Solutions

Marking: **K** knowledge, **App** use of the case or data, **An** analysis (a chain of reasons: cause, then effect), **Ev** evaluation (a judgement with a reason). In calculations, **M1** is for the method and **A1** for the answer; **B1** is an independent mark.

Each answer shows the steps, then the **result**.

2.1

electricity 1,000; gas 360

vans 75

total **1**,**435** kg CO2e

2.2

(a) Scope 1; (b) Scope 2

(c) Scope 3; (d) Scope 1

2.3

$$\frac{1{,}435{,}000}{10{,}000}$$

= **143**.**5** g a meal

2.4

$250 + 360 + 75 =$ **685** kg

fall $\dfrac{750}{1{,}435} =$ **52**%

3.1

(a) flour $600 \times 0.55 = 330$; **1**,**765** kg

(b) $\dfrac{330}{1{,}435} =$ **23**%

(c) **143**.**5** g and **176**.**5** g

(d) the same meal gives different numbers with different boundaries; without the boundary, a small number can hide most of the emissions, which misleads customers

3.2

(a) lost $0.03 \times 20{,}000 = 600$ trays = £3,000; washing £600; running cost £**3**,**600**

(b) saving $5{,}000 - 3{,}600 =$ £**1**,**400**; payback $\dfrac{4{,}000}{1{,}400} \approx$ **2**.**9** years

(c) each lost tray costs £5, so a small fall in returns quickly wipes out the saving

3.3

7–**8**: offsetting electricity leaves about 76.5 g a meal from gas, vans and flour, so the meal is not neutral (App); the claim also ignores customers' travel and waste, outside the boundary (An); offsets vary in quality, and a weak offset is greenwash (K); a false claim risks the brand and possible legal action (An); a cheaper real cut, the renewable tariff, removes most of the electricity emissions without offsets (Ev); recommendation with a condition, e.g. switch tariff, then print an honest number with its boundary and date ("about 100 g a meal, cradle-to-gate, 2026"), not "neutral" (Ev). **4**–**6**: sound analysis with limited use of the data or a weak judgement. **1**–**3**: relevant points, mostly descriptive.

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