MODULE E NETWORKS · E2

What affects network performance

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: 2 marks

(a) State what is meant by **bandwidth**. **[1]**

(b) Give **one** unit that bandwidth can be measured in. **[1]**

2

Total: 4 marks

(a) Tick (✓) **one** box in each row to show whether each change is most likely to **improve** or **reduce** the performance of a network. **[4]**

Change	Improve	Reduce
Twenty more devices connect to the same network		
Copper cables are replaced with fibre optic cables		
A laptop is moved further from the wireless access point, behind a thick wall		
Large file downloads are moved from working hours to overnight		

3 **Total: 4 marks**

A small accountancy office has an internet connection with a bandwidth of 200 Mbps. The bandwidth is shared equally between the 40 devices connected to its network.

(a) Calculate the bandwidth available to each device. Show your working. **[1]**

(b) The office takes on new staff and 10 more devices join the network. The bandwidth is still shared equally. Calculate the new bandwidth available to each device. **[1]**

(c) Explain why connecting more devices can reduce the performance of the network. **[2]**

4 **Total: 4 marks**

A warehouse manager uses a laptop connected to the network by wireless. Their desk is at the far end of the building, two brick walls away from the wireless access point. A microwave oven is used in the staff room between them. Video calls on the laptop often freeze.

(a) Explain **two** reasons why the manager's wireless connection may perform poorly. **[4]**

1

2

5 **Total: 3 marks**

A video production company connects all its editing computers to its network by wireless. Editors regularly copy very large video files to a file server.

(a) Explain how connecting the editing computers using wired connections instead could affect the performance of the network. **[3]**

6 **Total: 3 marks**

A garden centre's network has one low-specification switch that connects all its devices. Every day at noon, all its computers back up their files to a server at the same time, and staff complain that the network is slow at lunchtime.

(a) Explain **one** change the garden centre could make to improve the performance of its network at lunchtime. **[3]**

Total for this worksheet: 20 marks