

3. Hardware

Starter Quiz · 课前小测

A-Level Computer Science

Name: _____ Score: _____

1. Which of these is an input device?
 - ☐ a scanner
 - ☐ a monitor
 - ☐ a speaker
 - ☐ a printer
2. How does an SSD differ from a magnetic hard disk?
 - ☐ it has no moving parts and gives faster random access
 - ☐ it uses spinning platters
 - ☐ it is always cheaper per gigabyte
 - ☐ it stores data as pits read by a laser
3. Which statement is true?
 - ☐ RAM is volatile; ROM is non-volatile
 - ☐ RAM is non-volatile; ROM is volatile
 - ☐ both are volatile
 - ☐ both are non-volatile
4. The key difference between a monitoring system and a control system is that a control system:
 - ☐ acts on the data through actuators, not just reports it
 - ☐ has no sensors
 - ☐ cannot read temperature
 - ☐ only logs readings
5. A NOT gate outputs 1 when its input is 0.
 - ☐ True
 - ☐ False
6. For $X = (A \cdot B) + \overline{C}$ with $A = 1, B = 1, C = 1$, what is X ?
 - ☐ 1
 - ☐ 0
 - ☐ cannot tell
 - ☐ 2

7. A pure monitoring system takes action through actuators to change its environment.

☐ True ☐ False

8. In the worked circuit, the second AND gate's output is $Q = B \text{ AND } \underline{\hspace{2cm}}$.

9. RAM is volatile (its contents are lost without power), while secondary storage keeps data when the power is off.

☐ True ☐ False

10. A 3D printer builds an object one _____ at a time, each bonding to the one below.

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1. **a scanner**

A scanner brings data in. Monitors, speakers and printers are output devices.

2. **it has no moving parts and gives faster random access**

SSDs store charge in flash transistors — no moving parts, faster and tougher, but dearer per GB and cells wear out.

3. **RAM is volatile; ROM is non-volatile**

RAM loses its contents without power (volatile); ROM keeps them (non-volatile).

4. **acts on the data through actuators, not just reports it**

Both read sensors, but a control system uses the data to act (via actuators), while monitoring only collects and reports.

5. **True**

NOT inverts: $0 \rightarrow 1$ and $1 \rightarrow 0$.

6. **1**

$A \cdot B = 1$, and $\overline{C} = 0$. $X = 1 + 0 = 1$.

7. **False**

Monitoring only collects and reports data — it does not act. Acting through actuators is what makes it a control system.

8. **C**

B and C feed the lower AND gate. Labelling that output Q lets the truth table be filled one gate at a time.

9. **True**

That is why your work must be saved to storage — RAM only holds it while the computer is on.

10. **layer**

Slicing software cuts the model into thin horizontal layers; the printer deposits, cures or fuses one layer at a time.