, Ba = 137)

A: 25.4g B: 12.7g C: 10.4g D: 9.7g

1. Which one of the following polymers is a natural polymer?

A: polyethene B: polyester C: Nylon D: silk

1. The gas which burns in oxygen with a greenish yellow flame is

A: Ethene B: hydrogen C: Ammonia D:; Carbon monoxide

1. Which one of the following substances contains an equal number of moles to 1.2g of carbon – 12 isotope?

(O=16, S = 32, Ca = 40, 1 mole of a gas occupies 24dm3 at room temperature)

A: 0.64g of SO2 B: 2.80g of CaO

C: 240cm3 of He at room temperature D: 100cm3 of a 1M Na OH solution.

1. The process which increases the concentration of oxygen in the atmosphere is

A: rusting B: photosynthesis

C: respiration D: combustion of fuels

1. Which one of the following is NOT true about acid rains? Acid rain damages;

A: tarmaced roads B: trees C: crops D: roofs

1. Concentrated sulphuric acid turns copper (II) sulphate – 5 – water crystals to a white powder because concentrated sulphuric acid is

A: a dehydrating agent B: a strong acid

C: a dibasic acid D: an oxidizing agent

1. The process leading to separation of soap flakes from solution is called

A: synthesis B: distillation C: precipitation D: saponification

1. Which one of the following is NOT an industrial method of preventing rusting?

A: Alloying B: Greasing C: galvanizing D: Electroplating

1. The salt that can be prepared by precipitation method is

A: K2CO3 B: MgCl2 C: Cu(NO3)2 D: PbSO4

1. Which one of the following compounds will conduct electricity only when it is melted?

A: PbBr2 B: NaI C: CuSO4 D: ZnCl2

1. Which one of the following salts would have a pH > 7?

A: NH4Cl B: (NH4)2SO4 C: NH4NO3 D: (NH4)2CO3

1. Which one of the following substances is used as a catalyst as well as oxidizing agent?

A: Copper (II) sulphate B: Manganese (IV) oxide

C: Iron wool D: Vanadium (V) oxide.

1. The elements R and T react to form a compound R3T2. The ion formed by T is

A: T3+ B: T2+  C: T3 –  D: T2 –

1. Which one of the following carbon compounds will most likely burn to give a thick soot?

A: CH4 B: C2H2 C: C2H6 D: CH3OH

1. Which one of the following anhydrous carbonates would not decompose when heated?

A: zinc carbonate B: sodium carbonate

C: calcium carbonate D: ammonium carbonate

1. Ammonium salts are used as nitrogen fertilizers. The ammonium salt that would provide the biggest amount of nitrogen to plants is

A: (NH4)3PO4 B: (NH4)2SO4 C: NH4Cl D: NH4NO3

(H = 1, N = 14, O = 16, P = 31, S = 32, Cl = 35.5)

1. The sodium salt that will form a precipitate with acidified barium chloride solution is

A: Na2CO3 B: Na2SO3 C: Na2SO4 D: Na2S

1. Which one of the following is NOT an alloy of copper?

A: brass B: solder C: Bronze D: duralumin

1. The solution of this compound in water will stop ready lathering of soap unless the water is boiled first. The compound is

A: MgSO4 B: Mg(HCO3)2 C: CaCl2 D: Na2CO3. 10H2O

1. Which one of the following gases highly pollutes the environment, but does not cause acid rain?

A: CO2 B: SO2 C: CO D: NH3

1. Which one of the following processes depletes the volume of nitrogen in the atmosphere?

A: Harber’s process B: plant decay

C: Thunderstorm D: denitrification

1. The reaction of dilute nitric acid with most metals does not produce hydrogen gas because nitric acid is

A: a weak acid B: a volatile acid

C: a monobasic acid D: a strong oxidizing agent.

1. The main by-product of the fermentation of sugar to ethanol is

A: Ethanoic acid B: carbon dioxide

C: water D: methanol

1. Ammonium chloride reacts with calcium hydroxide according to the following equation

2NH4Cl(s) + Ca(OH)2(s) CaCl2(s) + 2NH3(g) + 2H2O(l)

The volume of ammonia formed at room temperature when 2.14g of ammonium chloride is reacted with calcium hydroxide is

A: 0.48dm3 B: 0.96dm3 C: 1.92dm3 D: 4.80dm3

(N = 14 Cl = 35.5, H = 1, 1 mole of a gas occupies 24dm3 at room temperature)

1. Which one of the following hydrates is efflorescent?

A: MgSO4.7H2O B: Na2CO3.10H2O

C: CaSO4. 2H2O D: CoCl2.6H2O

1. Which one of the following hydroxides when heated strongly produces a yellow solid on cooling?

A: Pb(OH)2 B: Zn(OH)2 C: Fe(OH)3 D: Cu(OH)2

1. The volume of 0.2M hydrochloric acid required to exactly react with 20cm3 of 0.1M sodium carbonate is

A: B: C: D:

1. Which one of the following gases does not reduce copper (II) oxide?

A: hydrogen B: carbon monoxide

C: Ammonia D: carbon dioxide

1. Graphite burns in oxygen according to the following equation

C(s) + O2(g) CO2(g) ΔH = 390Kjmol– 1

When 48.0g of graphite is burnt, in excess oxygen the heat produced is (C = 12)

A: 97.5Kj B: 195Kj C: 780Kj D: 1560Kj

1. Which one of the following cations will NOT form a carbonate when reacted with sodium carbonate?

A: Al3+ B: Fe2+ C: Ca2+ D: Mg2+

1. Which one of the following is not a property of ethene?

A: it decolourises potassium manganate (VII) solution

B: it is an unsaturated hydrocarbon

C: it is a saturated hydrocarbon

D: it decolourises bromine water.

1. Which one of the following equations represents a redox reaction?

A: CO2(g) + C(s) 2CO(g)

B: 4HNO3(l) 4NO2(g) + O2(g) + 2H2O(l)

C: 2CO(g) + O2(g) 2CO2(g)

D: SiO2(s) +CaO(s)  CaSiO3(s)

1. The concentration of chloride ions in a litre of a solution which contains 22.2g of calcium chloride is (Ca = 40, Cl = 35.5)

A: 0.20 mol dm– 3 B: 0.29 mol dm– 3

C: 0.40 mol dm– 3  D: 0.60 mol dm– 3

1. Which one of the following equations represents the laboratory preparation of nitric acid?

A: HCl(aq) + KNO3(s) HNO3(l) + KCl(s)

B: 4NO2(g) + O2(g) + 2H2O(l) 4HNO3(aq)

C: H2SO4(l) + 2KNO3(s) K2SO4(s) + 2HNO3(l)

D: H2SO4(l) + KNO3(s) KHSO4(s) + HNO3(l)

1. Which one of the following is a waste product of the Solvary process for the manufacture of sodium carbonate?

A: NaHCO3 B: CaO C: CaCl2 D: NH4Cl

**In answering questions 41 to 45, choose**

**A: if 1,2 and 3 only are correct; or**

**B: if 1 and 3 only are correct ; or**

**C: if 2 and 4 only are correct; or**

**D: if 4 only is correct**

1. The atomic number of an element X is 15. The formula(e) of the compound(s) formed when X reacts with chlorine is/are
2. XCl2
3. XCl3
4. XCl4
5. XCl5
6. Which of the following substances would sublime when heated?
7. Iodine
8. Iron (III) chloride
9. Ammonium chloride
10. Glucose
11. Which of the following compounds, when dissolved in the solvent indicated will form (a) solution (s) which is/are (an) electrolyte(s)?
12. Hydrogen chloride in aqueous ammonia
13. Ethanol in water
14. Nitrogen dioxide in water
15. Hydrogen chloride in methyl benzene
16. During the manufacture of sodium from sodium chloride, the following substance(s) is/are also produced
17. Sodium hydroxide
18. Oxygen gas
19. Hydrogen gas
20. Chlorine gas
21. Steel- bars are preferred to pure iron bars for construction purposes because steel bars
22. Have more attractive appearance
23. Do not rust easily
24. Are stronger
25. Are cheaper

**In answering questions 46 – 50, choose**

**A, if Assertion is TRUE , reason is also TURE and give the correct explanation of the Assertion; or**

**B: if Assertion is TUE, reason is also TRUE but is NOT the correct explanation of the Assertion or**

**C: if Assertion is TRUE but reason is NOT TRUE or**

**D: if Assertion is NOT TRUE but reason is a TRUE statement.**

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| ASSERTION |  | REASON |
| 1. Carbon does not conduct electric current | because | carbon is a non metallic element |
| 1. Expectant mothers need not boil hard water for drinking | because | boiling hard water takes away calcium ions, which an expectant mother requires so badly for formation of healthy bones in her body |
| 1. The yield of carbon dioxide prepared from calcium carbonate reacting with dilute sulphuric acid is generally low | because | Dilute sulphuric acid does not dissociate completely |
| 1. Sulphur dioxide turns the colour of an acidified potassium dichromate solution from orange to green | because | sulphur dioxide reduces chromium (VI) to chromium (III) ion. |
| 1. Polyethene bags should not worry our environmentalists | because | polyethene is a thermo softening plastic after all |

***END***