Summative assessment – Answers

## Networks

Q1. Which of the following is the most appropriate description of a local area network (LAN)?

1. Created by connecting devices over a very small area, commonly via Bluetooth technology
2. Created by connecting two or more networks across a large geographical area
3. **Created by connecting devices in the same building or within a single site**

Q2. A school has decided to install thin client computer systems in the computer suites for students to use. Which **two** of the following are advantages of usingthin clients?

1. They do not require costly servers
2. **Workstations are low-cost**
3. They utilise the resources of all devices in the network
4. **Power consumption is reduced**
5. They do not require a constant network connection

Q3. Name **two** factors that can affect the performance of a network.

Your answer may include two of these: network load/traffic, bandwidth of the transmission medium, latency, length of transmission medium, interference, and/or transmission errors.

Q4. A video game development company wants to install a network in their new office. The manager has sketched out this design to explain how they want the network set up. Which network topology are they planning to implement?

Manager

PA to Manager

Game artists

Game developers

Marketing team

System designers

* Mesh
* Tree
* Star

Q5. Which **three** of the following are advantages of the star network topology?

* A damaged link only affects the attached node
* There is no central node, so there is no single point of failure
* New devices can be added easily
* The network is dependent on the main bus cable
* If a switch is used, the network can perform well under a heavy load

Q6. The table shows an incomplete diagram of the seven-layer OSI model. Complete the table by inserting the missing layer names.

|  |
| --- |
| **Application** |
| **Presentation** |
| **Session** |
| **Transport** |
| **Network** |
| **Data link** |
| **Physical** |

Q7(a). Name **one** layer of the TCP/IPmodel:

Answers may include: Application, Transport, Internet or Link.

Q7(b). **Explain** what happens at this layer:

|  |
| --- |
| Application:  Each different type of application uses different protocols. For example, a web browser uses HTTP or HTTPS. Application layer protocols will encode and decode messages in a form that is understood by the sending and receiving devices.  Transport:  The transport layer has two main protocols — TCP and UDP. The transport layer breaks data from the application layer down into packets called segments (TCP) or datagrams (UDP). When the packets arrive at their destination, the transport layer delivers the data to the appropriate application service.  Internet:  The internet layer takes the segments/datagrams and encapsulates them into IP packets ready for transmission. It adds a header that specifies the source and destination IP addresses.  Link:  The link layer enables the physical transfer of the packets across a network. Depending on how the device is connected to the network (e.g. Ethernet, Wi-Fi, Bluetooth) the appropriate link layer protocol will be used. |