

A level Chemistry A

H432/01 Periodic table, elements and physical chemistry

Question Set 22

Multiple choice questions

Periodic table and energy

1. How many electrons are removed from 2.02×10^{-2} g of Ne(g) atoms to form $\text{Ne}^+(\text{g})$ ions?

- A 3.36×10^{-26}
- B 1.66×10^{-27}
- C 6.02×10^{20}
- D 1.22×10^{22}

Your answer

[1]

2. Enthalpy values are provided below.



Bond	Bond enthalpy / kJ mol^{-1}
H–H	+436
I–I	+151

What is the bond enthalpy, in kJ mol^{-1} , of the H–I bond?

- A –596
- B –298
- C +298
- D +596

Your answer

[1]

3. Which statement best explains why nitrogen has a larger first ionisation energy than oxygen?

- A N atoms have less repulsion between p-orbital electrons than O atoms.
- B N atoms have a smaller nuclear charge than O atoms.
- C N atoms lose an electron from the 2s subshell, while O atoms lose an electron from the 2p subshell.
- D N atoms have an odd number of electrons, while O atoms have an even number.

[1]

Your answer

4. Which statement about ammonium carbonate is **not** correct?

- A It reacts with $\text{Ba}(\text{NO}_3)_2(\text{aq})$ to form a white precipitate.
- B It effervesces with dilute nitric acid.
- C It releases an alkaline gas with warm $\text{NaOH}(\text{aq})$.
- D It has the formula NH_4CO_3 .

Your answer

[1]

5. Which statement(s) explain(s) why reaction rates increase as temperature increases?

- 1 The activation energy is less.
 - 2 Collisions between molecules are more frequent.
 - 3 A greater proportion of molecules have energy greater than the activation energy.
- A 1, 2 and 3
 - B Only 1 and 2
 - C Only 2 and 3
 - D Only 1

Your answer

[1]

6. 1 Which set of elements in the solid state contain a simple molecular lattice, a giant covalent lattice and a giant metallic lattice?

- A S, Si, Al
- B P, Si, C
- C S, P, Si
- D Mg, P, S

[1]

Your answer

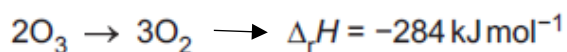
7. Which statement is **not** correct for Group 2 hydroxides?

- A $\text{Mg}(\text{OH})_2$ can be used to treat indigestion.
- B $\text{Ca}(\text{OH})_2$ is used in agriculture to neutralise alkaline soils.
- C The anion in $\text{Sr}(\text{OH})_2$ contains 10 electrons.
- D $\text{Ba}(\text{OH})_2$ is a product from the reaction of barium and water.

Your answer

8. Radical reactions are responsible for the catalysed breakdown of the ozone layer.
The overall equation is shown below.

[1]



The molar gas volume in the ozone layer is approximately $2.5 \text{ m}^3 \text{ mol}^{-1}$.

What is the energy released, in kJ, during the breakdown of 1.0 m^3 of ozone in the ozone layer?

- A 56.8
- B 113.6
- C 355
- D 710

Your answer

[1]

Total Marks for Question Set Module 3: 8

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge