

OCR Computer Science J277

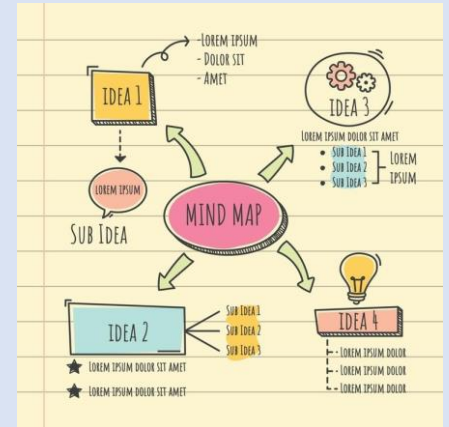
Component 1

Revision methods

When you are asked to revise for an end of topic assessment, you need to condense notes in your book/online into:

- Mindmaps or revision clocks.
- Practice past paper questions.

We suggest you use **OCR** and **Teach-ICT** (Copy the links)




[OCR](#)


[tinyurl.com/5h7trwpv](https://www.tinyurl.com/5h7trwpv)

Question papers, mark schemes and reports ∨

2022 - June series >

Sample assessment materials ∨

 [Computer systems](#)
J277/01 - Sample question paper and mark scheme. PDF 176KB

 [Computational thinking, algorithms and programming](#)
J277/02 - Sample question paper and mark scheme. PDF 708KB

[Teach-ICT](#)



[tinyurl.com/5n88xcjy](https://www.tinyurl.com/5n88xcjy)

Username:

wr5 2xd

Password:

python6

1.1 System Architecture

Purpose of the CPU

Common CPU components (ALU, CU, cache, registers)

How common characteristics of CPUs affect their performance

-Clock speed, cache size, number of cores

Embedded systems:

-Purpose and characteristics, using examples.

Low stakes quizzes: *copy and paste the link*

<https://tinyurl.com/4jj6mwz3>
<https://tinyurl.com/2bms2d2e>
<https://tinyurl.com/54d62rxn>
<https://tinyurl.com/mupxx5zb>
<https://tinyurl.com/3fyh5c9h>
<https://tinyurl.com/mtscvmj5>
<https://tinyurl.com/449khjy2>
<https://tinyurl.com/57zuteam>



1.2 Memory & Storage

Primary storage (RAM, ROM and virtual memory)

- Need, purpose and differences

Secondary storage:

-Need, common types i.e. optical, magnetic, solid state and cloud

Advantages and disadvantages i.e. capacity, speed, portability, durability, reliability and cost

Units of data storage (bit, nibble etc)

-Calculating data capacity requirements

Data Representation:

-Decimal to binary to hexadecimal, binary addition, binary shifts
-Character sets
-Images (how an image is represented, metadata, impact of colour depth & picture resolution)
-Sound (how sound is sampled and stored. Effect of sample rate, bit depth and duration on quality & file size)

Compression:

-Need for compression, lossy and lossless

1.3 Networks, connections & protocols

Types of networks:

- LAN and WAN (definition, similarities & differences)
- Factors that affect the performance (wired & wireless)
- Client-server and peer-to-peer network
- Network hardware
- Domain name system, local & external hosting, web servers & clients, the cloud
- Star & mesh network topologies

Modes of connection:

- Ethernet, wifi & Bluetooth
- Encryption
- IP and MAC addresses (where used, describe them and similarities & differences)
- Standards (defacto and dejure)
- Protocols: tcp/ip, http, https, ftp, pop, impa, smtp

The concept of layers:

- Purpose
- Advantages

1.4 Network Security

Threats to computer systems and networks

- Malware, social engineering, brute-force attacks, denial of service attacks, data interception & theft, SQL injection

Identifying and preventing vulnerabilities:

- Penetration testing, anti-malware software, firewalls, user access levels, passwords, encryption, physical security

Low stakes quizzes: *copy and paste the link*

<https://tinyurl.com/42da45by>

<https://tinyurl.com/bp8jty6d>

<https://tinyurl.com/45rv44cn>

<https://tinyurl.com/mpk7yba7>

<https://tinyurl.com/ybm6afuu>

<https://tinyurl.com/47pd4c9v>

<https://tinyurl.com/5n7mmr28>

<https://tinyurl.com/4fnf8bzw>

