

Past-paper walk-through

Physical and chemical changes ■ 6.1

eXercise

Questions in this set

- 0620/23 N25 Q16 ■ 1 mark
- 0620/23 J25 Q27 ■ 1 mark
- 0620/22 M25 Q18 ■ 1 mark

Question 16

0620/23 N25 ■ Q16 ■ 1 mark

16 Which statement about reactions is correct?

- A** A reaction that is vigorous at room temperature has a high activation energy.
- B** If ΔH for a reaction is positive, bond making in the formation of the products is endothermic.
- C** In an exothermic reaction, the energy required to break bonds is less than the energy released to make bonds.
- D** Reactions with a positive enthalpy change always transfer thermal energy to the surroundings.

Solution 16

Answer: **C**

Why

- A reaction that goes vigorously at room temperature must have a *low* activation energy.
- Bond *making* always releases energy, so it is exothermic, never endothermic.
- A positive ΔH means breaking the old bonds took more energy than making the new ones released.

Question 27

0620/23 J25 ■ Q27 ■ 1 mark

27 A sample of calcium carbonate is heated strongly, and substances U and V are formed.

Substance U is a white solid. Substance V is a colourless gas.

What are substances U and V?

	U	V
A	calcium chloride	oxygen
B	calcium hydroxide	carbon dioxide
C	calcium oxide	carbon dioxide
D	calcium sulfate	oxygen

Solution 27

Answer: **C**

Why

- Heating a metal carbonate strongly breaks it down into the metal oxide and carbon dioxide.
- Calcium oxide is the white solid.
- Carbon dioxide is the colourless gas.

Question 18

0620/22 M25 ■ Q18 ■ 1 mark

18 Which change is a physical change?

- A** cracking an alkane
- B** evaporating ethanol
- C** fermenting glucose

D neutralising an acid

Solution 18

Answer: **B**

Why

- A physical change alters the state but not the substance itself.
- Evaporating ethanol gives ethanol vapour – still ethanol.
- Cracking, fermenting and neutralising all produce new substances.