AP COMPUTER SCIENCE PRINCIPLES • EXERCISE SHEET

3.7 Nested Conditionals

Name: _____ Class: _____ Date: _____ **Total: 8 marks**

KEY WORDS nested conditional 嵌套条件 • string 字符串 • variable 变量

Objective

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

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

2.1 State what a nested conditional is. [1]

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

2.3 For `if s >= 90: "A" else if s >= 80: "B" else: "C"`, state the grade when `s` is 85. [1]

---

3 Exam-style questions

3.1 A nested conditional is [1]

A a loop
B a conditional inside another conditional
C a variable
D a string

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

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]