

1.3 Program Design and Development

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS comments 注释 • iterative 迭代 • program requirements 程序需求 • prototype 原型

Objective

Build the skills to answer exam questions on **program design and development**.

You must be able to:

- describe the **iterative** 迭代 and incremental nature of development
- use a process to investigate, design, **prototype** 原型, and test
- create a **program requirements** 程序需求 description
- document a program with clear **comments** 注释

1 Worked examples

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

■ Iterative development

Programs are built in **repeated cycles**: design → prototype → test → refine, again and again, improving each time.

■ Requirements and planning

A **requirements** description captures what the user needs. Good practice is to **plan** the program before writing code.

■ Comments

Comments are notes in the source code that explain **how and why** it works, helping others (and your future self) understand it.

2 Practice

2.1 State what “iterative” development means.

[1]

2.2 State the purpose of a program requirements description. [1]

2.3 State why programmers add comments to their code. [1]

3 Exam-style questions

3.1 An iterative development process is one that [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** never changes
 - B** repeats and refines
 - C** skips testing
 - D** has no plan

3.2 Comments in a program are used to [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** make it run faster
 - B** explain how and why the code works
 - C** store data
 - D** create loops

3.3 A student plans, builds, tests, then improves a program over several cycles.

- (a) Name this kind of process. [1]
- (b) State one step done before writing code. [1]
- (c) State one benefit of adding comments. [1]