ENGLAND GCSE COMBINED SCIENCE OCR TWENTY FIRST CENTURY FOUNDATION · UNIT 8 · 25 QUESTIONS

# Chemical Patterns — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button so it can be fixed.

1 **A thermometer measures temperature in degrees Celsius. What is the freezing point of water on this scale?**

A 0

B 100

C 10

D 32

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Flag a mistake

2 **Hardcover books are stacked on a table. What force pulls them down?**

- A tension
- B friction
- C gravity
- D air resistance

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3 **Lemons contain citric acid. What is the pH of lemon juice likely to be?**

- A 12
- B 14
- C 2
- D 7

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4 **Silver coins conduct electricity well. Why?**

- A they have free electrons
- B they are shiny and reflective
- C they are heavy
- D they are cold

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5 **Glass marbles in a tray are used as a model for particles in a solid. What do the marbles show?**

- A particles vibrate in fixed positions
- B particles are far apart from each other
- C particles flow past each other easily
- D particles move freely through space

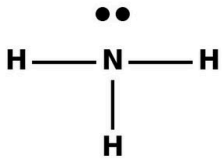
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**6** **A swimming pool holds water. Why does a person float in the pool?**

- **A** they are made of air
- **B** they are heavier than water and sink
- **C** their density is close to water
- **D** the water pushes them down

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**7** **The diagram shows an ammonia molecule. How many covalent bonds does the nitrogen atom form?**




- **A** 4
- **B** 1
- **C** 2
- **D** 3

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8 **An atom of magnesium loses 2 electrons. What is the charge on the ion formed?**

A -2

B 0

C +1

D +2

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9 **What is the mass of an electron compared with a proton?**

A zero

B much larger

C very small

D about the same

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10 **An atom has 11 protons. How many electrons does the neutral atom have?**

- A 13
- B 10
- C 12
- D 11

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11 **Who discovered the neutron?**

- A Dalton, who first described atoms
- B Chadwick
- C Bohr, who described shells
- D Thomson, who found the electron

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**12** **Which of these is a typical property of a metal?**

- **A** it conducts electricity
- **B** it is brittle
- **C** it is dull
- **D** it does not conduct heat

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**13** **Which of these is a simple covalent molecule?**

- **A** MgO
- **B** $CaCl_2$
- **C** NaCl
- **D** $CO_2$

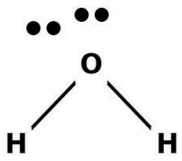
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**14** **What is the electronic structure of chlorine (atomic number 17)?**

- **A** 2,8,6
- **B** 2,7,8
- **C** 2,8,8
- **D** 2,8,7

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**15** **The diagram shows a water molecule. How many lone pairs of electrons does the oxygen atom have?**




- **A** 3
- **B** 4
- **C** 1
- **D** 2

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16 **An element, boron, has isotopes. 20 percent have a mass of 10 and 80 percent have a mass of 11. What is the relative atomic mass of boron?**

A 9.8

B 11.8

C 11.3

D 10.8

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17 **How does sodium form an ion?**

A it gains one electron

B it loses one electron

C it shares one electron

D it loses two electrons

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**18** How many neutrons are in an atom of carbon-14?

- A 8
- B 14
- C 6
- D 20

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**19** Why did other scientists not accept Newlands' Law of Octaves?

- A it worked for every element known
- B he had left too many gaps in it
- C he had arranged them by atomic number
- D it only worked for the first elements

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**20** **What does the atomic number tell you?**

- A the number of electrons and neutrons
- B the number of protons
- C the mass of the atom
- D the number of neutrons

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**21** **Which group contains the alkali metals?**

- A Group 1
- B Group 0
- C Group 2
- D Group 7

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**22** **What holds the molecules together in a simple molecular substance?**

- **A** strong covalent bonds between molecules
- **B** a sea of delocalised electrons
- **C** weak intermolecular forces
- **D** strong ionic bonds between molecules

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**23** **An element is in period 4 of the periodic table. How many electron shells do its atoms have?**

- **A** 3
- **B** 5
- **C** 4
- **D** 6

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**24** **An atom of sodium loses 1 electron. What is the charge on the ion formed?**

- A +2
- B +1
- C -1
- D 0

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**25** **An atom has 17 protons. How many electrons does the neutral atom have?**

- A 16
- B 19
- C 17
- D 18

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# ANSWER KEY

| | | | | | |
|---|---|---|---|---|---|
| **1.** | A | **10.** | D | **19.** | D |
| **2.** | C | **11.** | B | **20.** | B |
| **3.** | C | **12.** | A | **21.** | A |
| **4.** | A | **13.** | D | **22.** | C |
| **5.** | A | **14.** | D | **23.** | C |
| **6.** | C | **15.** | D | **24.** | B |
| **7.** | D | **16.** | D | **25.** | C |
| **8.** | D | **17.** | B | | |
| **9.** | C | **18.** | A | | |

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