CAMBRIDGE IGCSE (0478)

Module E: Networks

Workbooklet · 3 parts · 60 marks

E1-E3, E5, E6, E10 and E11 are GCSE (OCR) only and not on 0478.

Contents

Part	Topic	Marks
E4	Network hardware: NIC and router	20
E7	IP addressing and MAC addresses	20
E9	Protocols: HTTP and HTTPS	20
	Total	**60**

MODULE E NETWORKS · E4

Network hardware: NIC and router

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 3.4.1, 3.4.4

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: 6 marks

(a) State the name of the component that a computer needs to access a network. **[1]**

(b) State the type of address that is given to this component at the point of manufacture. **[1]**

(c) Tick (✓) **one** box in each row to show whether each statement is true or false. **[4]**

Statement	True	False
A router can connect a local network to the internet		
A router gives each network interface card its MAC address when the computer joins the network		
A router can assign IP addresses to devices on a network		
A computer without a network interface card can access a network if it is plugged into a router		

2

Total: 3 marks

(a) Describe the role of a router in a network. **[3]**

3 **Total: 4 marks**

A veterinary practice has a local network of eight computers and a printer. The network is connected to the internet through a router. A web page is sent from a server on the internet to one of the practice's computers.

(a) Explain how the router makes sure the web page is sent to the correct computer. **[2]**

(b) When a new laptop joins the practice's network, the router gives it an IP address. Explain why the router assigns an IP address to the laptop. **[2]**

4 **Total: 2 marks**

A technician says: "The practice's new printer will be able to access the network, because the practice already has a router."

(a) Explain why the technician is **not** correct. **[2]**

5 **Total: 5 marks**

A small engineering company adds a new computer to its local network. A member of staff then uses the computer to request a file from a server on the internet.

(a) Explain the role of the network interface card **and** the role of the router as the computer joins the network and the request is sent to the server. **[5]**

Total for this worksheet: 20 marks

MODULE E NETWORKS · E7

IP addressing and MAC addresses

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 3.4.2, 3.4.3

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**. All addresses on this sheet are made up.

1

Total: 6 marks

A label on a network interface card (NIC) shows this MAC address: **6E-14-AB-90-2C-F7**

(a) State what **MAC** stands for. **[1]**

(b) Describe the structure of a MAC address. Use the address above in your answer. **[3]**

(c) Explain when the NIC is given its MAC address, and whether the address normally changes. **[2]**

2

Total: 2 marks

(a) Explain the purpose of an internet protocol (IP) address. **[2]**

3 Total: 4 marks

(a) Tick (✓) **one** box in each row to show whether each statement is true of IPv4 only, IPv6 only, or both. **[4]**

Statement	IPv4	IPv6	Both
The address is 128 bits long			
The address is written as four denary numbers separated by full stops			
The address is allocated to a device by the network			
The address is written as eight groups of hexadecimal digits separated by colons			

4 Total: 4 marks

An engineer is given three IPv4 addresses: **A** 203.0.113.58 **B** 198.51.100.261 **C** 10.0.8.1

(a) Identify the address that is **not** valid and explain why. **[2]**

Address .....

(b) Explain why IPv6 addresses were introduced. **[2]**

5 Total: 4 marks

A print shop has a LAN. Its router gives out IP addresses. The LAN has a file server that holds customers' artwork, and staff laptops that join and leave the network during the day.

(a) Describe the difference between a **static** IP address and a **dynamic** IP address. **[2]**

(b) Explain whether the file server should have a static or a dynamic IP address. **[2]**

Total for this worksheet: 20 marks

MODULE E NETWORKS · E9

Protocols: HTTP and HTTPS

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 5.1.3

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) Give the full name of **HTTPS**. **[1]**

(b) State the purpose of **HTTP**. **[1]**

2

Total: 3 marks

A user opens the home page of a regional library's website, which uses HTTP.

(a) Describe the operation of HTTP when the page is opened. **[3]**

3

Total: 4 marks

(a) Tick (✓) **one** box in each row to show whether each statement is true or false. **[4]**

Statement	True	False
HTTP and HTTPS are both protocols		
Data sent using HTTP is encrypted		
Data sent using HTTPS cannot be intercepted		
HTTPS has the same purpose as HTTP		

4

Total: 4 marks

A community theatre sells tickets on its website. Customers enter their card details to pay. The website currently uses HTTP.

(a) Explain why the theatre should change its website to use HTTPS. **[4]**

5

Total: 5 marks

(a) Identify **two** ways a user can tell, from the web browser, that a web page is using HTTPS. **[2]**

1

2

(b) Tick (✓) the **three** tasks where it is most important that HTTPS is used instead of HTTP. **[3]**

Task	✓
Reading a public page of bus times	
Logging in to an online bank account with a password	
Viewing photos on a public tourist information page	
Paying for a hotel room with a card	
Sending personal medical details to a clinic using a web form	

6

Total: 2 marks

(a) Give **one** similarity and **one** difference between HTTP and HTTPS. **[2]**

Similarity

Difference

Total for this worksheet: 20 marks