

1.13 Object Creation and Storage (Instantiation)

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS reference variable 引用变量 • alias 别名 • constructor 构造方法
• instantiation 实例化 • null 空值

Objective

Build the skills to answer exam questions on **object creation and storage (instantiation)**.

You must be able to:

- create an object by calling a **constructor** 构造方法 with **new**
- understand that a **reference variable** 引用变量 stores the object's location
- describe what it means for a reference to hold **null**
- recognize that two references can form an **alias** 别名

1 Worked examples

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

■ Creating an object

`Dog d = new Dog();` — the **new** keyword allocates memory and calls the **constructor** (instantiation).

■ Reference variables and null

A **reference variable** stores the object's **location**, not the object itself. A reference of value **null** refers to **no object**.

■ Alias

`Dog e = d;` makes **e** and **d** refer to the **same** object — an alias.

2 Practice

2.1 State the keyword used to create an object.

[1]

2.2 State what a reference variable stores. [1]

2.3 State what `null` means. [1]

3 Exam-style questions

3.1 An object is created with the keyword [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** `make`
B `new`
C `create`
D `class`

3.2 A reference variable that refers to no object holds [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** `0`
B `null`
C `""`
D `false`

3.3 `Cat a = new Cat(); Cat b = a;`

(a) State how many `Cat` objects exist. [1]

(b) State what `b` refers to. [1]

(c) Name the situation of two references to one object. [1]