

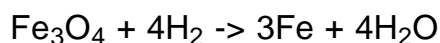
Chem11 Percentage Yield : W.S. - 60

Definition :

$$\text{Percentage Yield} = \frac{\text{actual yield}}{\text{theoretical yield}} \times 100\%$$

- 1) A certain reaction should give 5.3 grams of product but only 4.7 grams of product is formed. The percentage yield is _____ %.
- 2) If the theoretical yield for a reaction is 178 g and the percentage yield is known to be 92.0 %, find the actual yield. _____ grams.
- 3) If the actual yield in a reaction is 58.9 g and the percentage yield is known to be 88 %, find the theoretical yield. _____ grams.
- 4) Given the equation : $\text{P}_4 + 5\text{O}_2 \rightarrow \text{P}_4\text{O}_{10}$
 - a) Write down the mass equation. (masses to one decimal)
_____ g of P_4 reacts with _____ g of O_2 yields _____ g P_4O_{10}
 - b) We find that 35.0 g of phosphorous (P_4) when reacted with excess oxygen (O_2) produces 76.0 g of P_4O_{10} .
 - i) The actual yield is _____ grams
 - ii) The theoretical yield is _____ grams.
 - iii) The percent yield is _____ %
- 5) Given the reaction : $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$
 - a) If 430. g of potassium chlorate is heated, find the theoretical yield for KCl. _____ .
 - b) If the actual yield (for KCl) is 248 g, find the percent yield.

- 6) Pure iron can be obtained by the reaction between magnetite (Fe_3O_4) and hydrogen which is given below.



a) 175 tonnes of magnetite reacts with excess hydrogen.
Find the theoretical yield for Fe. _____ . (1.000 tonnes =
1000. kg)

b) The actual yield is 110 tonnes. Find the percent yield. _____

Answers : 1) 89, 2) 164, 3) 67, 4)a) 123.9, 160.0, 283.9, b)i) 76.0, ii)
80.2, iii) 94.8, 5)a) 262g, b) 94.8%, 6)a) 127t, b) 87%.