Mo Homework – Answers:

1i) The term program instruction is referring to the process and steps the algorithm must carry out to complete a task.

1ii) The term memory address is the location of the data needed.

1b) D

1ci) More instructions can be carried out per second by each core.

1cii) Higher clock speed may result in the CPU heating up a lot quicker which can result in the need of purchasing better equipment to cool the computer, so it doesn't break/ slow/ malfunction because of the overheating.

1d) D (I have not learnt this one)

1ei) It can easily be altered to fit the needs of any high-level language by a few tweaks.

1eii) An assembler is the most basic code which allows the computer to understand it in binary form

1eiii) Interpreter, Compiler, Interpreter, Interpreter, Compiler

Question 1 took me 9 mins and 30 seconds; it was 11 marks.

2ai) 01001110

2aii) 128 (Thought process - a extra 0 is put on the end of each ASCII value (I think) which makes it fit into 1 byte nicely, but I think that makes it extended ASCII (and would therefore be 256) but this makes ASCII 128)

2aiii) Unicode is larger and includes every symbol from all major languages. This makes it more practical. ASCII is too small and cannot produce enough different binary codes for each value, which makes it unpractical (Unicode does provide enough codes).

2b) (Have not learnt this)

2c) 01001010

2di) 000, 111, 101, 110, 011

2dii) file size = colour depth x resolution
732/100 -> kilobytes/1000 -> megabytes

Question 2 took me 10 mins; it was 15 marks

1ai) (0.2, 1), (0.4, 10), (0.6, 12), (0.8, 5), (1.0, 3)

1aii) x-axis = sample rate

1aiii) y-axis = bit depth

1bi) The file size would not decrease (shrink) very much, the file may still take up a large volume of storage.

1bii) Your data is managed by IT specialists which means you don't have to do updates and back-ups as it is all done for you. There is also a slimmer chance of loosing the data as it is handled by trained professionals.

1biii) There is unclear ownership over data as it is being managed by other people whom you are relying on to perform these back-ups and updates. If not done correctly, data may be stolen by 3rd parties (hackers).

1biv) – a secure version of the protocol HTTP which allows you to access the website.

- This is the website name that you are accessing
- How up to date your file is (complete guess)
- The type of file you are storing, mp3 indicates a music file

Question 3 took me 13 minutes; it was 13, marks

4ai) --- DONE IN BOOK---

4aii) C (I don't know what the other three mean)

4bi) D

4bii) B

4ci) ---DONE IN BOOK---

4cii) Line 7 (should be a ':' at end of line

4ciii) Correction → WHILE Colour <> "-1" DO:

Question 4 took me 19 minutes; it was 14 marks

5ai) The artificial intelligence can check possible illnesses based on the symptoms as they are programmed to link symptoms to illnesses. As a result, the AI can tell the patient what is wrong with them based on the symptoms.

5aii) The patient may not trust what the AI says as they may feel it has not been programmed correctly to the point where it is as accurate as a face-to-face appointment with a doctor. This can be considered ethically wrong.

5bi) Client-server network

5bii) Client-server network

5c) C

5di) Solid state drives do not have moving parts and are more shock proof. This means they would be less likely to break if dropped.

5dii) A type of flash memory is used which allows the data to be stored in secondary storage.

5diii) ROM – booting up.
RAM - contents are lost when laptop is shut down.

Question 5 took me 14 minutes; 12 marks.

6a) There is not a single point of failure in this (ring) topology as if one wire malfunctions/ snaps/ stops working, the data is still accessible through different routes.

6aii) Nearly all the devices are connected on a mesh which means there is not a single point of failure. That is essential as billions of people access the internet at once.

6bi) Hotspot

6bii) It is safer, as Santiago does not know how safe that network is. It may be weak, and third parties may be able to access the information on the laptop/smartphone if there is minimal security. This can lead to Santiago getting hacked and loosing important data.

6ci) (complete guess →) Audit trails can be left on websites/ files you don't want anyone to access. They can alert you if accessed.

6cii) (complete guess →) Can give you information that your network is not secure, so they can advise you to install a form of protection, e.g. firewall.

6d) The ethical hacking is controversial as many people do not believe in hacking and think it is wrong to invade on other people's livelihood and private data, however some believe that if you use it for the right intentions, it can do good although you are still possibly accessing data that you don't have the right to. By conducting ethical hacking, time can be saved as you can find the website and the problems in it very quickly. Also, money may be saved for the small business.

Another method is commercial analysis tools. These can help you identify customer needs and wants without being intrusive on data that is not yours. This can educate you on how to improve the network by fixing its vulnerabilities, so it targets the right audience for the small business Santiago works for. However, this method may be slow and costly (with money and time) as it may involve market research to find out what

their possible customers like so the business can identify those wants (so the brand image is not damaged).

If Santiago was to review the network and user policies, this may be time consuming, but it could provide crucial information as you could find out that an employee is trying to sabotage the business. This would then provide the idea of user access levels so certain employees cannot access a certain level of confidential data. Santiago may also find out that the network is not secure enough as 3rd parties (hackers) may be able to easily access/ intercept data. Therefore, a firewall/ antimalware may be introduced.

Question 4 took me 24 minutes; it was 15 marks.