

Name:

Class Teacher:

Date:



OCR J276

GCSE Computer Science




REVISION BOOKLET

1.5 NETWORK TOPOLOGIES, PROTOCOLS AND LAYERS

Content in J276 GCSE Computer Science:

- 1.1 Systems Architecture
- 1.2 Memory
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- 1.5 Network Topologies, Protocols and Layers
- 1.6 System Security
- 1.7 Systems Software
- 1.8 Ethical, Legal, Cultural and Environmental Concerns
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- 2.4 Computational Logic
- 2.5 Translators and Facilities of Languages
- 2.6 Data Representation

1.5 NETWORK TOPOLOGIES, PROTOCOLS AND LAYERS

TOPIC			
Star and mesh network topologies			
Wifi:			
Frequency and channels			
Encryption			
Ethernet			
The uses of IP addressing, MAC addressing, and protocols including:			
TCP/IP (Transmission Control Protocol/Internet Protocol)			
HTTP (Hyper Text Transfer Protocol)			
HTTPS (Hyper Text Transfer Protocol Secure)			
FTP (File Transfer Protocol)			
POP (Post Office Protocol)			
IMAP (Internet Message Access Protocol)			
SMTP (Simple Mail Transfer Protocol)			
The concept of layers			
Packet switching			

1.5 NETWORK TOPOLOGIES, PROTOCOLS AND LAYERS

STAR AND MESH NETWORK TOPOLOGIES

WIFI

FREQUENCY AND CHANNELS

ENCRYPTION

ETHERNET

THE USES OF IP ADDRESSING, MAC ADDRESSING, AND PROTOCOLS INCLUDING:

TCP/IP (TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL)

HTTP (HYPER TEXT TRANSFER PROTOCOL)

HTTPS (HYPER TEXT TRANSFER PROTOCOL SECURE)

FTP (FILE TRANSFER PROTOCOL)

POP (POST OFFICE PROTOCOL)

IMAP (INTERNET MESSAGE ACCESS PROTOCOL)

SMTP (SIMPLE MAIL TRANSFER PROTOCOL)

THE CONCEPT OF LAYERS

PACKET SWITCHING

QUESTION 2

The owners of a large bakery have a Local Area Network (LAN) with a star topology. They order their supplies over the Internet. When data is transmitted from the bakery to the supplier, network protocols are used. Define what is meant by a 'network protocol'.

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[1]

TCP/IP is a set of protocols based on layers. With regards to network protocols, define what is meant by a 'layer'.

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[1]

Describe **one** advantage of using layers to construct network protocols.

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[2]

The owners of a large bakery have a Local Area Network (LAN) with a star topology. Explain **four** reasons why the bakery must use a star topology for their LAN.

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[4]

QUESTION 3

A bank uses a local area network to connect all the computers in its head office. Computers in the network can be identified using both IP addresses and MAC addresses. Describe **two** differences between IP addresses and MAC addresses.

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[4]