GCSE Computer Science

COMP1 REVISION WORKBOOK

NAME:

CLASS:

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Unit 1: Computer Systems

Paper 1: Computer Systems

This section covers:
- 1.1 Systems Architecture
- 1.2 Memory
- 1.3 Storage
- 1.7 Systems Software

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U1L1: Computer Systems

What is the purpose of a computer?

[blank answer box]

Computer systems consist of...

1)

2)

Examples of a General-Purpose System	Examples of a Dedicated System

What is an embedded system?

[blank answer box]

Why might we use an embedded system over a general-purpose computer system?

[blank answer box]

Examples of Embedded Systems

Exam Questions

1. A microwave contains an embedded system which controls its cooking modes. What is an embedded system?
2. Give two other examples of devices that may contain an embedded system.
3. Explain two benefits of using an embedded system, rather than a general-purpose computer in a microwave.
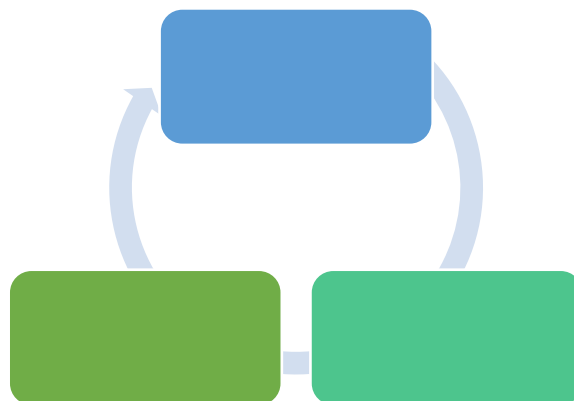
What is the purpose of the Central Processing Unit (CPU)?

The diagram below represents the Von Neumann Architecture. Label all parts of the CPU and explain their purposes.
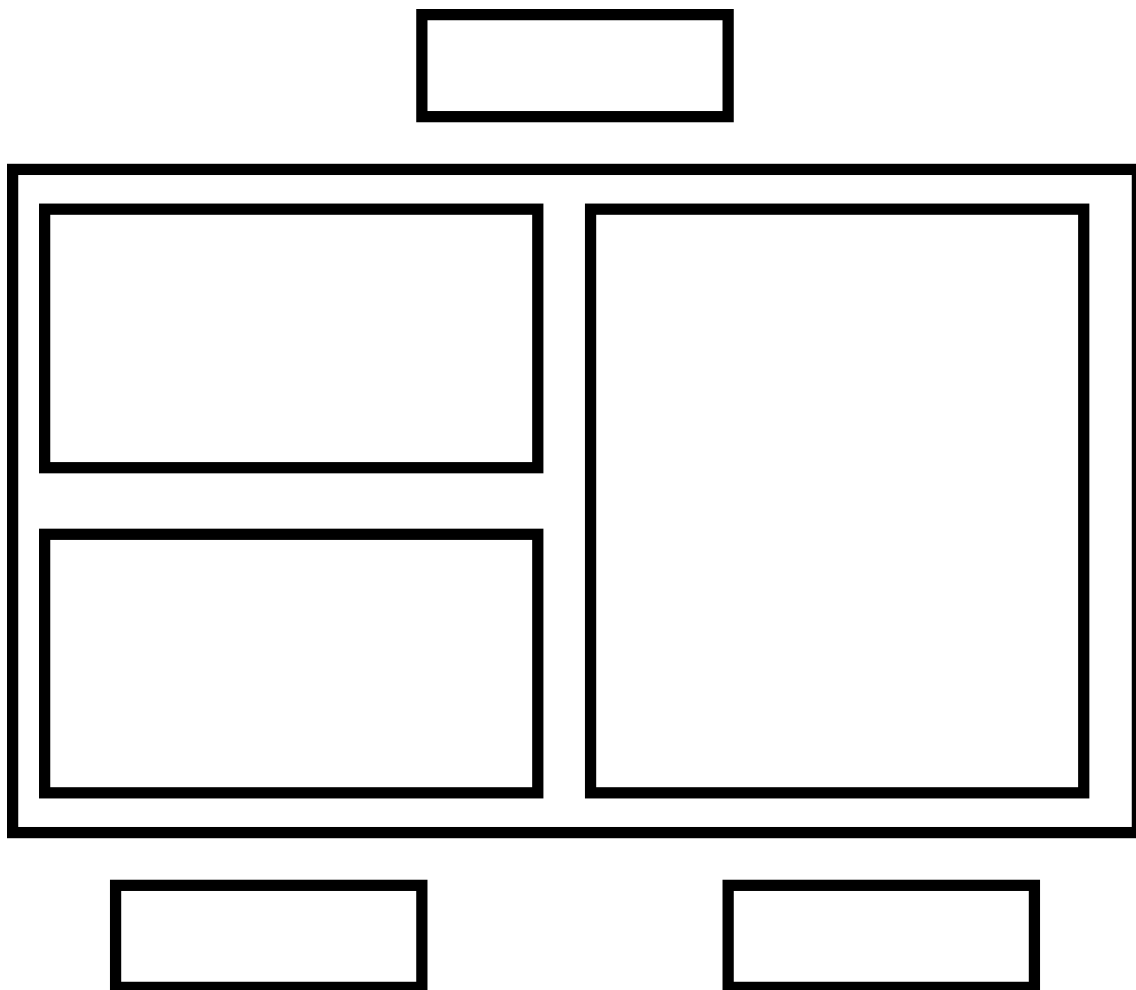
Identify the three stages of the FDE cycle.

What three main factors affect the CPU performance?

1)

2)

3)

What happens if we install more RAM?

What is a GPU?

Explain the purpose of each piece of hardware inside a computer system.

Inside a Computer!

Shell		Heat Sink

CPU

Graphics Card

Motherboard

RAM	Hard Drive	GAP TASK Can you add one more component in the box above?

Power Supply

Teacher Feedback ☺ ☺ ☹

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U1L3: Memory

What is RAM?

What is ROM?

What is Virtual Memory?

What is Flash Memory?

Exam Questions
1. State the purpose of RAM in a computer system.
2. Give two reasons why Amy might need to install more RAM in her computer system.
3. Explain why using a CPU with a large cache capacity may increase CPU performance.

U1L4: Storage

What is secondary storage?

What is optical storage?

What is magnetic storage?

What is flash storage?

When we consider purchasing a new secondary storage device, what should we think of?

1)

2)

3)

4)

5)

6)

U1L5: Systems Software

What does the Operating System (OS) do?

Explain each of the following tasks of the OS.

User Interface	
Memory Management/ Multitasking	
Peripheral Management	
Device Drivers	
User Management	
File Management	

What is meant by disk management?

What are user accounts?

U1L6: Utility Software

What is utility software?

What is defragmentation?
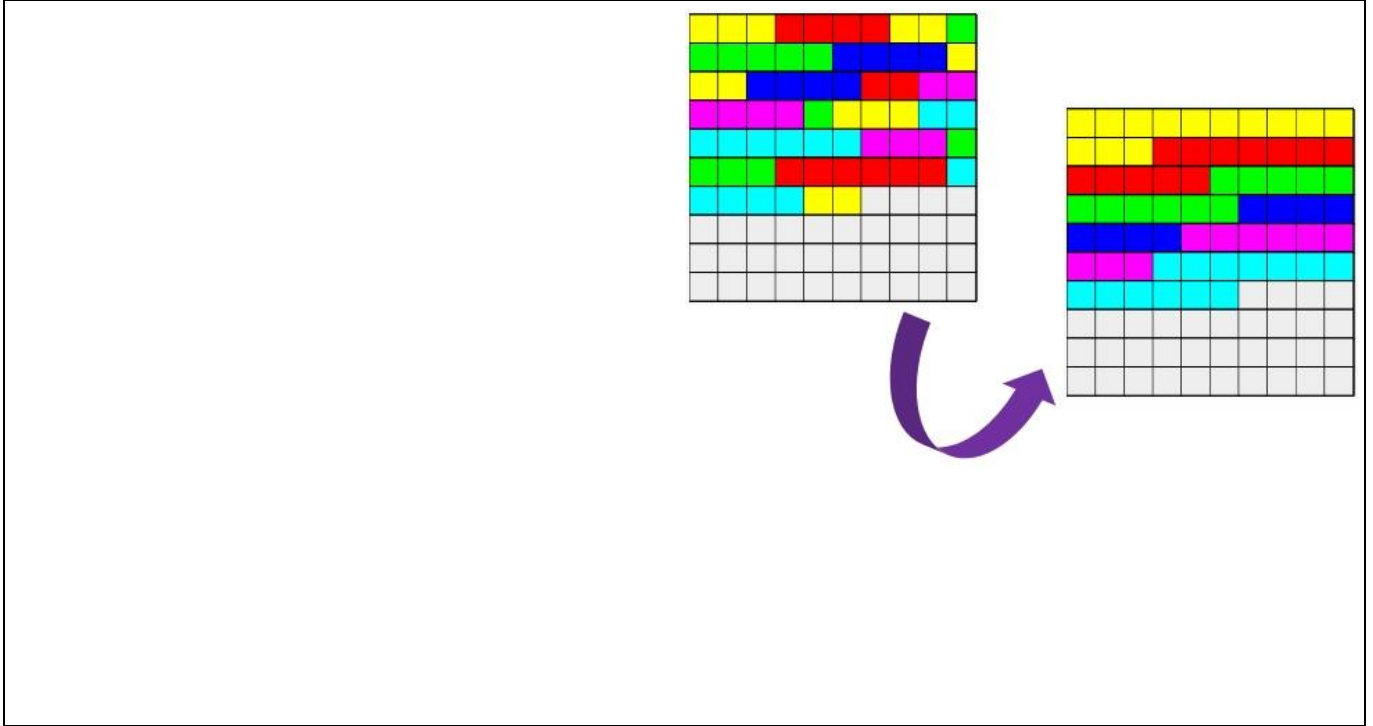
What is a backup?

What are the differences between full and incremental backups?

Full Backup	Incremental Backup

What is compression software?

What is encryption software?

Unit 2: Networks

Paper 1: Computer Systems

This section covers:
- **1.4 Wired and Wireless Networks**
- **1.5 Network Topologies, Protocols and Layers**
- **1.6 System Security**

U2L1: Types of Network

Describe a LAN and WAN.

Local Area Network	Wide Area Network

What factors affect network performance?

What is a client-server network?

What is a peer-to-peer network?

What is a virtual network?

U2L1: Types of Network

U2L2: Network Hardware

Describe the following network hardware.

Wireless Access Point (WAP)	
Router	
Switch	
Network Interface Card (NIC)	
Ethernet Cable	
Coaxial Copper Cable	
Fibre Optic Cable	

What is Wi-Fi?

How does Wi-Fi operate?

U2L3: The Internet

What is the Internet?

What is the World Wide Web?

What is the Domain Name System (DNS)?

What is hosting?

What is the cloud?

Exam Question
1. Define the term Local Area Network.
2. State three advantages of connecting computers together in a LAN.
3. State how Ethernet is different to a Wi-Fi connection.
4. Describe what is meant by a client-server and a peer-to-peer network.
5. Identify two benefits and two drawbacks of changing from a peer-to-peer network to a client-server network.

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U2L4: Topologies

Describe the following network topologies.

Star	
Ring	
Bus	
Mesh/Partial Mesh	

U2L5: Protocols

What is a protocol?

State the name and purpose of each of the following protocols.

Protocol	Stands for...	Purpose
TCP/IP		
HTTP		
HTTPS		
FTP		
POP		
IMAP		
SMTP		

U2L6: Layers and Packet Switching

What is a layer?

| |
| |

Identify and describe the four main layers.

Layer Name	Description	Protocol Examples

What is packet switching?

| |
| |

Why do we use layers?

| |
| |

Identify the steps involved in packet switching.

| |
| |

U2L7: Network Security Threats

What are the five main types of network attack?

1)

2)

3)

4)

5)

What is malware?

What are the actions of malware?

Examples of malware include...

1)

2)

3)

What is social engineering?

What is SQL injection?

U2L8: Preventing Network Vulnerabilities

Describe the methods of preventing network vulnerabilities.

Penetration Testing	
Network Forensics	
Network Policy	
Anti-Malware/Anti-Virus Software	
Firewall	
User Access Levels	
Passwords	
Encryption	

Unit 3: Ethical & Legal Issues

Paper 1: Computer Systems

U3L1: Legislation

Explain the purpose of each legislation.

Legislation	Description & Where it's important
The Data Protection Act 1998	
The Freedom of Information Act 2000	
The Computer Misuse Act 1990	
The Copyright, Designs and Patents Act 1988	
Creative Commons Licence	

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U3L2: Investigating Computer Science Technologies

Describe what is meant by the following:

Ethical Issue	
Legal Issue	
Cultural Issue	
Environmental Issue	
Privacy Issue	
Stakeholder	

What is censorship?

What is surveillance?

What is digital wellbeing?

What are problems with cyberbullying and trolling?

What health problems can technology cause?

How has technology influenced our culture?

How has technology changes business?

What is the digital divide?

What environmental issues might we consider?

Exam Question

In many factories, robots have replaced humans for routines tasks such as cutting and joining materials together and retrieving products stored in a warehouse. Discuss the impact of robots replacing humans to carry out routine tasks in factories. In your answer, you might consider stakeholders, technology and ethical issues.

Preparing Long Answer Questions

Remember to plan your long-answers before writing. You could use STEMCELS to help plan, but remember to write an introduction/main/conclusion like you would in English.

Stakeholders **Technology**	**Ethical** **Moral**
Cultural **Environmental** **Legal**	**Solution**

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U3L3: Open Source & Proprietary Software

What is Open Source software?

What is proprietary software?

Advantages and Disadvantages

Advantages of Open Source	Disadvantages of Open Source

Advantages of Proprietary	Disadvantages of Proprietary

Exam Question
1. Give two advantages of using proprietary software to a company such as Adobe.
2. Describe what is meant by proprietary software.