**Scheme**

**ocessor registers**: Extremely **fast but small data storage spaces** that are **used directly by the ALU and cont**
**ndom access memory (RAM)** or main memory: Where data and instructions are **stored temporarily** (volatile) s
ey can be **quickly accessed** by the processor when needed.
**ad-only memory (ROM)**: Store data and instructions that rarely need to change or would be needed for a compu
rt up are stored. Data stored on ROM **cannot be easily changed** and remains there regardless of whether the p
pply is switched on.
**ternal** memory storage or secondary storage: Where **large amounts of data** are stored, such as in a hard disk d
ve.

**Difference 1:**

A wired network is a network of devices connected by a physical medium, such as cables. Whereas a wireless n
a network of devices in which signals are transmitted without the use of a physical medium. The transmission is
form of electromagnetic waves, such as radio waves.

**Difference 2 :**

ransfer is typically faster and more secure in a wired network. In a wireless network, users can be connected only
are within range of the network coverage. Obstacles such as walls or metal frames can reduce the strength of W
signals.

tage and disadvantage explained. 1 mark for each

| Factor | Wired | Wireless |
|---|---|---|
| st | Lower as equipment and cables are cheaper | Higher as wireless networking equipment is more expensive |
| eed of nsmission l ndwidth | Faster and higher **bandwidth** as cables provide dedicated connection | Generally slower and lower bandwidth due to possible interference from radio waves or microwaves; varies according to user location in relation to network |
| iability | More reliable as data transmission is unaffected by interference | Less reliable due to potential interference from radio waves and microwaves or blockage from physical obstructions |
| urity | More secure as the network is less susceptible to interception and hacking | Less secure due to possible intrusion by hackers |
| bility of rs | Lower as network connections are fixed at specific spots and users cannot move to other locations | Higher as users can move about freely within the range of the wireless network |
| lability | More cumbersome to add new devices to the network as physical constraints and the running of cables need to be considered | Easier to add new devices to the network as the router can be easily configured |
| sical anisation | Tends to look more disorganised due to cables running across floors | More organised without cables |

COUNTIF(B4:B17, “>2”)

B4+1)*$C$1
xt, Currency

1111 , $2^8 – 1 = 255$
011
> 0011
s: 1011 0011
$= 2^1 + 2^3 + 2^4$
s: 0001 1010

wo
or data authentication
or data access control or authorisation
or understanding of privacy policies

wo points

| y | Type | Preventive measures |
|---|---|---|
| tion | Passwords | • Keep passwords secret and safe.<br>• Avoid obvious password choices such as birthdates and surnames.<br>• Use passwords that are a mixture of lower-case letters, upper-case letters, numbers and symbols.<br>• Avoid re-using passwords and use unique passwords for each computer or online account.<br>• Update passwords regularly – at least once every 90 days. |
| | Security tokens | • Keep the security token stored in a secure location at all times.<br>• Report a missing security token as soon as possible. |
| | Biometrics | • Choose an appropriate biometric measurement that is difficult to replicate (e.g., fingerprint). |

| | | |
|---|---|---|
| on | File permissions | • Take care not to accidentally grant file access or administrative rights to unauthorised users.<br>• Make authentication for the administrator especially strong (such as by using two-factor authentication) to avoid having an intruder successfully claim to be the administrator and bypass file permissions entirely.<br>• Use file permissions in combination with encryption. |
| | Firewalls | • Configure the firewall properly to block traffic between any unauthorised senders and/or receivers.<br>• Configure the firewall to block traffic from certain well-known harmful programs. |

| y | Type | Preventive measures |
|---|---|---|
| on | Encryption | • Keep secret keys private and safe.<br>• Use encryption in combination with file permissions.<br>• Verify that a website's address starts with "https://" and a padlock icon appears next to its address on a web browser before sending confidential customer data such as credit card information. |

o economic effects (accept any possible answer):

The price of music albums, television programmes and films would go up to compensate for the loss in sal
piracy.
There would be fewer music albums, television programmes and films produced as people would find it inc
difficult to make money from doing so.

's actions are considered to be copyright infringement as she did not have explicit permission from the copyright
by the television series onto her hard drive.

sic may be downloaded legally without copyright infringement as long as the copyright owner has given permissi
wnloading to occur. For instance, the copyright owner may allow a music file to be downloaded from a legitimate
sic store as long as payment is made. Alternatively, the music file can be placed under a Creative Commons lice
ich explicitly gives everyone permission to download the file as long as certain conditions are met.
ta validation - Process of ensuring that the input data supplied to a system satisfies a set of requirements.
y 2 of the following
ngth check, Range check, Presence check, Format check

The Data is entered using **an input device** and converted into a form that the computer can understand. This dat
emporarily stored in a **processor register.**
nstructions from the running application are interpreted by the **control unit.** These instructions may request the
rocessed by the **ALU**.
The control unit may then redirect the processed data to an output device for display in a form that users can und

0 books' titles
0 corresponding number of copies sold

e of the top selling book
rresponding number of copies sold

**equired**
ore the data in arrays / lists
arch for the book with the greatest number sold

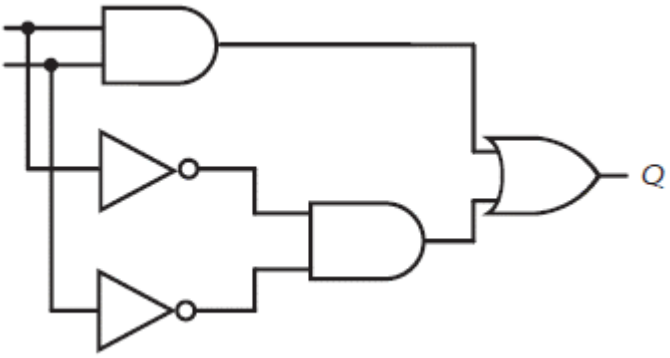
| | |
|---|---|
| rror 1 | Total = 100 |
| ction | Total = 0 |
| | |
| 2 | Number[Counter] + Total = Total |
| ction | Total = Total + Number[Counter] |
| | |
| 3 | IF Total = 100 |
| ction | IF Total > 100 |
| | |
| 4 | Counter = Counter - 1 |
| ction | Counter = Counter + 1 |
| | |
| 5 | OUTPUT Counter |
| ction | OUTPUT Total |

NOT gate
ND gate

| **A** | **B** | **X** |
|---|---|---|
| 0 | 0 | 0 |

| | | |
|---|---|---|
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

*Q* = (*A* AND *B*) OR (NOT *A* AND NOT *B*)




12 (a)

| T2 | T3 | A | B | C | OUTPUT |
|---|---|---|---|---|---|
| 0 | 0 | 6 | 4 | 2 | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | 3 | 8 | 6 | |
| 1 | | | | | |
| | | 5 | 0 | 2 | |
| | | | | | |
| | | 6 | 7 | 9 | |
| | 1 | | | | |
| | | 5 | 10 | 2 | |
| 2 | | | | | |
| | | 0 | 0 | 0 | 2, 2, 1 |

print out the number of times when value of A is largest, B is largest and C is largest.

e algorithm will give a wrong output when value of A, B and C are the same  or when two of the values are equal

**pseudo code:**

```
wo_digit = 0
hree_digit = 0
al = 0
OR Count = 1 to 20
    INPUT Number[Count]
    IF Number[Count] < 999 THEN
        Three_digit = Three_digit + 1
    ELIF Number[Count] < 99 THEN
        Two_digit = Two_digit + 1
    ENDIF
    total = total + Number[Count]
    NEXT
UTPUT Two_digit, Three_digit, total
```