

## Starter for 12: Level 3 Vocational IT

These questions build on some of the topics that we have covered in June and July while on lock down. They focus on the computer hardware side of the course. I recommend that you look on YouTube for Craig N Dave videos. They are fantastic and will help you with all of these. Some of these questions are rather complex and will require a detailed answer. Take your time and give due consideration to your answer.

1. Briefly explain the role of a processor in a computer system.
2. Define the role of the following:
  - a. Data bus
  - b. Control Bus
  - c. Address Bus
3. Briefly explain the function of the following registers:
  - a. Program Counter (PC)
  - b. Accumulator (ACC)
  - c. Current Instruction Register (CIR)
4. Describe the process of storing data to main memory. Identify the registers that are involved.
5. Describe in detail each stage of the Fetch-Decode-Execute cycle:
  - a. Fetch
  - b. Decode
  - c. Execute
6. Explain how pipelining the Fetch-Decode-Execute cycle improve processor performance
7. Give **two** other examples of design techniques used to improve processor performance and explain how they provide this improvement.
8. Explain the difference between a Von Neumann architecture and a Harvard architecture. For each architecture, give an example of an application the architecture is typically used for.
9. Give **two** reasons why RISC processors are often used in portable devices such as mobile phones.
10. A school is considering changing from using paper registers to storing all information on a computer. Name **two** input devices that could be used to put data into a computer, and give an advantage of using each one.