

Questions

Q1.

Josie is a student on a graphics design course at Swindhone College.

As part of her course she has to manipulate and edit high resolution images.

Josie uses a range of devices to complete her assignments.

Josie is considering buying a laptop with an HDD to complete her graphics assignments.

Explain why Josie may prefer to buy a laptop with an HDD rather than an SSD.

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(Total for question = 3 marks)

Q2.

Maria is a scientist working as part of a team studying the British weather.

An unmanned data logging system has been set up in the mountains of Scotland to monitor weather conditions such as temperature and rainfall.

Explain what is meant by the term 'data logging'.

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(Total for question = 2 marks)

Q3.

Joseph is a student in the final year of a three-year graphic arts course. At the beginning of his course he was given a second-hand laptop to use when completing college assignments.

The laptop is now five years old and Joseph is thinking of replacing it.

The operating system on the laptop is no longer supported by the manufacturer, which may cause security issues.

Explain **two** security issues that may arise from using an unsupported operating system.

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(Total for question = 4 marks)

Q4.

Miguel owns a company that produces software for primary school children. He works in an office with other programmers to do this.

They use PCs in the office and Miguel uses a laptop when visiting schools to demonstrate the software to the children.

Each device has:

- a graphical user interface (GUI)
- an optional command line interface (CLI)
- a single-user multi-tasking operating system (OS)
- a hard disk drive (HDD).

Explain **two** reasons why a single-user multi-tasking OS would be installed on each office PC.

(4)

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(Total for question = 4 marks)

Q5.

Joseph is a student in the final year of a three-year graphic arts course. At the beginning of his course he was given a second-hand laptop to use when completing college assignments.

The laptop is now five years old and Joseph is thinking of replacing it.

The operating system on the laptop is no longer supported by the manufacturer, which may cause security issues.

Explain **two** issues, other than security, that may arise from using a five-year-old laptop.

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(Total for question = 4 marks)

Q6.

Miguel owns a company that produces software for primary school children. He works in an office with other programmers to do this.

They use PCs in the office and Miguel uses a laptop when visiting schools to demonstrate the software to the children.

Each device has:

- a graphical user interface (GUI)
- an optional command line interface (CLI)
- a single-user multi-tasking operating system (OS)
- a hard disk drive (HDD).

Explain **two** benefits of using a GUI rather than a CLI.

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(Total for question = 4 marks)

Q7.

The laptop has many utility programs installed.

Explain the purpose of the **two** given utility programs.

(4)

Disk cleanup

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Software firewall

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(Total for question = 4 marks)

Q8.

Miguel owns a company that produces software for primary school children. He works in an office with other programmers to do this.

They use PCs in the office and Miguel uses a laptop when visiting schools to demonstrate the software to the children.

Each device has:

- a graphical user interface (GUI)
- an optional command line interface (CLI)
- a single-user multi-tasking operating system (OS)
- a hard disk drive (HDD).

Explain the purpose of a user interface.

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(Total for question = 2 marks)

Q9.

Fulmill is an inner-city suburb. Fulmill Community Group (FCG) has been set up to encourage local people to become involved in the community.

FCG produces a newsletter providing local news and information. The newsletter is currently printed to be collected from local shops. FCG is considering replacing the printed copy with an online version.

Kerry is a member of FCG. She has a BITMAP image that she wants to include in the FCG newsletter.

She is going to send the image as an email attachment. FCG has asked Kerry to convert the file into JPEG format.

(i) Explain **one** benefit to FCG of converting the file from BITMAP (.bmp) format to JPEG (.jpg) format.

(2)

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(ii) Explain **one** drawback to FCG of converting the file from BITMAP (.bmp) format to JPEG (.jpg) format.

(2)

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(Total for question = 4 marks)

Q10.

Josie is a student on a graphics design course at Swindhone College.

As part of her course she has to manipulate and edit high resolution images.

Josie uses a range of devices to complete her assignments.

Josie's new laptop has a pre-installed operating system.

Describe the role of the operating system in memory management.

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(Total for question = 3 marks)

Q11.

Hardeep is a designer for a small engineering company that produces specialised machine parts.

He visits clients to discuss their requirements and to show them his designs.

He usually travels by train to visit clients.

When travelling by train Hardeep uses a laptop to work on his designs. He uses the mobile data connection on his phone to connect to the company's VPN.

Hardeep uses a range of peripheral devices with his laptop.

The laptop operating system is responsible for the management of these devices.

Describe how the operating system manages peripheral devices.

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(Total for question = 4 marks)

Q12.

Anderson is an accountant hired by companies to help with financial tasks.

He works from home and travels around the country visiting clients.

He uses a laptop computer for personal and work-related tasks.

He has confidential information stored on his laptop which includes personal and financial information.

Anderson uses a username and password to restrict access to his laptop.

Describe **one** other method Anderson could use to restrict access to his laptop.

(3)

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(Total for question = 3 marks)

Mark Scheme

Q1.

Question Number	Answer	Mark
	Award one mark for identification and one additional mark for each appropriate expansion. HDDs are less expensive than SSDs for the same amount of storage (1) Josie is likely to need a large amount of storage for graphics files (1) however with an SSD she would need to buy/use external storage. (1)	3

Q2.

Question Number	Answer	Mark
	Award one mark for identification and one additional mark for an appropriate expansion. Automated system (1) to capture data (1) for future analysis (1)	2

Q3.

Question Number	Answer	Mark
	Award one mark for identification and one additional mark for appropriate expansion. <ul style="list-style-type: none">• (Security) patches not provided by manufacturer (1) leads to increased vulnerability to hackers (1)• Up-to-date virus checkers may not be compatible (1) leading to increased risk of infection (1)• Hackers are aware of the software vulnerabilities (as OS has been around for a long time) (1) leading to an increased likelihood of being attacked (1) Additional guidance Identification and expansion marks maybe transposed.	4

Q4.

Question Number	Answer	Mark
	<p>Award one mark for identification and one additional mark for appropriate expansion.</p> <p>Employees would not need extra training (1) because they are likely to be familiar with this OS (1)</p> <p>Improve productivity/efficiency (1) because the user runs multiple applications /perform multiple tasks simultaneously (1)</p> <p>Only one user would need to access the PC at any one time (1) as employees would have their work stored locally on their HDD (1)</p> <p>No additional costs (1) because it is the standard OS that comes with each PC / laptop (1)</p> <p>Accept any other valid response</p>	4

Q5.

Question Number	Answer	Mark
	<p>Award one mark for identification and one mark for an appropriate expansion point.</p> <ul style="list-style-type: none"> • Hardware incompatibility \ device drivers may not be available for new peripherals (1) may not be able to use new printer/scanner/other hardware / may be restricted to using old hardware (1) • Software incompatibility (1) may not be able to install new software / new software may not work on the laptop (1) • Likely to have limited storage capacity (1) may not be able to store large files for college work / graphic arts course files will be large (1) • Likely to have a slow processor (1) may have issues uploading/downloading files/accessing internet (1) • Slower/less powerful WiFi hardware (1) will work at slower speeds/increase download/upload time (1) <p>Additional guidance Identification and expansion marks maybe transposed.</p>	4

Q6.

Question Number	Answer	Mark
	<p>Award one mark for identification and one additional mark for appropriate expansion.</p> <p>More intuitive/can be easier to learn/use (1) because they are recognising icons/don't have to learn complicated code/commands (1)</p> <p>Commands do not have to be typed (1) which can lead to errors/is time consuming (1)</p> <p>Provide users with immediate visual feedback (1) by moving to the correct/incorrect part of the menu/error message (1)</p> <p>Allows multiple programs and/or instances to be displayed simultaneously (1) which increase efficiency (1)</p> <p>Multi-tasking (1) which enables users to view / toggle between multiple programs / documents at the same time (1)</p> <p>Easier to customise/ modify (1) to make it more accessible for users (1)</p> <p>Accept any other valid response</p>	4

Q7.

Question Number	Answer	Mark
	<p>Award up to two marks for each of two linked explanations, such as:</p> <p>Disk clean-up – designed to free up disk space/ increase performance (1) by removing unnecessary files/ programs (temporary files, cached webpages, items in Recycle bin) (1)</p> <p>Software firewall - ensure security (1) by stopping/ monitoring incoming and outgoing traffic (1)</p> <p>Accept any other valid response</p>	4

Q8.

Question Number	Answer	Mark
	<p>Award one mark for identification and one additional mark for appropriate expansion.</p> <p>Provides a method for a user to communicate/interact/navigate with the computer system / hardware & software (1) in order to carry out tasks/ control the computer/ device (1) using icons/menus / entering commands (1)</p> <p>Provides a user-friendly method (1) for the user to interact with the system (1)</p> <p>Accept any other valid response</p>	2

Q9.

Question Number	Answer	Mark
i	<p>Award up to two marks a linked explanation, such as:</p> <ul style="list-style-type: none"> • the file size will be reduced (1) • the image will be compressed (1) • the e-newsletter will render more quickly (1) • it will be faster to download/ upload the image/email (1) • it is less likely that it will be rejected by the FCG's' email provider (1) <p>Accept any other valid response.</p>	2

Question Number	Answer	Mark
ii	<p>Award up to two marks a linked explanation, such as:</p> <ul style="list-style-type: none"> • the quality of the JPEG images will not be as good (as bitmap) (1) and the JPEG may appear pixelated/ distorted (1) <p>Accept any other valid response.</p>	2

Q10.

Question Number	Answer	Mark
	<p>Award one mark for each of the following, up to a maximum of three marks.</p> <p>The memory manager needs to allocate blocks of memory to applications (and data) (1) the memory manager should allow many applications to occupy memory at the same time (1) the applications need to be protected from one another so that they do not overwrite each other. (1)</p>	3

Q11.

Question Number	Answer	Mark
	<p>Any four from:</p> <ul style="list-style-type: none"> • Need/use (software) (device) drivers (1) • Driver receives signals from/ communicates with hardware (1) • Driver translates signals so software (OS & applications) can understand (1) • When a signal is received from hardware OS it is held by a buffer / instruction put into a queue until resources available (1) 	4

Q12.

Question Number	Answer	Mark
	<p>Award one mark for identification and one additional mark for each appropriate expansion to a maximum of two expansion marks.</p> <p>Biometrics (Fingerprints/Facial recognition/Voice recognition) / access tokens / knowledge based/security questions (1) which compares the input to the saved data (for the individual/Anderson) (1) only gives access to the laptop if they are the same (1)</p> <p>Two/multi factor authentication/ additional (verification) level of security/ a combination of (user name and password) and an additional question (1) which compares the input to the saved data (1) only gives access to the laptop if they are the same (1)</p> <p>Restricting physical access (1) at home/ door passes/ locked cupboard (1) while traveling/ locked (laptop) bag/ locked safe in hotel room (1)</p> <p>Do not accept answers relating to firewalls/anti-virus/encryption</p>	3