AP COMPUTER SCIENCE A • EXERCISE SHEET

4.2 Introduction to Using Data Sets

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

Objective

Build the skills to answer exam questions on **using data sets**.

You must be able to:

- understand that a **data set** 数据集 is a collection of related values processed together
- explain why a **collection** 集合 is more convenient than many separate variables
- describe common operations: storing, reading, and summarizing values

1 Worked examples

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

■ Data sets and collections

A **data set** is a collection of related values handled together. A **collection** (such as an array) is far more convenient than many separate variables —one loop can process all the values.

■ Common operations

Store values, **read** them back, and **summarize** them (sum, average, maximum, count).

2 Practice

2.1 Define a data set. [1]

2.2 State why a collection is more convenient than many separate variables. [1]

2.3 Name one common operation on a data set. [1]

3 Exam-style questions

3.1 A data set is a collection of [1]

- **A** unrelated values
- **B** related values processed together
- **C** methods
- **D** classes

3.2 Storing 100 scores is easier with [1]

- **A** 100 separate variables
- **B** one collection
- **C** no storage at all
- **D** a constructor

3.3 A program stores the daily temperatures for a month.

(a) Name a structure that could hold them. [1]

(b) State one operation you might perform on them. [1]

(c) State one benefit over using separate variables. [1]

4 Go further

- work through the **4.2 Introduction to Using Data Sets** lesson on the **Learn** page;
- read the **Array** section of the AP Computer Science A handout on the **Know** page.

Solutions

2.1 a collection of related values processed together.

2.2 one loop can process every value, instead of naming each separately.

2.3 storing, reading, or summarizing values (any one).

3.1 B.

3.2 B.

3.3 (a) an array (or list). (b) find the sum, average, or maximum (any one). (c) all values can be processed with a single loop.