

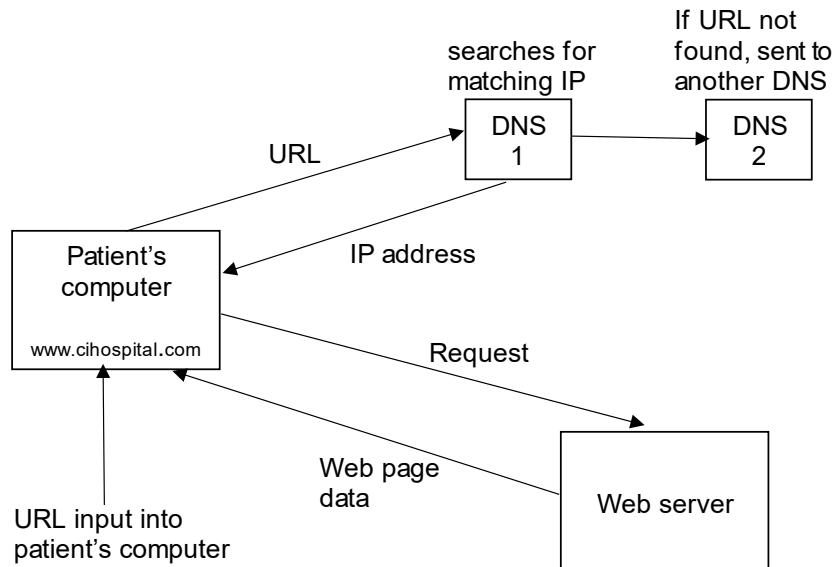
5(a)	Three from: • The <u>inference</u> engine is used ... • ... to decide which questions to ask the user ... • ... based on the previous data input. • Symptoms input are located in/compared to knowledge base. • ... then applies the rule base to the knowledge base (to decide the diagnosis)
5(b)(i)	Any two from: Examples: • Sensors • Microprocessors • Actuators
5(b)(ii)	Any four from: Examples: • a doctor doesn't need to travel to the hospital to do the surgery. • ... so it can be done by any specialist/doctor in the world. • ... so it can be done immediately without needing to wait for travel time // reduces the waiting time for the patient. • ... so the doctor may be better at the surgery as they won't be tired from travel. • ... so travel costs are saved. • Surgery with robots enhances precision/accuracy. • ... so a smaller incision can be made. • ... so the recovery time may be shorter. • ... as the components used to enter the body can be much smaller than a human hand. • ... so the surgery is safer/ more hygienic // by example e.g. can stop the doctor needing to be near an infectious patient. • The surgery may have a higher rate of success
5(b)(iii)	Two from (one for a point and one for the matching expansion): Examples: • The internet connection could be lost/delayed ... • ... so the surgery may not be able to continue. • The robot will be expensive to buy/maintain ... • ... this money could have been spent on other causes. • The robot could be hacked • ... and endanger the patient's life. • Data could be corrupted in transmission ... • ... changing the nature of the instruction for the robot. • The robot's hardware could malfunction ... • ... so the surgery cannot continue

5(c)(i)

One mark for each correct part of the diagram.

The diagram:

- Web browser identified as software used to **send** URL/requests or **receives** IP address/web page data
- URL/domain sent to DNS
- DNS **searches** for **matching** IP address
- If not found sent to another DNS
- IP address sent from DNS to patient's computer
- Request sent from patient's computer to **web server** (for web page)
- Web page/HTML data sent from web server to patient's computer



5(c)(ii)

Any **six** from:

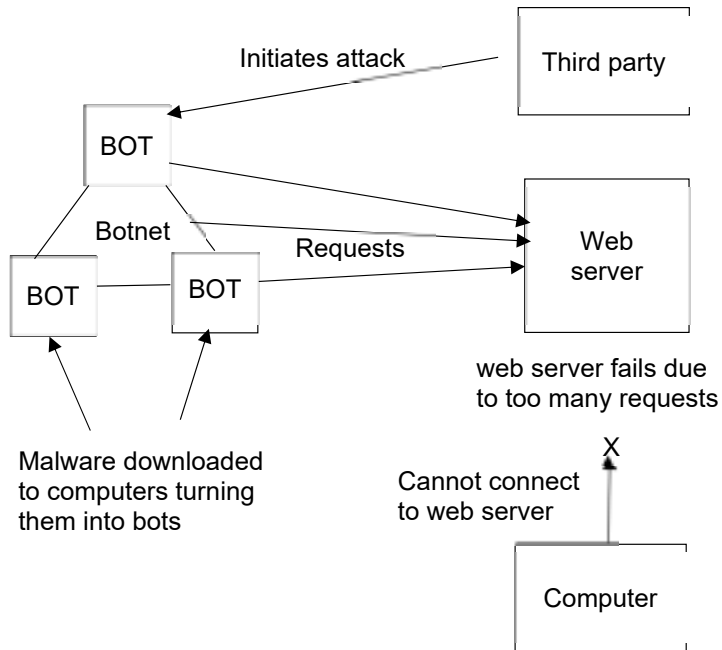
- Encrypted connection established ...
- ... using asymmetric encryption
- ... to make any data sent meaningless
- The **web browser** asks the **web server** to identify itself.
- ... by sending its digital certificate.
- The digital certificate is authenticated/validated by the **web browser**.
- If the certificate is authenticated/valid, the connection is secure/the transaction can begin.
- If the certificate is not authenticated/invalid, the connection is not secure/the transaction is cancelled/rejected/user is notified

7(a)

One mark for each part of the diagram (MAX six).

The diagram demonstrates:

- Malware downloaded to several computers
- ... turning it into a bot/zombie
- ... creating a network of bots/zombies
- Third party/hacker initiating the attack
- **Bots** send requests to a web **server** at the same time
- The web **server** fails due to the requests
- Legitimate requests cannot reach the web server



7(b)

Any **two** from:
e.g.

- Revenge
- To affect a company's reputation
- Entertainment value
- To demand a ransom to stop it
- To test a system's resilience

7(c)

Any **two** from:

- Proxy server
- Firewall
- Users scanning their computers with anti-malware