



22136116



**CHEMISTRY  
STANDARD LEVEL  
PAPER 1**

Thursday 16 May 2013 (afternoon)

45 minutes

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INSTRUCTIONS TO CANDIDATES

- Do not open this examination paper until instructed to do so.
- Answer all the questions.
- For each question, choose the answer you consider to be the best and indicate your choice on the answer sheet provided.
- The periodic table is provided for reference on page 2 of this examination paper.
- The maximum mark for this examination paper is [30 marks].

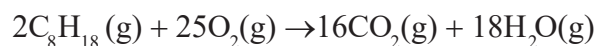


1. Which contains the largest number of ions?
  - A. 1 mol of  $\text{Al}_2(\text{SO}_4)_3$
  - B. 1 mol of  $\text{Mg}_3(\text{PO}_4)_2$
  - C. 2 mol of  $\text{K}_3\text{PO}_4$
  - D. 3 mol of  $\text{NaNO}_3$
  
2. How many atoms are present in 0.10 mol of  $\text{PtCl}_2(\text{NH}_3)_2$ ?
  - A.  $6.0 \times 10^{22}$
  - B.  $3.0 \times 10^{23}$
  - C.  $6.6 \times 10^{23}$
  - D.  $6.6 \times 10^{24}$
  
3. Which is the best description of relative atomic mass,  $A_r$ ?
  - A. The number of neutrons and protons present in the nucleus of an atom
  - B. The average number of neutrons and protons in all isotopes of an element
  - C. The weighted mean mass of naturally occurring isotopes of an element compared to the mass of an atom of carbon-12
  - D. The weighted mean mass of naturally occurring isotopes of an element compared to  $1/12^{\text{th}}$  of the mass of an atom of carbon-12

4. What mass of carbon dioxide,  $\text{CO}_2(\text{g})$ , in g, is produced when 5.0 g of calcium carbonate,  $\text{CaCO}_3(\text{s})$ , reacts completely with hydrochloric acid,  $\text{HCl}(\text{aq})$ ?



- A. 0.050  
B. 2.2  
C. 4.4  
D. 5.0
5. What volume of carbon dioxide,  $\text{CO}_2(\text{g})$ , in  $\text{dm}^3$ , is produced when 1  $\text{dm}^3$  of octane,  $\text{C}_8\text{H}_{18}(\text{g})$ , undergoes complete combustion?



- A. 1  
B. 4  
C. 8  
D. 9
6. Which is an isotope of  $^{24}\text{Mg}$ ?

- A.  $^{24}_{11}\text{Na}$   
B.  $^{24}_{12}\text{Mg}^{2+}$   
C.  $^{26}_{12}\text{Mg}$   
D.  $^{22}_{10}\text{Ne}$

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