

2(a)	Program counter // PC
2(b)(i)	Any three from: - It sends control signals to other components ... using the control bus ... to manage the flow of data through the CPU - It decodes an instruction ... using an instruction set
2(b)(ii)	Current instruction register // CIR
2(c)(i)	C
2(c)(ii)	One mark for example of storage One mark for example of what it will store - RAM - Data/programs/software/instructions that are currently in use - ROM - Startup instructions - BIOS - Bootstrap - Firmware - Virtual memory - Pages from RAM that are not immediately needed - Data/programs/software/instructions that are currently in use
2(d)	One mark for each correct storage type - Optical - Solid-state - Solid-state - Magnetic - Optical - Solid-state

1(a)	Any one from: - ROM - Cache
1(b)	Any one from: - It is volatile storage // Data is lost when the power is turned off. - It needs to be regularly replaced by other data // The data regularly changes // Data needs to be constantly updated
1(c)	10011 11100110
1(d)	0011 0101 1000 1010 1101
1(e)	One mark for each correct nibble (MAX 2) One mark for a correct method of working e.g. showing carries. <pre> 1 1 0 1 1 0 0 1 0 1 + 0 1 1 1 0 0 0 0 ----- 1 1 0 1 0 1 0 1 </pre>
1(f)	Any two from: - The result is greater than 255 // The result is too large. - Cannot be stored in 8 bits // Cannot be stored in the number of bits available for the register
1(g)	One mark for a correct working method e.g. flip and add One mark for correct answer 11101010

7(a)	Any two from e.g. - Barcode scanner - QR code scanner - Digital camera
7(b)	Any six from: - Proximity/infrared/pressure sensor used - Sensor continually sends digitised data to microprocessor // When driver pushes button, sensor sends digitised data to the microprocessor - Microprocessor compares data to stored value(s) - If in range/out of range/matches, microprocessor sends signal to close the door Actuator used to close door - If not in range/out of range/does not match door will not close // - If not in range/out of range/does not match actuator not activated/signal not sent as passenger in door // - If not in range/out of range/does not match a timer is set to check again // - If not in range/out of range/does not match a signal is sent to alert the driver/output a message - This process repeats until the door can close