

- 8** In an experiment, 1.60 g of a fuel is burnt. 45.0% of the energy released is absorbed by 200 g of water. The temperature of the water rises from 18.0 °C to 66.0 °C.

What is the total energy released per gram of fuel burnt?

- A** 25 100 J **B** 55 700 J **C** 89 200 J **D** 143 000 J

- 9** When 0.47 g of a hydrocarbon is completely burnt in air, the energy released heats 200 g of water from 23.7 °C to 41.0 °C.

What is the amount of energy absorbed, in Joules, by the water?

- A** $0.47 \times 4.18 \times 17.3$
B $0.47 \times 4.18 \times (273 + 17.3)$
C $200 \times 4.18 \times 17.3$
D $200 \times 4.18 \times (273 + 17.3)$

- 10** One commercially available 'heat pad' contains iron, activated carbon and water. The 'heat pad' is activated by air. This causes the pad to get hotter.

Which statement describes the chemical reaction occurring in the 'heat pad' when it is exposed to air?

- A** The reaction is endothermic and iron gains electrons.
B The reaction is endothermic and iron loses electrons.
C The reaction is exothermic and iron gains electrons.
D The reaction is exothermic and iron loses electrons.