AP COMPUTER SCIENCE PRINCIPLES • EXERCISE SHEET

3.10 Lists

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

Objective

Build the skills to answer exam questions on **lists**.

You must be able to:

- explain how a **list** 列表 stores an ordered collection of **elements** 元素
- access or modify an element using its **index** 索引 position
- use **iteration** to traverse a list
- apply list operations such as **append** 追加, insert, and remove

1 Worked examples

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

List and index

A **list** stores an ordered collection of values under one name. Each element has an **index** (position); here the first element is at index 1.

Operations

append (add to the end), **insert** (add at a position), **remove** (delete an element).

Traversing

Use **iteration** to visit and process every element. For `scores = [8, 5, 9]`, `scores[1]` is 8 and `scores[3]` is 9.

2 Practice

2.1 Define a list. [1]

2.2 For the list $[4, 7, 2, 9]$, state the element at index 2. [1]

2.3 Name one operation that changes a list's contents. [1]

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3 Exam-style questions

3.1 A list stores [1]

- **A** one value only
- **B** an ordered collection of values
- **C** only text
- **D** a single Boolean

3.2 To process every element of a list, you use [1]

- **A** a filter only
- **B** iteration
- **C** a substring
- **D** compression

3.3 A list `names = ["Ana", "Ben", "Cara"]` (index 1 is first).

(a) State `names[1]`. [1]

(b) State the length of the list. [1]

(c) Name the operation that adds `"Dan"` to the end. [1]

4 Go further

- work through the **3.10 Lists** lesson on the **Learn** page;
- read the **Algorithms and Programming** section of the AP Computer Science Principles handout on the **Know** page.

Solutions

2.1 an ordered collection of values (elements) stored under one name.

2.2 7.

2.3 any one of: append, insert, remove.

3.1 B.

3.2 B.

3.3 (a) `"Ana"`. (b) 3. (c) append.