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| **Gatitu Mixed Secondary School** |
| **Form 4** | **Term 1** | **233 - Chemistry** | **06-Jan-16** | **Opener** |

1. The diagram below represents a method of separation used to separate two liquids A and B. Use it to answer the questions that follow

 X

 A

 B

 Beaker

1. Name two properties that make it possible for the two liquids to be separated. (2mks)
2. Give one alternative method that may be used to separate the two liquids. (1mk)
3. Name the following organic compounds (2mks)
4. CH3

CH3CHCHCHCHCH2CH3 ……………………………………………………………………………………………………………

 CH3

1. CH3COOCH2CH2CH2CH3 ………………………………………………………………………………………………………………………….
2. Name the following processes;
3. When anhydrous calcium chloride is left in an open beaker overnight a solution was formed. (1mk)
4. When sodium carbonate decahydrate crystals are left in an open beaker for some days it turned into a powder. (1mk)
5. In 35 seconds, it was found that 140cm3of nitrogen (N2) had diffused through a strip of porous porcelain. How long will it take 400cm3 of carbon (IV) oxide to diffuse through the same strip of porous porcelain? (3mks)

 The chromatogram below shows the constituents of a flower extract. Study it and answer the questions that follow

 Y

 Red

 Yellow

 X

1. Explain the different positions of red and yellow pigments. (2mks)
2. What does lines X and Y represent (1mk)

X ………………………………………………………………………

Y …………………………………………………………………….

1. In an experiment, two pieces of iron sheets were wrapped in each case with zinc and copper metal sheets as shown below. They were left in the open for some months.

 Iron

 zinc copper

 (I) (II)

State and explain the observations made in the experiments; (3mk)

1. Compare the atomic sizes of sodium and magnesium. Explain. (2mks)
2. The set up below was used to prepare gas X. study it and answer the questions that follow;

 50cm3 HNO3 +

 50cm3 water

 Gas X

 Water

 Copper turnings

1. Name gas X (1mk)
2. Write an equation for production of gas X in the set up (1mk)
3. It’s hard to test whether gas X supports burning using a glowing splint. Explain. (1mk)
4. The diagram below represents the structure of aluminium chloride.

 N

Cl Cl Cl

Al Al

Cl Cl Cl

 M

1. Identify the bonds labeled M and N. (2mk)

M ………………………………………………………………………

N …………………………………………………………………………

1. What Is the difference between bonds M and N ( 1mk)
2. Study the diagram below and answer the questions that follow

 +ve

 A

 B

 C

 -ve

1. Name particles A and B (2mks)
2. What property of B makes it not to be deflected by magnetic/electric field (1mk)

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

1. The table below shows the first ionization energies of elements Y and Z.

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| **Element** | **Ionization energy kJ/mol** |
| Y | 494 |
| Z | 418 |

1. What is ionization energy? (1mk)
2. Which of the two elements is the most reactive? Explain (2mks)