

# Module Synthesis & Exam Technique

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name \_\_\_\_\_  
 Date \_\_\_\_\_  
 Class \_\_\_\_\_

## 1. Key Ideas

A systems engineer does not think about resistors, capacitors, and inductors as separate ideas — they combine them into circuits that solve real problems. In this final lesson, you will do the same with Module 1: synthesise functions, inverses, composites, and transformations into one coherent toolkit, and learn the exam techniques that turn knowledge into marks.

- The complete scope of Module 1: IQ1, IQ2, IQ3
- How domain, range, inverses, and transformations interconnect

## 2. Success Criteria

By the end, you should be able to:

- The complete scope of Module 1: IQ1, IQ2, IQ3
- Standard question types and mark allocations
- Common traps that appear in exam questions

## 3. Key Terms

### Function

A relation where each input has exactly one output.

### Domain

The set of all possible input values for a function.

### Range

The set of all possible output values for a function.

### Inverse Function

A function that reverses the effect of the original function.

### Quadratic

A polynomial of degree 2, in the form  $ax^2 + bx + c$ .

### Discriminant

The expression  $b^2 - 4ac$  that determines the nature of quadratic roots.

## 4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

## 5. Short Answer Questions

1. Explain this lesson goal in your own words: "The complete scope of Module 1: IQ1, IQ2, IQ3". Use one specific example from the lesson.

**BAND 3** **2 MARKS**

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2. Apply this idea to a new example: "Standard question types and mark allocations". Show your reasoning clearly.

**BAND 4** **3 MARKS**

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3. Analyse why this idea matters for understanding Module Synthesis & Exam Technique: "Common traps that appear in exam questions".

**BAND 5** **4 MARKS**

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## 6. Extend: Apply the Idea

BAND 5/6

5 MARKS

**A student gives a memorised answer about Module Synthesis & Exam Technique but does not use evidence or reasoning.**

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

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## 7. Multiple Choice

1. What is the best first step when answering a question about Module Synthesis & Exam Technique?

- A. Identify the key concept being tested
- B. Write every fact from memory
- C. Ignore the command word
- D. Skip examples and evidence

2. Which answer would show stronger understanding of Module Synthesis & Exam Technique?

- A. An answer with accurate terms and reasoning
- B. A copied definition only
- C. A single-word response
- D. An answer with no example

3. What should you do if a question asks you to explain?

- A. Link the idea to a reason or cause
- B. List unrelated facts
- C. Only draw a diagram
- D. Write the shortest possible answer

## 8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

### SUCCESS CRITERION 1

**Prove that you can: The complete scope of Module 1: IQ1, IQ2, IQ3**

**BAND 3**

**2 MARKS**

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### SUCCESS CRITERION 2

**Prove that you can: Standard question types and mark allocations**

**BAND 4**

**3 MARKS**

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### SUCCESS CRITERION 3

**Prove that you can: Common traps that appear in exam questions**

**BAND 5**

**4 MARKS**

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**One thing I still need help with:**

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