

PiXL Independence:

Computer Science – Answer Booklet

KS4

Contents:

Answers

I. Multiple Choice Quizzes

Test 1 Answers

1. Which of the following is not an example of a software utility?
a. Disk defragmentation.
2. Which of the following describes the term secondary storage?
a. A storage device which will store data permanently until it is deleted.
3. Which type of backup is quickest to restore a file from?
a. Full.
4. Which number system is a MAC address usually written in?
c. Hexadecimal.
5. Which of the following correctly describes a virtual machine?
b. Software which is installed on a host computer to act like a separate computer.
6. Which of the following are drawbacks of using a command line interface?
a. It is harder to learn how to complete simple tasks.
b. You have to type individual commands so it can be much slower.
7. Which of the following are stored in the RAM?
b. The data for unsaved documents which are currently being worked on.
d. The programs which are currently running on the computer.
8. Which of the following is not a component of the CPU?
b. Virtual memory.
9. Which of the following describes a Local Area Network?
c. Computers connected together over a small geographical area such as a single building or site.
10. Which of the following statements are true? Under the Freedom of Information Act...
a. Public authorities must publish certain information about their activities.
b. Members of public are entitled to request information from public authorities.

Test 2 Answers

1. Which of the following correctly describes the term standalone computer?
b. A computer that is not connected to another networked device.
2. What does 'breaking down a large problem into smaller sub-problems' describe?
d. Decomposition.
3. Which of the following describe proprietary software?
b. The software cannot be copied or modified.
c. You usually need to purchase a licence to use the piece of software.
4. Which of the following are examples of peripheral devices?
a. Printer.
c. Keyboard.
d. RAM.
5. Which component within the CPU is for transporting instructions back from the RAM?
b. Data Bus.

6. Which of the following backup types will store copy of only the files which have changed since the last full backup, regardless of which type of backup was performed last?

b. Incremental backup.

7. Which of the following is stored in the cache memory?

b. Frequently used instructions and data.

8. Which of the following is a correct benefit of using a wired network over a wireless network?

a. Wired networks are usually faster than wireless networks.

c. Wired networks are usually more secure than wireless networks.

9. Which of the following is not an example of system software?

c. Firewall.

10. Which of the following is a type of network policy?

a. Acceptable Use Policy.

Test 3 Answers

1. Which of the following are correct characteristics of a graphical user interface?

b. It is quicker as you do not have to learn complicated commands.

c. It is easy to use, especially for a beginner.

2. Which computer component is assigned a MAC address?

b. NIC Card.

3. Why is data split into packets before it is sent over a network?

b. Sending smaller chunks of data enables files be sent more efficiently.

4. Which of the following are characteristics of solid state storage?

a. It is durable and is not easily damaged.

5. Which of the following is a correct benefit of using a wireless network over a wired network?

c. Using a wireless network allows you to use devices that can be portable.

d. Wireless networks are cheaper to set up and easier to install than wired networks.

6. Which of the following describes the term 'system software'?

d. Software that is needed to control the computer's hardware.

7. Which secondary storage type would be most suitable to be used in a device which is likely to be carried around?

a. Solid state.

8. Which of the following accurately defines the term 'volatile'?

b. Memory that loses its contents when the power is turned off.

9. Which of the following is not a benefit of using a client-server network over a peer-to-peer network?

a. Peripheral devices can only be accessed from the device that they are connected to.

10. Which of the following describes a DDOS attack?

a. Overloading a website with unwanted traffic so that it cannot function correctly.

Test 4 Answers

1. What does the term primary storage refer to?
b. Memory that the CPU accesses first or directly.
2. What is the purpose of a Creative Commons License?
a. To allow people with protected work to allow free distribution of their work.
3. You can change the channel that your wireless connection uses. Why is this important?
c. To avoid interference with other wireless networks.
4. Which of these is not a feature of an Integrated Development Environment?
d. Defragmentation of code.
5. Which of the following temporarily holds the address of the next instruction before it is sent to the RAM?
a. Memory Address Register.
6. What must an Operating System have to enable a user to interact with it?
a. User interface.
7. Which piece of computing legislation makes hacking illegal?
d. Computer Misuse Act.
8. Which component within the CPU is responsible for performing mathematical operations?
a. ALU.
9. Encryption is...
b. A method of scrambling data with a key code which makes no sense if it is intercepted.
10. Which of the following explains the term ethical?
a. In accordance with principles of conduct that are considered correct.

Test 5 Answers

1. Which of the following correctly describes the stakeholder?
b. A person who is involved in an issue/problem either directly or indirectly.
2. Disk defragmentation is when...
a. Data/parts of files are grouped together on a hard drive.
3. Which of the following statements is true?
c. An IP address is assigned to a device on a network by a server.
4. Which of the following is a benefit of using a star network topology?
b. If a cable fails only one computer is connected as each has its own connection.
5. Which of the following temporarily holds the result of the calculations performed by the ALU?
d. Accumulator.
6. Which of the following affects the performance of a computer?
b. Clock speed.
c. Cache size.
d. The size of the Virtual Memory.
7. Which of the following components are not present in a CPU?
c. Instruction Data Register.

8. What does HTTP stand for?
d. Hyper Text Transfer Protocol.

9. A quad core processor refers to...
b. A CPU which has 4 processors inside.

10. Processor speed is measured in...
b. Hertz.

Test 6 Answers

1. Which of these is not a protocol?
b. DTP.

2. What does 'representing problems using algorithms and symbols, and removing details that are not required' describe?
b. Abstraction.

3. Which of the following is a drawback of using a star network topology?
a. If the central device fails, all connected devices will not work.
c. Lots of cable is needed so it can be quite costly to install.

4. Which backup method takes longer to perform?
c. Full.

5. Which of the following is not a type of secondary storage?
a. Read Only Memory.

6. Which of the following is not a type of malware?
a. Phishing.

7. Which of the following correctly describes the term 'intellectual property'?
c. Anything which has been created using the mind.

8. Packet switching is...
c. Breaking down a file into small pieces of data so that it can be sent across a network.

9. Which of the following describes a Wide Area Network?
b. Computers are connected over a large geographical area.

10. Which of the following describes virtual memory?
d. When the CPU uses Secondary Storage to replicate the job of the RAM when the RAM is full.

Test 7 Answers

1. Which of the following correctly describes DNS?
b. A server on the internet which holds a list of all domain names and associated IP addresses.

2. Which of the following describes lossy compression?
c. When some original data is lost and the original file cannot be re-created exactly.

3. Which of the following usually describes the term utility software?
b. A small piece of software which is part of the operating system.

4. Which of these is not a valid IP address?
c. 192.168.12.260
5. In the Fetch-Decode-Execute cycle, where does the CPU fetch instructions from?
b. The RAM.
6. What is the role of a router in a network?
b. Direct packet of data between networks/on the internet.
7. Which of the following would be the most appropriate form of secondary storage to use in a desktop computer which is used to store large video files?
b. Magnetic hard drive.
8. What does 'duplicating material which is property of a company or individual' describe?
b. Copyright.
9. Which of the following is an example of a network forensic technique?
d. Packet sniffing.
10. Which of the following defines a virtual network?
b. Controlling computers and devices remotely via the internet.

Test 8 Answers

1. Which of these is not a protocol?
b. MSN.
2. Which of the following describes lossless compression?
b. No data is lost and the original file can be re-created from the data that has been compressed.
3. Which of the following are stored in the ROM?
a. Bootstrap Loader.
b. Basic Input Output System.
4. Which of the following correctly defines the internet?
c. A worldwide connection of computer networks.
5. What network has a device such as a server or switch placed at the centre and the devices connecting to it?
b. Star.
6. What is the purpose/function of SQL?
b. To interact with a Database.
7. Which of the following would be the most appropriate form of secondary storage to use in a tablet computer?
a. Solid state storage.
8. Which of these is not covered by the Data Protection Act?
a. The copyright of data.
9. Which of the following will not be contained within a data packet?
d. Data recording the path that the packet has taken across the network.
10. Which of the following types of memory is located in the CPU?
a. Cache memory.

Test 9 Answers

1. Which of the following is not a purpose/function of the Operating System?
d. Enable you to send files through the internet.
2. What does 'arranging parts of files on a secondary storage device so that they are in sequence' describe?
a. Disk defragmentation.
3. A magazine is giving away free design software. Which of the following would be the most appropriate form of secondary storage to use?
c. Optical storage.
4. Which of the following describe open source software?
a. The source code can be copied and modified.
d. The software is usually free and publicly available.
5. Which of the following statements are true? Under the Data Protection Act you are able to...
b. Request any data held on you by a company for a fee.
6. What is required to decrypt a file?
a. A key.
7. When may you want to use HTTPS and not HTTP?
c. When data is being sent over the internet which you want to send securely and using encryption.
8. Which of the following describes the term 'drivers'?
a. A piece of software used to control a piece of hardware, e.g. a peripheral device.
9. Which of the following are embedded systems?
a. Dishwashers.
10. Which of the following describes the rate at which data can be transferred across a network?
b. Bandwidth

Test 10 Answers

1. Which of the following is not a purpose/function of the Operating System?
d. Allow you to access the ROM when the computer is loading.
2. Why do files become fragmented when saved on a hard-drive?
c. Space between existing files is used to store a new file.
3. Which of the following types of software enables the Operating System to control the hardware?
b. Device driver.
4. Which of the following is a type of social engineering?
a. Malware.
b. Phishing.
5. SQL injection is...
d. An attempt to gain access to a database only to manipulate data.
6. Which of the following describes the role of a compiler?
b. Converts an entire program written in a programming language into machine code. A compiler produces this executable program.

7. What type of storage is an SD card?

c. **Solid State.**

8. Which of the following types of memory is quickest?

c. **Cache.**

9. Which of the following is a benefit of using a mesh network topology?

a. **Data can be transmitted from different devices simultaneously.**

10. Which of the following does a firewall prevent?

a. **Software on the computer from connecting to the internet without the user knowing.**

c. **Something on the internet from connecting to the computer without the user knowing.**

II. Exam Style Questions

Answer
<p>1) (i)</p> <ul style="list-style-type: none">• Multiple processors inside the CPU which execute instructions independently.• Dual Core may execute up to twice as many instructions per second (1) Quad Core may execute up to four times as many instructions per second. <p><i>(1 mark per answer, maximum 2 marks).</i></p> <p>1) (ii)</p> <ul style="list-style-type: none">• More space for data/instructions in cache memory.• RAM needs to be accessed less frequently.• Accessing cache is quicker than accessing the RAM. <p><i>(1 mark per answer, maximum 2 marks).</i></p>
<p>2)(i)</p> <ul style="list-style-type: none">• Performs arithmetic calculations.• Performs logical operations including +, -, AND, OR.• Places the results of these calculations in the accumulator. <p><i>(1 mark per answer, maximum 2 marks).</i></p> <p>2(ii)</p> <ul style="list-style-type: none">• Sends Control Signals between the different internal components.• Such as Read/Write via Control Bus. <p><i>(1 mark per answer, maximum 2 marks).</i></p>

3)

- RAM is Volatile/Rom is non-volatile. (1)
- ROM stores the instructions (1) required to boot the computer such as the Bootstrap Loader (1) OR (1) BIOS.
- RAM stores the programs (1) and data (1) which is currently being used by the computer.

(1 mark for bullet 1, 2 marks for bullet 2, 2 marks for bullet 3 – where the appropriate detail is added).

4)

- Users have to log-in to the same computer every time to access files.
- Time consuming to back up - all computers responsible for backing up their own file.
- Individual security needs to be installed on individual machines.
- Peripherals cannot be shared amongst multiple machines easily.
- The internet cannot be shared amongst multiple machines easily.
- Difficult to manage users as they would need accounts on each computer.

(1 mark per answer, maximum 4 marks).

5) (i)

- Program disguised as a file which is not harmful.
- So that the user will open the file as they are unaware it is dangerous.

5 (ii)

- Replicates itself in order to spread to other computers/across network.
- Does not need to attach to a program to spread.

(1 mark per answer, maximum 2 marks).

6)

Incremental

- A full backup is made initially. (1)
- Only the files that have been changed since the last incremental backup are backed up. (1)
- Much faster to complete than full backups. (1)
- Takes much longer to restore than a full backup (1) as the full backup would need restoring first and then every incremental backup since full back up. (1)

Full

- A copy of all data is copied. (1)
- Takes a long time to complete. (1)
- Recovery takes a long time as it restores all data. (1)

(1 mark per answer, maximum 3 marks for full, 3 marks for incremental).

7)

- It would offer more storage (1) so the company can store more data. (1)
- It is a very effective way of backing up data (1) because it is off-site and secure. (1)
- Documents can be accessed from anywhere (1) so workers would be able to work out of the office. (1)
- Easy to increase storage (1) without having to buy any further hardware. (1)
- You don't need specialist skills (1) because the company providing the solution will set everything up.
- The company provides the hardware to backup (1) so the company may save money on software/hardware/staff. (1)

(2 marks per answer - first mark for point, second mark for corresponding answer).

8)

User Interface

- Providing a way for the user to interact with the device e.g. GUI etc.

Memory Management

- Allocates memory between the different programs that are open at the same time.

Multi-tasking

- Ensuring that programs can share the CPU's resources.

Peripheral Management and Drivers

- Manages all of the peripheral devices that are connected to a computer e.g. printers etc.

User Management

- Enable user accounts to be created/users managed etc.

File Management

- Identify where files are stored on secondary storage/ensure that files are saved on secondary storage.

(1 mark per function, 1 mark for corresponding explanation).

9)

- Open Source software allows users to access to/edit the source code.
- It is usually free to download.
- Able to distribute the updated changes you make to Open Source Software.
- Allows collaboration with other people.
- Enables you to add features which you require.
- There is generally a very strong social support forum if you need help.

(1 mark per answer, maximum 4 marks).

10)

- Data must be collected fairly.
- Data must only be held and used for the reasons given.
- Data can only be used for the given purposes and not be disclosed/given away.
- Data must not be excessive when compared with the purpose.
- Data must be accurate and be kept up to date.
- Data must not be kept longer than is necessary.
- Data must be kept safe and secure.
- Data may not be transferred outside of the European Economic Area (the EU plus some small European countries).

(1 mark per answer, maximum 2 marks).

11)

- The hard disk or secondary storage is used.
- As RAM/to do the job of RAM/to store the contents of RAM.
- This is required when there is not enough physical RAM memory.

Main memory can be substituted for RAM.

(1 mark per answer, maximum 3 marks).

12)

- RAM is not able to store data long term.
- Because RAM is volatile.
- Secondary storage is non-volatile.
- So it is able to store data/files permanently.

(1 mark per answer, maximum 3 marks).

13)

- The speed of the storage medium.
- The capacity of the storage medium.
- The durability of the storage medium.
- The portability of the storage medium.
- The physical size of the storage medium.
- The cost of the storage medium.

(1 mark per answer, maximum 3 marks).

14)

Advantages

- All devices are directly or indirectly connected so no single point that will cause the network to fail.
- If a device fails, the data can be sent along an alternative route to its target.
- Expansion and modification can be done without disrupting other devices.

Disadvantages

- Overall cost of this network topology is high compared to a star network topology.
- Set-up and maintenance of this topology is more difficult.

(1 mark per answer).

15)

Penetration testing

- Checks for current vulnerabilities/explores potential vulnerabilities.
- To find weaknesses in the system so they cannot be maliciously exploited.

Firewall

- Software or hardware which performs a 'barrier' between a network and the internet.
- Stops devices from connecting to a network without permission.

Network policies

- Defines how a system is to be secured with different rules/how a system should be used.
- An example of a policy/what a policy may cover e.g.
 - Who can access which files.
 - Which systems can be accessed by which people?
 - How a particular system is to be used e.g. email.
 - etc.

Anti-malware

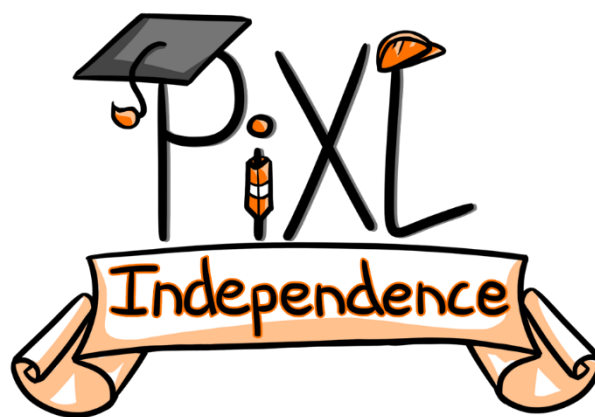
- Software which can prevent malware from entering a system.
- Can identify/delete malware which has been installed.

(1 mark per answer).

16)

- Bandwidth (1) the greater the bandwidth the better the network can perform. (1)
- Number of users (1) because the bandwidth is shared between all of the users using the network. (1)
- Choice of transmission media, (1) certain cables (e.g. fibre optic) are faster than other cable types (1) (e.g. copper).
- Physical barriers (1) if wireless connections are being used. (1)
- Choice of hardware (1) other than cables as certain devices perform at different speeds and this can affect how quickly data is transferred. (1)

(1 mark per function, 1 mark for corresponding explanation).



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