

# 3.7 Nested Conditionals

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

Total: 8 marks

## Objective

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Build the skills to answer exam questions on **nested conditionals**.

You must be able to:

- explain how a **nested conditional** 嵌套条件 places one conditional inside another
- use nested conditionals to select among **three or more** outcomes
- describe how an **else-if** structure tests conditions in sequence
- trace the path of execution for given inputs

## 1 Worked examples

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Study these first. Each one shows the method for a question type used later.

### ■ Nested conditionals

A **nested conditional** is a conditional **inside** another. An **else-if** structure tests conditions **in sequence**, taking the first one that is true.

### ■ Choosing among many outcomes

`if score >= 90: "A" else if score >= 80: "B" else: "C"` selects one of three grades.

### ■ Tracing

Follow the tests in order and stop at the first true branch.

## 2 Practice

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2.1 State what a nested conditional is. [1]

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2.2 State what an else-if structure does. [1]

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2.3 For `if s >= 90: "A" else if s >= 80: "B" else: "C"`, state the grade when

s is 85.

[1]

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### 3 Exam-style questions

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3.1 A nested conditional is

[1]

- **A** a loop
  - **B** a conditional inside another conditional
  - **C** a variable
  - **D** a string
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3.2 An else-if structure is used to select among

[1]

- **A** one outcome
  - **B** exactly two outcomes
  - **C** three or more outcomes
  - **D** no outcomes
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3.3 A program runs: `if m >= 50: (if m >= 75: print "distinction" else: print "pass") else: print "fail".`

(a) State the output when m is 80.

[1]

(b) State the output when m is 60.

[1]

(c) State the output when m is 40.

[1]

### 4 Go further

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- work through the **3.7 Nested Conditionals** lesson on the **Learn** page;
- read the **Algorithms and Programming** section of the AP Computer Science Principles handout on the **Know** page.

## Solutions

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**2.1** a conditional statement placed inside another conditional.

**2.2** it tests conditions in sequence and runs the first true one.

**2.3** B ( $85 < 90$  but  $85 \geq 80$ ).

**3.1** B.

**3.2** C.

**3.3** (a) distinction. (b) pass. (c) fail.