**Quiz 2 (Graded)**

**Topic: Embedded System**

1. A student uses a laptop and a calculator for schoolwork.

(a) The laptop has a central processing unit (CPU) that performs the fetch–decode–execute

cycle.

 The CPU has several components, including the memory data register (MDR) and the

arithmetic logic unit (ALU).

 Describe how the MDR and the ALU are used in the fetch–decode–execute cycle.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

.............................................................................................................................................. [5]

b) The calculator has an embedded system.

Describe what is meant by an embedded system.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

.............................................................................................................................................. [2]

2. Match the following

Integrated circuit which only has a CPU on the chip

microcontrollers:

This has a CPU in addition to some RAM and ROM and other peripherals all embedded onto one single chip

microprocessor:

This may contain a microcontroller as one of its components

system on chips (SoC):

 [3]