This task is not about how much you can remember, it may require you to use the course
website to help you answer some questions.

Use this QR code to visit the course website.

1. Fill in the name of the utility program being described in each row below:

Antivirus ✓	Prevents malware being installed and important files being changed or deleted.
Disc Compression Tool ✓	Packages a file so that it has a reduced file size.
Disk Defragmenter ✓	Optimises the use of the hard disk space by collecting together the separate parts of each file in one location on the disk.
Encryptor ✓	Takes a file and encodes it in such a way that it cannot be decoded without a key or password

2. The operating system of a PC carries out many different functions, including **memory management** and the **management of the processor(s)**.

Explain what is meant by each of these terms.

Memory management: ✓✓

Efficiently allocates, tracks, and frees memory for system processes.

Management of processor(s):

Schedules tasks, manages execution, and optimizes CPU usage across processes. ✓✓

3. The CPU is considered the brain of the computer.
   a. State what CPU stands for.

Central Processing Unit ✓

   b. What are the 4 main parts of the CPU?

Registers, Cache, ALU, CU ✓
Arithmetic Logic Unit
Control Unit

   c. State the 2 factors that affect the performance of the CPU.

1. Number of cores ✓
2. Frequency of cores ✓ Clock speed

4. A computer has many types of main memory, rank the following types from 1 to 4 with **1 being fastest and 4 being slowest**.

Memory Type	Rank (1-4)
RAM	2
ROM	3
Cache	1
Virtual Memory	4

✓✓

5. Define application software

Program used to help users perform tasks ✓

6. State 2 different types of application software

1. word processor ✓

2. Presentation software ✓

7. Complete the first pass of a bubble sort on the below list of numbers. The first line has been done for you.

9	12	73	42	3	16
		42	73		
			3	73	
9	12	42	3	16	73

✓✓

8. State how many passes would be required to complete the sort on this list of numbers and explain how you know.

5
n-1 ✓✓

9. Another algorithm that can be used to sort the data is a merge sort. Discuss the benefits and drawbacks of using a merge sort instead of a bubble sort.

merge sort – faster but more takes more storage ✓

10. Write a Python program that tracks a participant's progress in a gardening challenge based on the number of plants they have grown.

Your program should:
- Ask the user to input the number of plants a participant has grown (they should enter a number between 1 and 30 inclusive; if the number falls outside this range, prompt them to re-enter a valid number).
- If a participant has grown more than 25 plants, output "You have completed the Gardening Challenge!"
- If a participant has grown more than 10 plants, output "You are making great progress in the Gardening Challenge!"
- Continue looping until the user enters -1, which will stop the program.

```python
plants = 0
while plants != -1:
    plants = int(input())
    if plants != -1:
        if plants > 25:
            print("You have completed the Gardening Challenge!")
        elif plants > 10:
            print("You are making great progress in the Gardening Challenge!")
```

✓✓✓✓