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GCSE COMPUTER SCIENCE

4.1

Edexcel 1CP2 | Specification point 4.1.7

How the 4-layer (application, transport, internet, link) TCP/IP model handles data transmission over a...

Untiered

Past paper question booklet

2	2021-2023	Untiered
question groups	available papers	tier

Before you begin

1. Show working and use units where appropriate.
2. Use extra paper if you need more space.
3. Print at actual size (100%) for measurement questions.

Name _____ **Date** _____

Whole questions are retained for context; some parts cover other points. Legacy sources are labelled.

7 A company moves its business online.

(a) Identify **one** way in which a WAN differs from a LAN.

(1)

- ☒ **A** LANs do not transmit data in packets
- ☒ **B** LANs use fibre optic cables
- ☒ **C** WANs are always connected via gateways
- ☒ **D** WANs are always wireless

(b) An employee accesses her work email using a smartphone and a laptop.

Explain why the IMAP protocol is more suitable for this than the POP3 protocol.

(2)

(c) Describe the role of the transmission control protocol (TCP).

(4)

(d) Describe the role of a server in a client-server network.

(2)

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(e) Draw lines to show how all these devices would be connected using a bus topology.

(2)







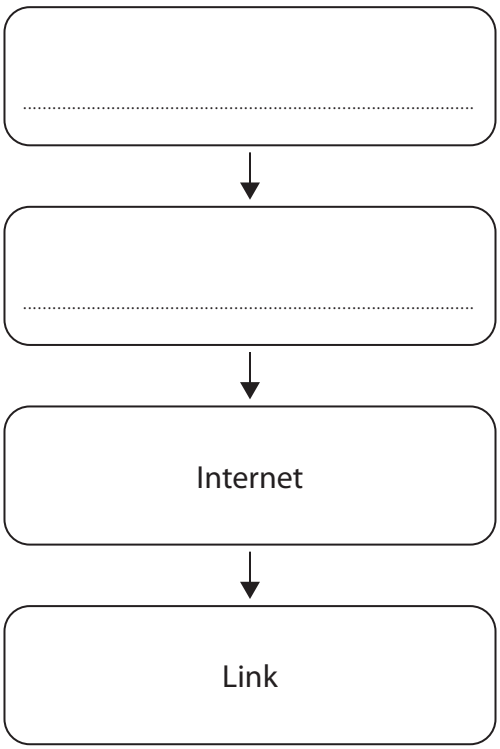


(Total for Question 7 = 11 marks)

2 Networks

(a) Complete the diagram of the 4-layer TCP/IP model.

(2)



(b) Name the network topology that uses terminators to absorb signals.

(1)

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(c) Identify the reason computers are connected in a network.

(1)

- ☒ **A** To improve encryption
- ☒ **B** To prevent hacking
- ☒ **C** To reduce latency
- ☒ **D** To share peripherals

(d) State the network protocol used to request a webpage.

(1)

(e) Explain **one** benefit to a user of using IMAP to access emails.

(2)

(f) A factory has two file servers installed in an office.

A closed-circuit television system monitors the factory.

Explain **one other** method of physical security that could be used to protect the servers.

(2)

(g) Network speed is the current rate of data transmission, measured in bits per second.

Define the term 'bandwidth'.

(1)

(h) High-speed fibre-optic cables form the internet backbone. Routers connect other networks to this backbone.

Describe how a router enables data to arrive at its destination.

(2)

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(Total for Question 2 = 12 marks)