

Past-paper walk-through

Noble gases ■ 8.5

eXercise

Questions in this set

- 0620/22 N25 Q25 ■ 1 mark
- 0620/21 J25 Q24 ■ 1 mark
- 0620/22 J25 Q21 ■ 1 mark
- 0620/23 J25 Q23 ■ 1 mark

Question 25

0620/22 N25 ■ Q25 ■ 1 mark

25 Part of the Periodic Table is shown.

Which element is an inert gas?

A simplified periodic table with 18 columns and 4 rows. The first two columns are shaded light blue. The last column is shaded light green. The central 12 columns are white. Element A is in the top row, 10th column. Element B is in the second row, 14th column. Element C is in the second row, 18th column. Element D is in the third row, 11th column.

Solution 25

Answer: **C**

Why

- The inert or noble gases occupy Group VIII, the far right-hand column.
- They already have a full outer shell, so they have no tendency to react.
- So pick the element in the last column of the table.

Question 24

0620/21 J25 ■ Q24 ■ 1 mark

24 Two statements about noble gases are listed.

- 1 Noble gases are reactive, monatomic gases.
- 2 Noble gases all have a full outer shell of electrons.

Which statements about noble gases are correct?

- A** Both statements are correct, and statement 2 explains statement 1.
- B** Both statements are correct but statement 2 does **not** explain statement 1.
- C** Statement 1 is correct but statement 2 is **not** correct.

Question 24

D Statement 2 is correct but statement 1 is **not** correct.

Solution 24

Answer: **D**

Why

- Noble gases have a full outer shell, which is why they are so unreactive – statement 2 is right.
- They are monatomic, but they are *not* reactive, so statement 1 is wrong.
- Only one of the two statements is correct.

Question 21

0620/22 J25 ■ Q21 ■ 1 mark

21 The table shows some properties of noble gases.

noble gas	density in g / dm ³	boiling point in °C
helium	0.2	−269
neon	0.9	−246
argon	1.8	−186
krypton		
xenon	5.9	−108

Question 21

Which row predicts the density and the boiling point of krypton?

	density in g/dm^3	boiling point in $^{\circ}\text{C}$
A	1.4	-75
B	2.4	-195
C	3.8	-153
D	8.5	-213

Question 21

Solution 21

Answer: **C**

Why

- Both density and boiling point increase steadily down Group VIII.
- Krypton sits between argon and xenon in the table.
- So its density lies between 1.8 and 5.9 g/dm³ and its boiling point between -186 and -108°C .

Question 23

0620/23 J25 ■ Q23 ■ 1 mark

- 23** Which statement about the elements in Group VIII is correct?
- A** They all form diatomic molecules.
 - B** They all have eight electrons in their outer electron shells.
 - C** They all react with oxygen to form oxides.
 - D** They all are gases at room temperature.

Solution 23

Answer: **D**

Why

- Noble gases are monatomic, not diatomic, so they do not form molecules.
- Helium has only two outer electrons, so “all have eight” is false.
- They are so unreactive that they do not form oxides at all.