2.2 Atoms, Elements and Compounds: 10-minute Pack

Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Balance the following symbol equations by writing the correct numbers in front of each formula where needed.

(a) Balance: $H_2 + O_2 \rightarrow H_2O$ **(2)**

(b) Balance: $N_2 + H_2 \rightarrow NH_3$ **(2)**

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2 A pupil opens a bottle of perfume at the front of a still classroom. After a few minutes, pupils sitting at the back of the room can smell it, even though no one has moved and there are no draughts.

(a) Name the process by which the perfume particles spread through the room. **(1)**

(b) Explain, in terms of particles, why the smell spreads through the room. **(2)**

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3 Which of the following is a mixture rather than a pure element or compound?

- [ ] A) Neon gas
- [ ] B) Crude oil
- [ ] C) Copper metal
- [ ] D) Carbon dioxide

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4 State the general term used to describe the strong forces that hold atoms together within a compound.

(1)

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Mark scheme · 2.2 Atoms, Elements and Compounds: 10-minute Pack

Question 1

(a) $2H_2$ and O_2 correctly placed on the left — **M1**

(a) $2H_2 + O_2$ -> $2H_2O$ fully balanced cao — **A1**

(a) Answer: **$2H_2 + O_2$ -> $2H_2O$**

(b) $3H_2$ correctly placed on the left — **M1**

(b) $N_2 + 3H_2$ -> $2NH_3$ fully balanced cao — **A1**

(b) Answer: **$N_2 + 3H_2$ -> $2NH_3$**

Question 2

(a) diffusion — **B1**

(a) Answer: **Diffusion.**

(b) gas particles move constantly and randomly in all directions (have kinetic energy) — **M1**

(b) particles move from an area of higher concentration (near the bottle) to an area of lower concentration until spread evenly, without needing the air itself to move oe — **A1**

(b) Answer: **Perfume particles move randomly and spread out from where they are concentrated to where they are less concentrated, until they are evenly spread through the room.**

Question 3

B (crude oil) cao — **B1**

Answer: **B) Crude oil**

Question 4

chemical bonds/bonding cao — **B1**

Answer: **Chemical bonds (bonding).**

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