



5th Year Computer Science Exam  
Mr. Garvey & Mr. Breen

Name:

### **Computer Systems and ALT questions**

#### **Question 1:**

Most general purpose computers share a common architecture that is named after John von Neumann.

i) **Draw** a diagram of the basic von Neumann computer system architecture, labelling the **CPU, ALU, Control Unit, bus, memory, input and output devices**.

ii) What is the purpose of the bus system in von Neumann architecture?



## Question 2:

Many new vehicles come with advanced hardware that provides an autopilot feature. An autopilot feature may allow a vehicle to steer, accelerate, brake and park autonomously. Hardware such as cameras and sensors provide the input to the vehicles computer system which then takes the required action without the need of the driver.



i) What is meant by the term computer system?

ii) Would you consider the autopilot computer system of a car as an embedded system? Explain your answer.

iii) What is meant by the term embedded system?



### Question 3

RAM and ROM are two forms of memory used in computer systems.

i) What do the acronyms RAM and ROM stand for.

RAM	
ROM	

ii) Explain two differences between RAM and ROM.

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### Question 4

i) What does the acronym C.P.U stand for.

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ii) What is the role of the CPU in a computer system.

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iii) Explain how clock speed and cache memory can affect the performance of a computer.

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### Question 5

Most computers use at least **one** storage device.

i) Explain one reason why a secondary storage device is needed in most computer systems.

### Question 6

i) Explain the difference between analogue and digital signals.

ii) Place an 'x' in the box that describes the type of signal below.

Signal	Analogue	Digital
Temperature sensor reading		
Sound level reading		
The position of a switch		
Pressure sensor reading		



## Coding questions

### Question 7

Tick the box if the following code **will** result in an error and **explain** the reason for the error.

Type in:	Error?	Explanation
<code>print ("hello world")</code>		
<code>print "hello world"</code>		
<code>Print ("hello world")</code>		

### Question 8

The **Python** programming language has a variety of **inbuilt data types**.  
Give one example of each of the following data types:

Data Type	Example
Boolean	
Integer	
Float	



### Question 9

What is the output of the following piece of Python code:

```
x=3

while(x<20):
    print("Number",x)
    x=x+3
```

### Question 10

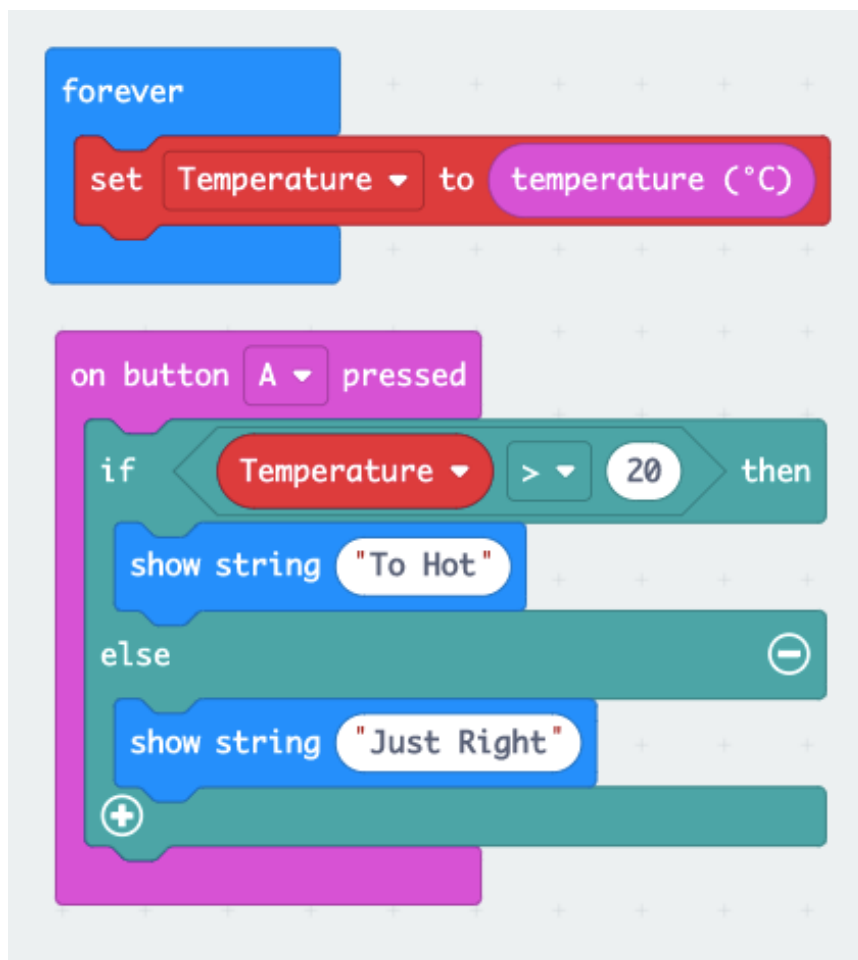
i) What is meant by the term 'variable'?



ii) Write the line of code that will assign your age to an appropriately named variable.

### Question 12

Study the code below. Describe in your own words what is happening. Include in your answer if there are any variables used in this code and if so where are they used.





...CHRISTMAS LOADING...



...CHRISTMAS LOADING...

