34

41 /41

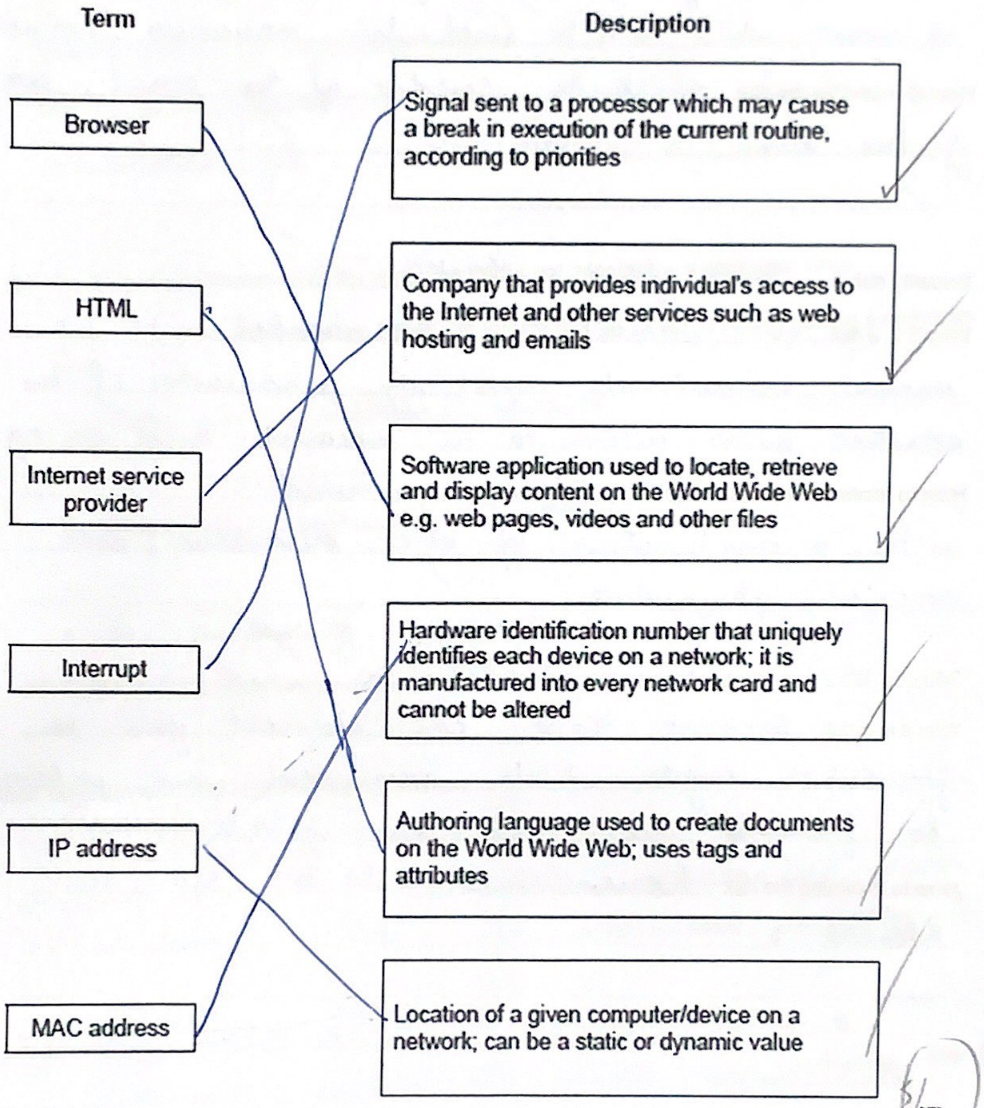
CIE Computer Science

Chapter 5 – The Internet and its uses test

Q1

Six computer terms and six descriptions are shown below.

Draw a line to link each term to its appropriate description.



Term

- Browser
- HTML
- Internet service provider
- Interrupt
- IP address
- MAC address

Description

- Signal sent to a processor which may cause a break in execution of the current routine, according to priorities ✓
- Company that provides individual's access to the Internet and other services such as web hosting and emails ✓
- Software application used to locate, retrieve and display content on the World Wide Web e.g. web pages, videos and other files ✓
- Hardware identification number that uniquely identifies each device on a network; it is manufactured into every network card and cannot be altered ✓
- Authoring language used to create documents on the World Wide Web; uses tags and attributes ✓
- Location of a given computer/device on a network; can be a static or dynamic value ✓

5/ [5]

Q2

There are a number of security risks associated with using the Internet.

Name **three** of these risks. For each, state why it is a risk and describe how the risk can be minimised.

Security risk 1 ...phishing...

Why it is a risk ...fraudulent emails seent out with the purpose of gaining confidential information out of users which will be used for malicious purposes.

How to minimise the risk ...check the sender of the email, see if the email is personalised 3

Security risk 2 ...brute force attacks...

Why it is a risk ...an account can be hacked into by manual or automatic input of passwords. If an attacker gains access to an account, they can, e.g transfer out funds

How to minimise the risk ...use strong password with a combination of letter, numbers and special characters 3

Security risk 3 ...suspicious links...

Why it is a risk ...because these can redirect you to fraudulant sights which can steal your information for fraudulent uses; they can install viruses

How to minimise the risk ...hover over links to see their address 3

9/[9]

Q3

David has installed anti-virus software on his computer.

(a) State **three** tasks carried out by anti-virus software.

Task 1 scans all files on a system.

Task 2 Checks files against a list of known malware (e.g viruses)

Task 3 asks user if they want to delete a malicious file.

3/ [3]

(b) David is still concerned that his computer might get infected by a computer virus.

State **three** other ways in which David can reduce the risk of his computer getting a computer virus.

1 Use a virtual machine

2 Regular software updates

3 Be aware of suspicious links and emails; and know their "clues"

3/ [3]

Q4) Explain each of the following terms:

a) **Hacker**

Someone who wants to gain unauthorised access to confidential data for mallicious purposes [2] 2

b) **Malware**

Software that is meant to do harm to a computer system; e.g viruses, worms, trojan horse [2] 2

c) **Virus**

A type of malware that can steal confidential information. It can replicate and send itself to other users on the same network. [2] 2

d) **Spyware**

A type of malware that records the activity of a computer system; data is sent to a remote attacker. This attacker can then analyse the data. (and get confidential info) [2] 2

8/8

5). Explain the difference between a dynamic IP address and a static IP address

- Dynamic can change static always stays the same
- example of static : router
- Example of dynamic : computer system.
- static IP address can be tracked.
- dynamic IP address can't be tracked.

3 [3]

6)

A company has a website that is stored on a web server.

(a) The website data is broken down into packets to be transmitted to a user.

Describe the structure of a data packet.

Packet is split between 3 parts:
1. the head contains the packet number and the address of the sender and receiver.
2. the payload contains the actual data.
3. the trailer marks the end of the packet and contains any error detection algorithms.

4 [4]

(b) The website hosts videos that users can stream. The company uploads new videos to the website.

(i) The videos are compressed before they are uploaded to the website.

Tick (✓) **one** box to show which statement is a benefit of compressing the videos.

A	Data is encrypted.	□
B	Duration of each video will be reduced.	□
C	Less storage space on the web server is required.	☑
D	More bandwidth is required when viewing the videos.	□

1 [1]

The company is concerned about a distributed denial of service (DDoS) attack.

(i) Describe what is meant by a DDoS attack.

- A targetted attack on an online service by directing traffic to its website.
- a perpetrator would create a botnet: a network of many devices in many locations.
- perpetrator would send the signal to target a website to each bot. The bots would all visit the site.
- The server can't filter out genuine requests to fraudulent ones and eventually gets overwhelmed and shuts down

[4] 4/4

(ii) Suggest **one** security device that can be used to help prevent a DDoS attack.

proxy server

1 [1]