

Exam Practice Guide

Unit 2 Chemistry Examination 2

Key Features:

- ✓ 99 original examination style questions on all examinable topics.
- ✓ Full solutions and a marking guide to all questions.
- ✓ Separated into key topic areas within each Area of Study, enabling students to master one topic at a time.
- ✓ Written by VCE assessors who mark the real examinations.
- ✓ Excellent resource for examination practice.

Helping VCE students be the best they can be.

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SAMPLE

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SOLUTIONS

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Unit 2 – What makes water such a unique chemical?

AREA OF STUDY 1: How do substances interact with water?

Topic 1 – Properties of water

Question 1

Water is a more polar molecule than hydrogen sulphide. This is best explained by:

- A. Hydrogen sulphide is a larger molecule than water.
- B. Sulphur atoms have stronger covalent bonds with hydrogen when compared with oxygen.
- C. Water is liquid at room temperature but hydrogen sulphide is gas.
- D. There is a larger difference in electronegativity between oxygen and hydrogen atoms.

Question 2

If the specific heat capacity of water is $4.2 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$, the required energy in kJ to raise the temperature of 10 moles of water from 25°C to 75°C is:

- A. 37.8
- B. 2100
- C. 2.1
- D. -2.1

Question 3

Water is vital for living systems because:

- A. It is a polar molecule and insoluble in oils.
- B. It is high specific heat capacity.
- C. Water is liquid at room temperature and expands upon freezing.
- D. It is a reactant in photosynthesis and a product in respiration.

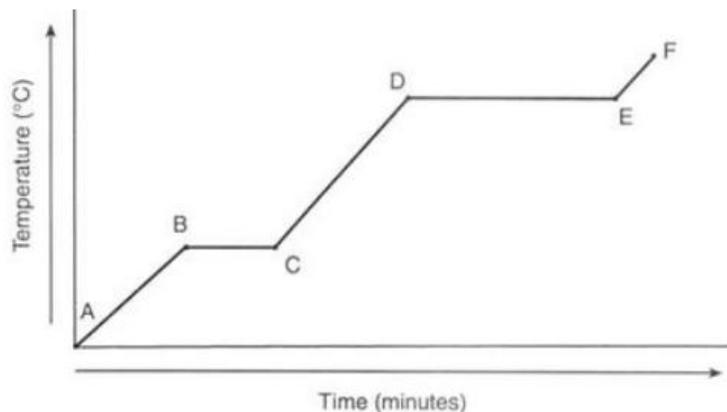
Question 4

If the specific heat capacity of water is $4.2 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$, the energy required, in kJ, to raise the temperature of 18 moles of water from 25°C to 75°C is:

- A. 68
- B. 136
- C. 68040
- D. 136080

Use the following information to answer Questions 5 and 6

A sample of ice is placed on a hot plate and heated until all the ice has been boiled away as steam.



Question 5

The latent heat of fusion is evident between times

- A. A and B
- B. B and C
- C. C and D
- D. D and E

Question 6

Select the correct alternative that can be deduced from this graph.

- A. It takes the same amount of energy to go from 30 to 40 °C as 60 to 70 °C.
- B. When ice is turning to water, the temperature rises quickly.
- C. The hot plate was obviously turned off at two different times.
- D. The specific heat capacity of water is low.

Question 7

Which of the following is NOT a property of pure water?

- A. The density of ice is lower than the density of water.
- B. The specific heat capacity of water is relatively high.
- C. Water can be found on Earth in all three states, solid, liquid or gas.
- D. The latent heat of vaporisation of water is very low.

Question 8

Select the correct statement about the boiling point of water.

- A. The boiling point of water is always 100 °C.
- B. The boiling point of water does not depend upon its level of purity.
- C. The boiling point of water can be well over 100 °C if the water is under high pressure.
- D. Water will boil at the same temperature in all countries.