**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Class\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AdmNo:\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Sign\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**END OF TERM ONE EXAMINATION**

**FORM TWO**

**CHEMISTRY**

**2 HOURS**

***Instructions to candidates:***

1. Answer **all** questions in both section A and B.
2. All working must be clearly shown and, in the spaces, provided.

**FOR EXAMINER’S USE ONLY**

|  |  |  |
| --- | --- | --- |
| **Section** | **Maximum****Score** | **Candidate’s****Score** |
| **A** | 40 |  |
| **B** | 40 |  |
| **Grand Score** | **80** |  |

1[a] what is an atom? [1mk]

…………………………………………………………………………………………………………..…………………………………………………………………………………………………………. [b]Distinguish between atomic number and mass number [1mk]

…………………………………………………………………………………………………………………………………………………………………………………………………………………….2. Name two sub-atomic particles [2mks]

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

3. Element P has two isotopes P60 and P61 which occur in the ratio X:2. Given that its R.A.M is 60.4. 30 30

Calculate the value of X [3mks]

4. A patient went to the hospital and was diagnosed to have cold flu. The patient was prescribed to take drugs 1 x 3

[i]How and what hours in interval will the drugs be taken [2mks]

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

[ii]Supposing the patient took the drugs at 7.00a.m in the morning. What other hours of the day will the patient take the drugs [2mks]

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

5. Identify a suitable method that would be used to separate mixture of the following substances

[a]Iodine and potassium chloride [1mk]

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

[b]Water and ethanol [1mk]

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

[c]Table salt dissolved in water [1mk]

……………………………………………………………………………………………………………………………………………………………………………………………………………… …..

6. Fill the table below

|  |  |
| --- | --- |
| compound | Chemical formulae |
| [i]sodium chloride |  |
| [ii]Iron{III}oxide |  |
| [iii] | Al{OH}3 |

7.Chemistry is a science subject that involves practicals that are done in the laboratory. Safety rules are given in order for the student to take precaution while in the laboratory

{i} State three such rules to be observed [3mks]

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

{ii} Most of the laboratory apparatus are made of glass. Give two reasons [2mks]

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..……..

8.Njoki a form 2 student, was given a colourless liquid suspected to be water.

[a]Describe one chemical test she could use to identify the liquid. [2mks]

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

{b}Describe an experiment she could perform to ascertain its purity [2mks]

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

 9.Two ions X2+ and Y2- forms ions with ionic configurations 2.8.8 each

[a]Which of the ions is of an element in

[i]period 3

……………………………………………………………………………………………………… [ii]Group 2

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

[b]Given that element Y has a mass number of 32, draw the structure of its ions [2mks]

10. The form two students were given solutions P, Q and R in three different beakers. They put in red and blue litmus papers and recorded the results as shown below

|  |  |  |  |
| --- | --- | --- | --- |
| Solution  | P | Q | R |
| Effect on blue litmus paper | Turns red | Remains blue | Remains blue |
| Effects on red litmus paper | Remains red | Turns red | Turns blue |

Which of the solutions was most likely to be;

[i]Distilled water [1mk]

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

[ii]of an oxide of sodium. Explain your answer [2mks]

………………………………………………………………………………………………………………………………………………………………………………………………………………….…

[iii]An oxide of sulphur. Explain your answer [2mks]

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

11.[a]Differentiate between prescription drugs and over the counter drugs [2mks]

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

[b]Name two commonly abused drugs in Kenya [1mk]

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

[c]State two physiological effects of drug abuse to the human body [2mks]

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

**SECTION B**

12.Study the grid below showing a section of the periodic table. The letters are not the actual chemical symbols of the elements

[a]State the letter that represents an element that

[i]Belongs to period 3 [2mks]

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

[ii]Belongs to group 2 [1mk]

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

[iii]Forms ions with a charge of +3 [1mk]

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

 [iv]forms ions with a charge of +1 [1mk]

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

 [v]Forms ions with a charge of -1 [1mk]

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

[b]What name is given the family to which elements K and W belong [2mks]

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

[c]How does the following compare? Explain your answer

[i]Atomic radius P and U [2mks]

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

[ii]Ionic and atomic radius of L [2mks]

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

[iii]ionic and atomic radius of U [2mks]

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

13.Form two students carried out paper chromatogram for mixture of K and substances A,B,C and D. study it and answer the questions that follow

[a]Label [2mks]

[i]G…………………………………………………………………………………………………….

[ii]H……………………………………………………………………………………………………

[b]What is the suitable solvent to use in this paper chromatogram [1mk]

………………………………………………………………………………………………………….

[c]Identify the substances present in mixture N [3mks]

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

[d]Which of the pure substance was a compound of N [1mk]

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

[e]State two factors that determine the speed by which a substance in a solution moves up the absorption paper [2mks]

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

[f]State two application of paper chromatogram [2mks]

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

14.The chart below shows how the main components of air are separated. Study it and answer the questions that follow

[a]Identify

[i]Gas x ……………………………………………………………………………… [1mk]

[ii]Gas y ………………………………………………………………………………. [1mk]

[iii]The temperature at which Nitrogen is distilled out

………………………………………………………………………………………… [1mk]

[b]Name

1. Process A …………………………………………………………………….. [1mk]
2. Reagent B ……………………………………………………………………… [1mk]
3. Substance C …………………………………………………………………… [1mk]
4. Process D ……………………………………………………………………… [1mk]

[c]What is the purpose of passing the air through compressor [1mk]

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

[d]Write the chemical equation of the reaction taking place when copper turnings are heated [1mk]

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

15.Study the table below and answer the questions that follow

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ELEMENT | A | B | C | D | E | F | G |
| Atomic radius [nm] | 0.156 | 0.136 | 0.125 | 0.110 | 0.110 | 0.104 | 0.099 |
| Ionic radius[nm] | 0.095 | 0.065 | 0.050 |  |  | 0.184 | 0.181 |
| 1st ionization energy KJ/mol | 492 | 743 | 790 | 791 | 1060 | 1063 | 1254 |
| Melting point 0C | 97.8 | 650 | 660 | 1410 | 442 | 119 | -101 |
| Atomic number | 11 | 12 | 13 | 14 | 15 | 16 | 17 |

[i]Explain why;

[a]A has a larger atomic radius than ionic radius [1mk]

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

[b]G has a smaller atomic radius than its ionic radius [1mk]

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

[c]Explain on the trend of melting point from A to C [2mks]

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

 [d]Explain why D has the highest melting point [1mk]

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

[e]Why is G having smallest atomic size [1mk]

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