<table>
<tr><td>7(a)</td><td>1 mark for each correct description, max 2 marks

<table>
<tr><th>Type of IP address</th><th>Description</th></tr>
<tr><td>Static</td><td>IP address that does not change each time a device connects to the network</td></tr>
<tr><td>Public</td><td>IP address assigned to a device on a network to allow the device to be visible on the internet</td></tr>
</table>
</td></tr>
<tr><td>7(b)</td><td>1 mark per bullet point for justification, max 2 marks

Choice: Invalid (no mark for the choice)

Justification:

• It is not IPv4 because the maximum denary value should be 255, this uses 256

• It is not IPv6 because it uses a full stop to separate sections and not colon // It is not IPv6 because there are not enough groups</td></tr>
<tr><td>7(c)</td><td>1 mark per bullet point, max 4 marks

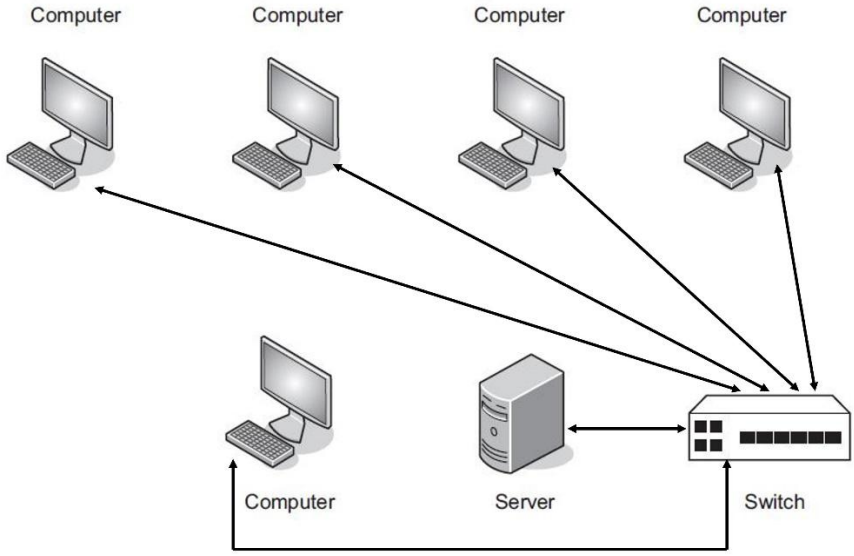
• The browser checks its cache for the URL
• The browser parses the URL and splits it into its component parts
• The browser finds the IP address for the domain name by querying a DNS server
• The browser receives the matching IP address from the DNS server
• The browser creates connection with the web server with the matching IP address
• A request for the resource is sent to the web server with that IP address
• The browser renders and displays the result
• The IP address is stored in the browser cache for future use</td></tr>
<tr><td>7(d)(i)</td><td>1 mark for the working
1 mark for the correct answer

Working:
(512 * 2048 * 8) / (8 * 1024) // (512 * 2048) / 1024
// (2^9 * 2^{11} * 2^3) / (2^3 * 2^{10}) // (2^9 * 2^{11}) / 2^{10}

Answer: 1024 kibibytes // 2^{10} kibibytes</td></tr>
<tr><td>7(d)(ii)</td><td>1 mark per bullet point, max 2 marks

• The file will contain metadata
• The file will have a header</td></tr>
<tr><td>7(d)(iii)</td><td>1 mark per bullet point, max 2 marks

• Sequences of consecutive identical colours / pixels
• ... are stored as the colour value and the number of times it occurs consecutively</td></tr>
</table>

5(a)	**1 mark** per bullet point, **max 2** marks • Covers a small geographical area • Normally privately owned / dedicated infrastructure • Can use wired or wireless communication
5(b)	**1 mark** per bullet point, **max 2** marks • All computers directly connected to switch and no other connections • Switch connected directly to server 
5(c)	**1 mark** per bullet point, **max 3** marks • The sending device sends the packets to the switch • The switch checks the destination address on each packet • … and sends them **only** to the intended receiver
5(d)	**1 mark** per bullet point, **max 3** marks • The use of CSMA/CD // Carrier Sense Multiple Access with Collision Detection • The workstations listen to the communication channel • ... and send data only when there is no data being transmitted / the line is idle • If a collision is detected, transmission is aborted • …and a jamming signal is sent • The workstation calculates a random wait time before trying to re-transmit • The random time is increased if there are multiple collisions

5(e)

1 mark for correct threat
1 mark corresponding description
1 mark for correct method of prevention

Threat	Description	Prevention
Malware / Virus	Malicious code that can alter/delete files	Anti-virus // Anti-malware // Firewall
Spyware	Records keystrokes which are sent to third party	Anti-spyware // Firewall // Anti-malware
Hacking	Gaining unauthorised access to a computer network / device	Authentication // Firewall
Phishing	Emails supposedly from reputable companies are sent to trick people into revealing personal information	Use a spam filter // Do not open emails from unknown sources
Pharming	Users are directed to a bogus website that looks legitimate to obtain personal information	Use a VPN // Anti-malware// Do not open links or download attachments

8(a)(i)	**1 mark** per bullet point, **max 2** marks • Cloud storage can be free of charge for a limited amount • There is no need for personal storage devices • The data can be accessed from any computer **with an internet connection** • Cloud data services usually include data backup and recovery services • It is easier to share data / collaborate with colleagues • Cloud storage capacity can be quickly and easily increased if needed
8(a)(ii)	**1 mark** per bullet point, **max 2** marks • The storage/cloud can only be accessed with an internet connection • There may be no backups // possibly no control over backups // reliance on third party for backups • Uploading / downloading data could take a long time • Potential issues with the cloud storage company impacting access e.g. downtime or technical problems • Potential compatibility issues if wanting to move the data • Limited storage availability without paying extra • … meaning (possibly) more expensive in the long term • Possibly security issues
8(b)(i)	**1 mark** per bullet point, **max 4** marks Methods to determine point of touch (**Max 2)** • Resistive // two layers of material make contact and complete a circuit • Capacitive // contact with the screen creates a change in charge • Infrared // the beams are broken by the pointing device • Optical imaging // a shadow is created when the surface is touched • Acoustic pulse // the acoustic wave is absorbed by the pointing device • Selection from the menu (**Max 2**) • The point of touch is used to determine the x and y coordinates • The menu item corresponding to the coordinate position is recognised and the menu item is added to the order
8(b)(ii)	**1 mark** per bullet point, **max 2** marks • Disk repair / disk contents analysis • Back-up software