Command words and writing frames

HOW TO USE THIS BOOKLET

Command words tell you what kind of answer gets the marks. Learn what each one needs. The writing frames help you practise in class. They are **not for use during the assignment**.

Command words

STATE

What it needs: Give a name, a fact or a short answer. No explanation needed.

Example: State the name of the component that switches the lamp on. [1]

Model answer: Transistor

DESCRIBE

What it needs: Say what happens, step by step, in the right order. Each step is usually 1 mark.

Example: Describe the operation of the circuit as it gets dark. [4]

Model answer: Light level falls; LDR resistance rises; V_{in} rises to 0.7 V; transistor switches on and the lamp lights.

EXPLAIN

What it needs: Give a reason: a cause and its linked effect. Use 'so' or 'because'.

Example: Explain why a protection diode is used. [2]

Model answer: When the relay coil switches off it makes a back e.m.f., so the diode protects the transistor.

CALCULATE

What it needs: Write the formula, put in the numbers, give the answer with a unit.

Example: Calculate the current through a 470 Ω resistor on 12 V. [3]

Model answer: I = V/R = 12/470 = 0.0255 A

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COMPLETE

What it needs: Fill in a diagram, table, flowchart or expression. Follow the rules for that diagram.

Example: Complete the truth table for this logic diagram. [3]

Model answer: Every row in binary order; one column per gate.

JUSTIFY

What it needs: Give a reason for a choice, linked to the context.

Example: Justify the choice of a relay to switch the motor. [2]

Model answer: The motor needs a large current, so a relay lets the small control circuit switch it.

EVALUATE

What it needs: Compare evidence with the specification and make a judgement.

Example: Evaluate the alarm against the specification. [2]

Model answer: The spec says it must sound below 2 °C. In test 3 it sounded at 2 °C, so the specification was met.

Mark-earning checklists

Answer type	Check
Calculation	formula · substitution · answer · unit · no early rounding
Describe operation	condition → sensor resistance → V_{in} → transistor → output
Flowchart	Data Booklet symbols · pin numbers · delay units · decisions with ?, Yes/No, arrow · Stop or continuous loop
Logic	rows in binary order · one column per gate · labelled input devices · Boolean • + bar
Climate change	name greenhouse gases (e.g. CO_2)
Emerging technology	new, not yet commercial — not AI, EVs, self-driving cars or graphene
Roles	two different tasks, linked to the context; electrical = power, electronic = control

Command words and writing frames

Writing frames

FRAME 1 · EXPECTED RESULTS

When the _____ is _____, V_{in} will be _____ _____ V, so the transistor will _____ and the _____ will _____.

Not for use during the assignment

FRAME 2 · TEST RESULTS

When I _____, V_{in} was _____ V. The transistor _____, the relay _____ and the _____ _____. This matched / did not match the simulation.

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FRAME 3 · EVALUATION

Specification point: _____. Evidence: in test _____, _____. Judgement: the point was / was not met.

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FRAME 4 · MODIFICATION

The issue is _____. I would change _____ to _____. This fixes the issue because _____, so _____.

Not for use during the assignment

FRAME 5 · EXPLAIN

_____ (cause), so _____ (effect).

Not for use during the assignment

FRAME 6 · DESCRIBE THE OPERATION

As the _____ _____, the resistance of the _____ _____. V_{in} _____. At _____ V the transistor switches on. The _____ _____.

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Command words and writing frames

Practise

Use Frame 6 to describe a frost alarm (thermistor at the bottom) as the temperature falls.

Use Frame 5 to explain why LEDs reduce the energy used by a sign.