# Homework 1 Structure of the internet

1. Webpages are accessible by typing a URL into the address bar of a web browser, for example <http://theimportanceofhomework.co.uk/hourseverynight.html>
   1. Using the example explain what the components of a URL are. [3]

http is the method or protocol (hypertext transfer protocol)

theimportanceofhomework is the domain name or name of website / 3rd level domain

.co is the 2nd level domain

.uk is the top level domain

Hourseverynight.html is the location of the resource

* 1. State what the Top Level Domain (TLD) is for this address [1]

uk

* 1. URLs rely on DNS. Explain how this system is used to determine the destination IP addresses of the required resource. [3]

Every URL has one or more equivalent IP addresses that lead to the same webpage or file. In a DNS server, the URL’s details may be on it, which consist of the domain name and IP address linked to it. The DNS searches for this URL’s domain name in it’s server, if it finds it, it will find the linked IP address with this domain name. If not the request is forwarded to a larger DNS server, up the hierarchy of DNS servers, this process is repeated.

* 1. Traditionally top-level domains were based on countries. As the Internet has expanded there have been several more top-level domains added.   
       
     How do local DNS servers know when new top-level domains are added? [4]

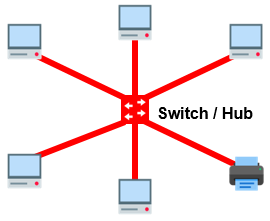
**When a new top level domain is added and you access the domain with this new TLD, at first the local DNS for example your cache, wont know that it exists so it’s TLD will not be found in the local DNS, hence it is searched for in a larger DNS server. Once this is done, and the domain is accessed, the local DNS will add this type of top level domain to it, so that the next time it sees this new TLD, it now knows what it means and where it is coming from.**

* 1. Describe how the Internet and the World Wide Web are different [4]

**The internet is a network of networks. It is essentially what connects all the networks in the world together, so people can communicate and interact with each other. World wide web is a network or collection of all the devices where webpages and resources reside on.**

# What physical network topology is shown in the diagram below? [1]

Star, since there is a switch / hub



# Describe two advantages of using a star over a bus network topology. [4]

It is faster because the switch will immediately direct the data being transferred to the intended device rather than directing it through every device until it finds the correct one.

It is also more secure since data goes straight to the intended device, meaning since it doesn’t go through the other devices, it is harder for other devices to intercept.

[Total 20 Marks]