NAME: ……………………………………………………………..… ADM …………….

**JUJA GIRLS HIGH SCHOOL**

**END TERM II EXAMINATIONS 2018**

**FORM ONE**

***Kenya Certificate of Secondary Education (KCSE)***

***233/1***

***Paper 1***

***Chemistry (Theory)***

***July /August 2018***

***2 Hours***

**Instructions**

* *Answer* ***all*** *the questions in the spaces provided.*
* ***All*** *working* ***must*** *be clearly shown where applicable.*
* *Silent non programmable electronic calculators may be used.*

**For Examiner’s Use Only**

|  |  |  |
| --- | --- | --- |
| **Questions** | **Maximum Score** | **Student’s Score** |
| 1-27 | 80 |  |

1. Mention ***three*** actions which would amount to drug abuse of prescribed medicine. (3mks)

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1. Give a reason why dry ice is preferred to be used in cold boxes by ice cream vendors over ordinary ice. (1mk)

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1. What is a flame? (1mk)

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1. The figure below shows a type of Bunsen burner flame.

A

B

C

* + - * 1. Identify the hottest part of the flame. (1mk)

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* + - * 1. Which part consists of mainly unburnt gases? (1mk)

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1. The set up below was used by a group of form one students to separate a mixture of sodium chloride and iodine. Use it to answer the questions that follow:

Watch glass Ice cold water

Mixture

Heat

* + - * 1. State the observations made when the mixture is heated. (2mks)

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* + - * 1. What was the purpose of the ice cold water? (1mk)

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* + - * 1. What precaution do the students need to take during this experiment? (1mk)

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1. What constitutes the bright yellow zone of the luminous flame? (1mk)

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1. The table below shows certain laboratory apparatus and their uses. Complete the table appropriately. (4mks)

|  |  |
| --- | --- |
| **Apparatus** | **Use** |
| Separating funnel | Separating immiscible liquids |
|  | Scooping solid substances from containers |
| Crucible |  |
|  | Keeping substances free from moisture |
| Deflagrating spoon |  |

1. An example of a substance that sublimes is iodine. Name ***three*** other substances that sublime. (3mks)

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1. A mixture of an insoluble solute and water can be separated by decantation. The figure below shows another method that may be used to separate this mixture. Use it to answer the questions that follow:

Mixture

Filter funnel and paper

X

Y

* + - * 1. Name the method of separation of mixtures. (1mk)

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* + - * 1. State an advantage of this method over decantation. (1mk)

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* + - * 1. Name X and Y

X ……………………………………………………………… (1mk)

Y ……………………………………………………………… (1mk)

1. Transparent glass or plastic is used to make most laboratory apparatus.
   * + - 1. Why is glass or plastic suitable? (1mk)

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* + - * 1. Why is the glass or plastic transparent? (1mk)

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1. Name the method that can be used to extract the following:
   * + - 1. Common salt from salt solution. (1mk)

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* + - * 1. Kerosene from crude oil (1mk)

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1. Oil is extracted from castor oil seeds in the laboratory by first crushing the seeds followed by addition of propanone.
   * + - 1. Why are the seeds first crushed? (1mk)

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* + - * 1. Explain why water would not be used in place of propanone. (2mks)

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* + - * 1. Explain how oil can be separated from propanone. (2mks)

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1. During an athletics competition, three participants A,B and C were suspected to have used a doping drug X. The chromatogram below shows the analysis using blood samples of the three suspects alongside drug X.

A B C X

* + - * 1. Which suspect could not be guilty? (1mk)

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* + - * 1. Indicate on the diagram the:

i) solvent front (½ mk)

ii) base line (½ mk)

* + - * 1. Name a solvent suitable for used in the analysis (1mk)

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* + - * 1. How many components are in drug X? Give a reason for your answer. (2mks)

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1. In temperate countries, ice is cleared from roads by spreading common salt on ice. Explain. (2mks)

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1. State four differences between a temporary physical change and a permanent chemical change. (4mks)

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1. A sample of hydrated cobalt (II) chloride is heated in an open test tube.
   * + - 1. State the colour change observed (1mk)

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* + - * 1. Write down a word equation for the process (1mk)

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* + - * 1. What could be done to reverse the process? (1mk)

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1. The flow diagram below represents the changes that copper(II)nitrate undergo when heated.

Copper (II) nitrate

(blue)

Nitrogen (IV) oxide gas HEAT Colourless gas which relights

glowing wooden splint

Black solid

* + - * 1. Give the identity of the black solid (1mk)

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* + - * 1. Identify the colouless gas produced (1mk)

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* + - * 1. What is the colour of nitrogen (IV) oxide gas? (1mk)

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* + - * 1. State the difference in mass of copper (II) nitrate and the black solid. Give a reason for your answer. (2mks)

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1. Define the following terms:
   * + - 1. Element (1mk)

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* + - * 1. Atom (1mk)

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* + - * 1. Compound (1mk)

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* + - * 1. Molecule (1mk)

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1. The table below is used to represent some elements and their corresponding chemical symbols. Complete the table appropriately. (5mks)

|  |  |
| --- | --- |
| **Element** | **Chemical symbol** |
| Copper | Cu |
|  | Pb |
| Nitrogen |  |
|  | Mn |
| Sodium |  |
|  | Fe |

1. Name the elements present in water. (2mks)

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1. The table below shows the pH values of some solutions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Solution** | **J** | **K** | **L** | **M** | **N** |
| **pH** | 6 | 13 | 2 | 10 | 7 |

Which solution is likely to be:

* + - * 1. A neutral solution (1mk)

…………………………………………………………………………..

* + - * 1. A strong acid (1mk)

…………………………………………………………………………..

* + - * 1. Sodium hydroxide (1mk)

…………………………………………………………………………..

* + - * 1. Ethanoic acid (1mk)

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* + - * 1. What would happen to the pH of solution L if some distilled water is added? Give a reason for your answer. (2mks)

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1. The table below shows the colours exhibited by various indicators in different solutions. Complete the table appropriately. (3mks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicator** | **Colour in neutral solution** | **Colour in acids** | **Colour in bases** |
| **Methyl orange** | Orange |  | Yellow |
| **Litmus** | Purple | Red |  |
| **Phenolphthalein** |  | Colourless | Pink |

1. Below is a sketch of the graph of temperature against time obtained when a certain gaseous substance was cooled.

A

Temperature (OC) B C

D

Time (minutes)

State what happens to the gaseous substance between:

* + - * 1. A and B (1mk)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

* + - * 1. B and C (1mk)

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1. The table below show some colouless gases prepared in the laboratory. Complete the table to show their tests. (3mks)

|  |  |
| --- | --- |
| **Gas** | **Test** |
| Carbon (IV) oxide |  |
| Hydrogen |  |
| Oxygen |  |

1. What are the ***two*** products of a neutralization reaction? (1mk)

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1. Inactive air comprises mainly of which gas? (1mk)

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1. Atmospheric air contains 21% by volume of oxygen. What volume of air would contain 14cm3 of oxygen? (2mks)

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All the best