

1.12 Objects: Instances of Classes

Name: _____ Class: _____ Date: _____

Total: 9 marks

KEY WORDS object 对象 • class 类 • instance 实例 • methods 方法 • attributes 属性

Objective

Build the skills to answer exam questions on **objects as instances of classes**.

You must be able to:

- understand that an **object** 对象 is a specific **instance** 实例 of a class
- explain that a **class** 类 is a blueprint defining state and behaviour
- distinguish the class (the type) from an object (a value of that type)
- describe an object's **attributes** 属性 and **methods** 方法

1 Worked examples

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

■ Class and object

A **class** is a **blueprint** that defines the state and behaviour of its objects. An **object** is a specific **instance** created from that blueprint.

■ Attributes and methods

An object's **attributes** are its data; its **methods** are the behaviours it can perform.

■ Many objects

Many separate objects can be created from the same class — each has its own attribute values.

2 Practice

2.1 State the relationship between a class and an object. [1]

2.2 State the difference between an attribute and a method. [2]

2.3 State whether many objects can be created from one class. [1]

3 Exam-style questions

3.1 An object is [1]

- **A** a blueprint
 - **B** an instance of a class
 - **C** a primitive type
 - **D** a compiler
-

3.2 A class defines an object's [1]

- **A** only its data
 - **B** only its methods
 - **C** its state and behaviour
 - **D** the hardware
-

3.3 A `Dog` class is written.

(a) State what a specific dog created from it is called. [1]

(b) Name an object's data. [1]

(c) Name an object's behaviours. [1]

Solutions

2.1 a class is a blueprint; an object is a specific instance created from it.

2.2 an attribute is the object's data; a method is a behaviour the object can perform.

2.3 yes.

3.1 B.

3.2 C.

3.3 (a) an object (an instance). (b) its attributes. (c) its methods.