

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

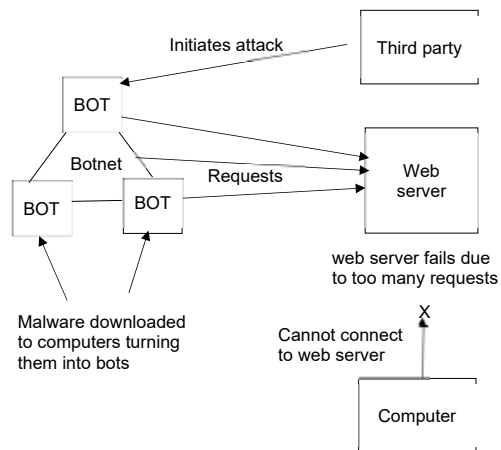
5(c)(i)	One mark for each correct part of the diagram. The diagram: - Web browser identified as software used to send URL/requests or receives IP address/web page data - URL/domain sent to DNS - DNS searches for matching IP address - If not found sent to another DNS - IP address sent from DNS to patient's 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 <pre> graph TD PC[Patient's computer www.cihospital.com] -- URL --> DNS1[DNS 1] DNS1 -- "searches for matching IP" --> DNS2[DNS 2] DNS2 -- "If URL not found, sent to another DNS" --> DNS1 DNS1 -- IP address --> PC PC -- Request --> WS[Web server] WS -- "Web page data" --> PC </pre>
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