MODULE E NETWORKS · E5

Star and mesh topologies

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 1.3.1

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 3 marks

Diagrams A and B show two networks. Each has the same five computers.

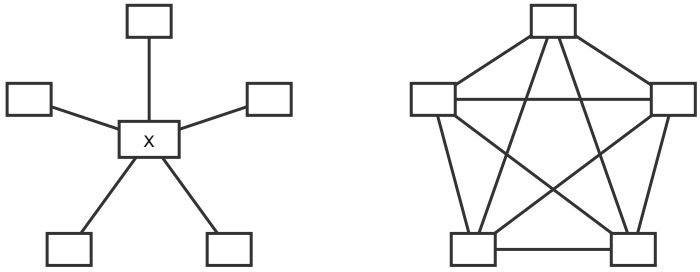


Diagram A Diagram B

(a) Identify the topology shown in **Diagram A** and the topology shown in **Diagram B**. **[2]**

A

B

(b) State the name of the device labelled **X** in Diagram A. **[1]**

2 **Total: 3 marks**

A small architects' office has three desktop computers, one laptop and one printer. It wants to connect them as a **star** network.

(a) Draw a diagram of the star network for this office. Label each device. **[3]**

3 **Total: 4 marks**

(a) Tick (✓) **one** box in each row to show whether each statement describes a star topology, a full mesh topology, or both. **[4]**

Statement	Star	Full mesh	Both
Every device is connected directly to every other device			
If the central device fails, no device can communicate with any other			
If one cable fails, the other devices can still communicate			
Each device has only one connection, to the central device			

4 **Total: 3 marks**

A sound studio connects five computers in a wired full mesh.

(a) State how many cables are needed to connect the five computers in a full mesh. **[1]**

Answer: ..... cables

(b) One cable in the mesh is damaged. Describe how data can still reach the two computers at each end of that cable. **[2]**

5 **Total: 4 marks**

A veterinary practice has twelve computers and a file server connected in a star topology. It expects to take on more staff next year.

(a) Explain **one** advantage to the practice of using a star topology. **[2]**

(b) Explain **one** disadvantage to the practice of using a star topology. **[2]**

6 **Total: 3 marks**

A water treatment works uses a network of computers to monitor its pumps and valves, day and night. The engineers say the network must keep working even if part of it fails.

(a) Identify whether a star or a mesh topology would be more suitable for the water treatment works. Justify your choice. **[3]**

Topology

Justification

Total for this worksheet: 20 marks