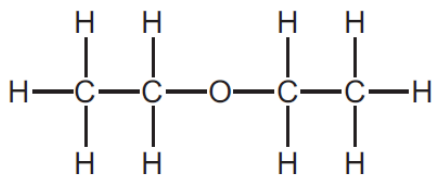


Stoichiometry – 2019 Nov

1. 0620/11/O/N/19/No.9

The structure of a molecule is shown.



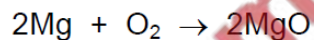
What is the formula of the molecule?

- A** CHO **B** C₂H₅O **C** C₄H₈O **D** C₄H₁₀O

2. 0620/12/O/N/19/No.9

Magnesium burns in oxygen to form magnesium oxide.

The equation for the reaction is shown.



Which mass of magnesium oxide is formed when 48 g of magnesium is burned?

- A** 20g **B** 40g **C** 80g **D** 160g

3. 0620/13/O/N/19/No.9

The thermal decomposition of 12.5 g of limestone (impure calcium carbonate) produces 5 g of calcium oxide.

Which mass of calcium oxide is produced by the thermal decomposition of 30 g of limestone?

- A** 6g **B** 12g **C** 15g **D** 24g

4. 0620/21/O/N/19/No.9

Four fertilisers are each supplied in 100 kg bags.

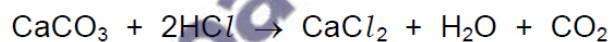
Which fertiliser supplies the greatest mass of nitrogen per 100 kg bag?

- A ammonium nitrate, NH_4NO_3
- B ammonium phosphate, $(\text{NH}_4)_3\text{PO}_4$
- C ammonium sulfate, $(\text{NH}_4)_2\text{SO}_4$
- D urea, $\text{CO}(\text{NH}_2)_2$

5. 0620/21/O/N/19/No.10

Calcium carbonate reacts with dilute hydrochloric acid.

The equation for the reaction is shown.



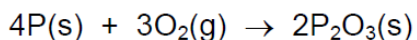
1.00 g of calcium carbonate is added to 50.0 cm³ of 0.0500 mol/dm³ hydrochloric acid.

Which volume of carbon dioxide is made in this reaction?

- A 30 cm³
- B 60 cm³
- C 120 cm³
- D 240 cm³

6. 0620/22/O/N/19/No.9

Phosphorus reacts with oxygen to form phosphorus(III) oxide as shown.



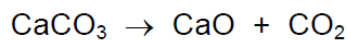
Which mass of phosphorus(III) oxide is produced from 6.2 g of phosphorus?

- A** 1.1g **B** 5.5g **C** 11.0g **D** 22.0g

7. 0620/22/O/N/19/No.10

Calcium carbonate is heated. Calcium oxide and carbon dioxide gas are formed.

The equation for the reaction is shown.



225 kg of calcium carbonate is heated until there is no further change in mass.

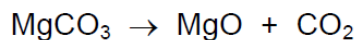
The yield of calcium oxide is 85 kg.

What is the percentage yield?

- A** 37.8% **B** 47.2% **C** 67.5% **D** 85.0%

8. 0620/23/O/N/19/No.9

Magnesium carbonate decomposes on heating to form magnesium oxide and carbon dioxide as shown.



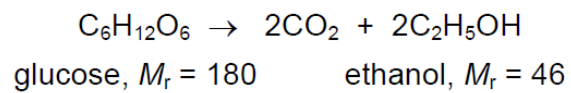
How much magnesium carbonate is needed to make 5.0 g of magnesium oxide?

- A** 3.5g **B** 4.0g **C** 6.5g **D** 10.5g

9. 0620/23/O/N/19/No.10

90 g of glucose is dissolved in water.

The glucose solution is fermented.



After the fermentation finishes, 6.8 g of ethanol is obtained from the solution.

What is the percentage yield of ethanol?

A 7.4

B 7.6

C 14.8

D 29.6

