



Chemistry MC and Short Q by Dr Sally Wong

MC Questions

1. X^{2+} ion has an electronic arrangement of 2, 8. Which of the following statements concerning element **X** is correct?
 - A. **X** contains an octet structure.
 - B. **X** belongs to Period 2 of the Periodic Table.
 - C. **X** has similar chemical properties to calcium.
 - D. **X** gives brick red flame in a flame test.

2. Which of the following statements concerning silicon dioxide and carbon dioxide are INCORRECT?
 - (1) Both compounds exist as covalent molecules at room temperature.
 - (2) Both compounds cannot conduct electricity.
 - (3) The covalent bond between silicon and oxygen is stronger than that between carbon and oxygen.
 - A. (1) and (2) only
 - B. (1) and (3) only
 - C. (2) and (3) only
 - D. (1), (2) and (3)

3. Which of the following statements concerning ethanoic acid are correct?
 - (1) Dilute ethanoic acid reacts with copper to give colourless gas bubbles.
 - (2) 1M ethanoic acid gives a higher pH value than 1M ethanedioic acid.
 - (3) Concentrated ethanoic acid is corrosive.
 - A. (1) and (2) only
 - B. (1) and (3) only
 - C. (2) and (3) only
 - D. (1), (2) and (3)

4. Which of the following aqueous solutions is brown in colour?
 - A. Sodium bromide
 - B. Iron(II) nitrate
 - C. Sodium iodide
 - D. Aqueous bromine

Chemistry MC and Short Q by Dr Sally Wong

MC Questions

1. X^{2+} 離子的電子排序為 2,8。下列哪項有關元素 X 的陳述正確？

- A. X 具有八隅體結構。
- B. X 屬於週期表中的第二週期。
- C. X 具有與鈣相似的化學性質。
- D. X 在焰色試驗中產生磚紅色火焰。

2. 下列哪些有關二氧化硅和二氧化碳的陳述是不正確的？

- (1) 這兩種化合物在室溫下都以共價分子的形式存在。
- (2) 這兩種化合物都不導電。
- (3) 硅和氧之間的共價鍵比碳和氧之間的共價鍵強。

- A. 只有 (1) 和 (2)
- B. 只有 (1) 和 (3)
- C. 只有 (2) 和 (3)
- D. (1)、(2) 和 (3)

3. 下列哪些有關乙酸的陳述是正確的？

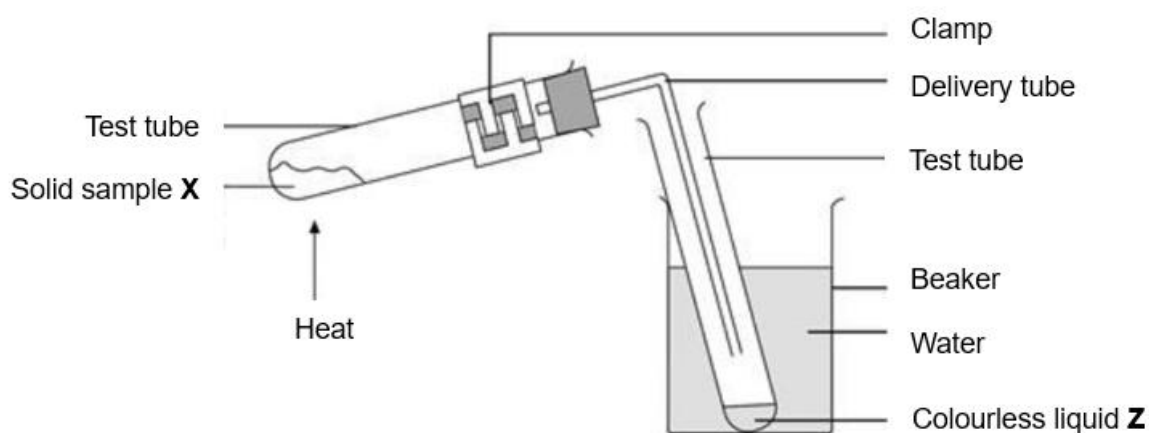
- (1) 稀乙酸與銅反應生成無色氣泡。
- (2) 1M 乙酸的 pH 值高於 1M 乙二酸。
- (3) 濃乙酸具有腐蝕性。

- A. 只有 (1) 和 (2)
- B. 只有 (1) 和 (3)
- C. 只有 (2) 和 (3)
- D. (1)、(2) 和 (3)

4. 下列哪種水溶液呈棕色？

- A. 溴化鈉
- B. 硝酸鐵(II)
- C. 碘化鈉
- D. 溴水

5. What is the concentration of sulphuric acid if the pH value measured is 2?
- 0.005
 - 0.025
 - 0.01
 - 0.02
6. An organic compound **Y** contains only carbon, hydrogen and oxygen only. On the complete combustion, 15.0 g of **Y** gives 20.6 g of carbon dioxide and 16.9 g of water. Which of the following compounds may **Y** be?
- CH_3OH
 - HCHO
 - CH_3CHO
 - $\text{CH}_3\text{CH}_2\text{OH}$
7. Which of the following statements concerning the following experimental set-up is INCORRECT if the solid sample **X** used is hydrated copper(II) sulphate crystals ?



- The colourless liquid **Z** is water.
- The above experiment involves chemical change.
- Water in the beaker is used for condensation of liquid **Z**.
- The test tube is held in slanted position to increase the surface area for heating.

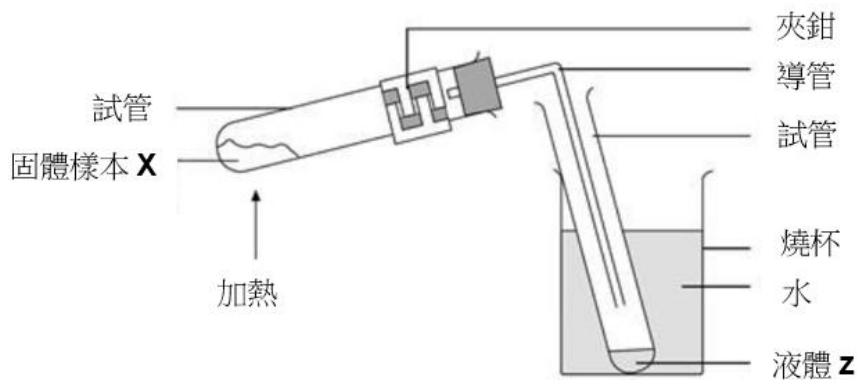
5. 如果硫酸樣本測得的 pH 值為 2，該硫酸的濃度是多少？

- A. 0.005
- B. 0.025
- C. 0.01
- D. 0.02

6. 一有機化合物 Y 只含碳、氫和氧。完全燃燒時，15.0 g Y 會產生 20.6 g 二氧化碳和 16.9 g 水。Y 可能是下列哪一化合物？

- A. CH_3OH
- B. HCHO
- C. CH_3CHO
- D. $\text{CH}_3\text{CH}_2\text{OH}$

7. 如果所使用的固體樣本 X 是水合硫酸銅(II) 晶體，下列哪一項有關以下實驗裝置的陳述是不正確的？



- A. 無色液體 Z 是水。
- B. 上述實驗涉及化學變化。
- C. 燒杯中的水用於液體 Z 的凝結。
- D. 將試管傾斜放置，以增加加熱的表面積。



Short Question

1. When sodium is added to a beaker of copper(II) nitrate solution, some blue precipitate is formed. Explain, with the aid of a chemical equation, the formation of the blue precipitate.

(3 marks)



短答題

1. 將鈉加入盛載硝酸銅(II) 溶液的燒杯中會生成一些藍色沉澱物。利用化學方程式解釋藍色沉澱的形成。

(3 分)



Chemistry MC and Short Q Answers

MC Questions

1.	C
2.	B
3.	C
4.	D
5.	A
6.	A
7.	D

Short Question 短答題

(Total: 3 marks)

$\text{Cu}^{2+} + 2\text{OH}^- \rightarrow \text{Cu}(\text{OH})_2$	1
<u>Sodium reacts with water</u> in copper(II) nitrate solution to give sodium hydroxide.	1
<u>The hydroxide ions formed would react with copper(II) ions to give insoluble copper(II) hydroxide</u> which is (pale) blue.	1

(總分: 3 分)

$\text{Cu}^{2+} + 2\text{OH}^- \rightarrow \text{Cu}(\text{OH})_2$	1
在硝酸銅(II) 溶液中， <u>鈉與水反應</u> 生成氫氧化鈉。	1
<u>生成的氫氧離子會與銅(II) 離子反應生成不溶性的氫氧化銅(II)</u> ，呈現（淡）藍色。	1