

16. (a) Distinguish between isotopes and allotropes

(2mks)

Tried.

Isotopes - Atoms of same element with the same proton number but different neutron no.

Allotropes - Different forms of an element in the same physical state.

(b) An element X has RAM of 69.39. given that the element has two isotopes of RAM of 60.15 and 70.15. Calculate the relative abundance of each isotope (3mks)

Masses

$$69.39 = (x \times 60.15) + ((100-x) \times 70.15) \quad \checkmark \quad 1$$

100

$$x = 7.6\% \quad \checkmark \quad 1$$

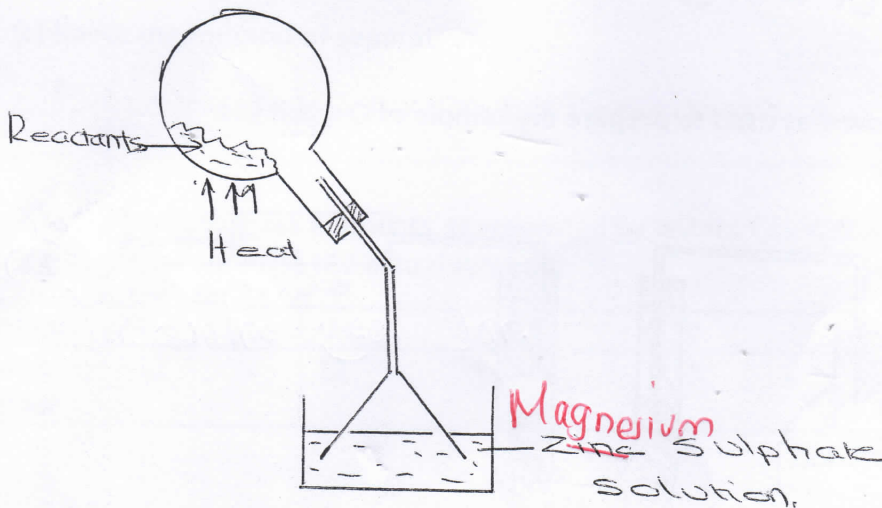
$$100 - x = 92.4\% \quad \checkmark \quad 1$$

17. A student has a mixture of anhydrous aluminium chloride and zinc sulphate. Which is the simplest method of separation? (1mk)

Sublimation

18. A student prepared ammonia and bubbled it into a solution of zinc sulphate as shown in the diagram below.

Magnesium



(a) Name any two reactants required for the production of ammonia.

(1mk)
(2mks)

Calcium hydroxide }
Ammonium chloride } Tried

Any ammonium salt and an alkali