5. System Software

Starter Quiz · 课前小测

A-Level Computer Science Name: _____ Score: _____

1. Which is a core job of an operating system?

   ☐ managing the hardware so programs can share it safely

   ☐ designing the CPU chip

   ☐ writing the user's documents

   ☐ manufacturing the hardware

2. A program library is:

   ☐ pre-written code (subroutines, classes) that programs reuse

   ☐ a folder of the user's documents

   ☐ the operating system kernel

   ☐ a kind of CPU register

3. A compiler differs from an interpreter because it:

   ☐ translates the whole program once and produces a stand-alone executable

   ☐ runs the program one line at a time

   ☐ must be installed to run the finished program

   ☐ never reports errors

4. The operating system lets several programs share the same hardware safely, so they don't interfere with each other.

   ☐ True ☐ False

5. A collection of ready-made, reusable, tested code is a program _____.

   _____

6. When does an interpreter report an error?

   ☐ when it reaches the line containing the error

   ☐ only after the whole program is translated

   ☐ never

   ☐ before the program starts

7. Which are purposes of an operating system? Select **all** that apply.

   ☐ providing an interface between the user and the hardware

   ☐ hiding the complexity of the hardware from application programs

   ☐ sharing processor time, memory and devices between programs

   ☐ translating high-level source code into machine code

   Tick every correct option.

8. A benefit of using a library is that the code is:

   ☐ well-tested and reliable, saving development time

   ☐ always smaller than writing it yourself

   ☐ impossible to update

   ☐ specific to one program only

9. An interpreter produces no stand-alone executable, so the interpreter itself must be installed to run the program.

   ☐ True ☐ False

10. Which are benefits to a developer of building software from library routines? Select **all** that apply.

    ☐ the routines are already written and tested

    ☐ the developer needs no expertise in that area

    ☐ common code lives in one place, so maintenance is easier

    ☐ the finished program never needs testing

    Tick every correct option.

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Answers · 答案

A-Level Computer Science

1. **managing the hardware so programs can share it safely**

   The OS manages hardware and provides services and a UI, letting multiple programs run safely on shared hardware.

2. **pre-written code (subroutines, classes) that programs reuse**

   Libraries provide ready-made, tested code (maths, graphics, network…) that a program can call instead of writing its own.

3. **translates the whole program once and produces a stand-alone executable**

   A compiler translates all at once into an executable that runs without the compiler. An interpreter runs line by line.

4. **True**

   Sharing the CPU, memory and devices safely between many programs is exactly what the OS is for.

5. **library**

   Libraries save time and reduce bugs.

6. **when it reaches the line containing the error**

   An interpreter runs line by line, so it reports an error at the moment it reaches that line — handy during development.

7. **providing an interface between the user and the hardware; hiding the complexity of the hardware from application programs; sharing processor time, memory and devices between programs**

   Interface, hiding complexity, managing and sharing resources are the OS's jobs. Translation is a compiler's or interpreter's.

8. **well-tested and reliable, saving development time**

   Library code is tested, widely used and standardised — reusing it saves time and improves reliability.

9. **True**

   An interpreter translates and runs line by line each time — there is no separate executable to ship, unlike a compiler.

10. **the routines are already written and tested; the developer needs no expertise in that area; common code lives in one place, so maintenance is easier**

    Tested routines, no expertise needed, easier maintenance. The program's own code still has to be tested.