1) A school has a number of computer classrooms which are networked together to form a LAN. The head teacher is planning to let some pupils have a video conference with another school in the same country but quite far away. They have bought a modem.

(a) Each of the school's computers already has speakers. What extra hardware would the school need to buy so that it can take part in a video conference? [2]

(b) Describe the advantages of having a video-conference rather than a conference in one of the schools. [3]

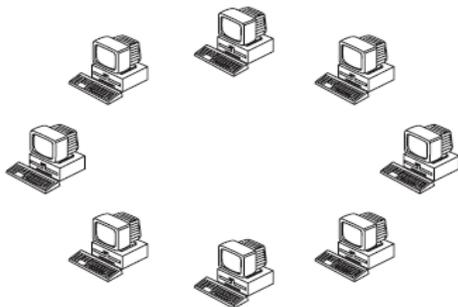(a)webcams/small video cameras/microphones

(b) Three from:

1. saves travelling time
2. Do not have to pay for conference room.
3. Do not have to hire transport.
4. Conferences can be called at short notice.
5. Don't have to carry bulky documents to conference
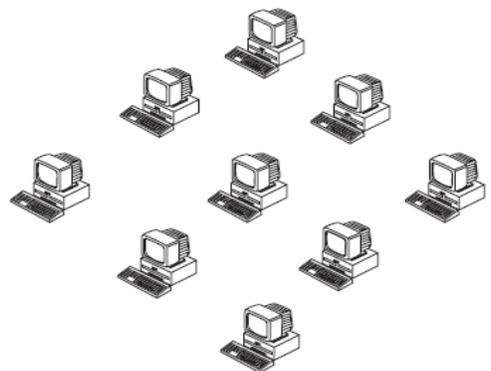6. Disabled students do not have to travel

0418/01/M/J/07/Q18

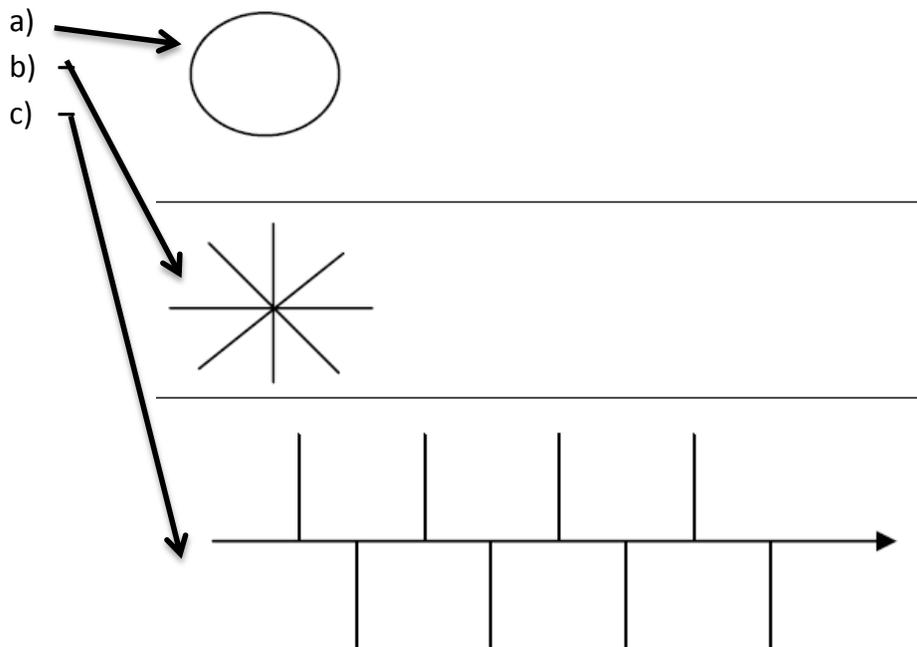**2)** For each type of network fill in the communication lines.

(a)Ring network   **(b) Star Network**

(c) Bus network

3) A school has two separate computer networks. One is used for keeping pupil and staff records. The other is for pupils to use in lessons to help with their learning and also to store their work.

(a) The head teacher does not want to have the two networks connected because he is worried that personal data could be misused. Describe three ways in which personal data might be misused. [3]

(b) In order to prevent data from being misused he will control access to the pupil and staff record systems. Describe how he can do this. [2]

(c) He will also ensure that the personal data is encrypted. Describe how encryption will help protect the data. [2]

a) Three from:

1. Looking at other people's data
2. Changing other people's data
3. Deleting other peoples data
4. Spreading data around

b) Two from:

1. Use of usernames/ids
2. Use of passwords
3. Firewalls
4. Physical locks of computers/room
5. Use of biometrics
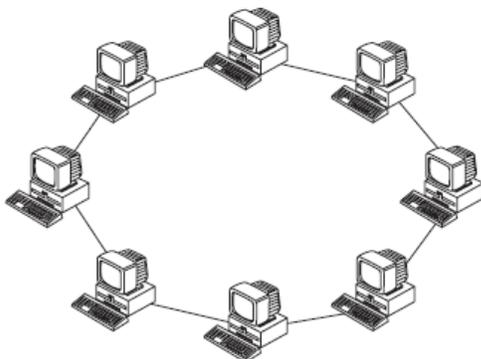6. Special access rights for administrator

c) Two from:

1. Protects data during transmission phase
2. Results in data which is not understandable
3. Is understandable only to authorized users
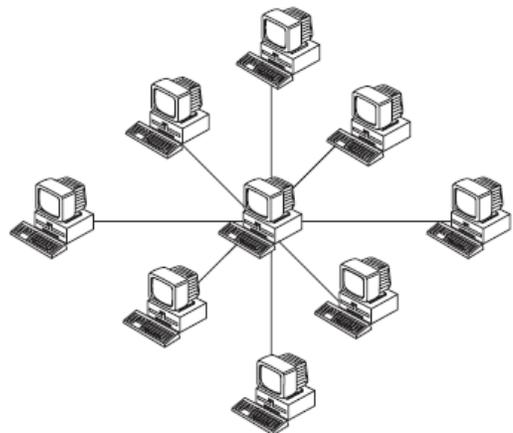4. Need a decryption key/software to decrypt data

0418/01/O/N/07/Q15 (a,b,c)

4) **a) Name the following networks.**

1. _____   **2.** _____

(b) Give two advantages and two disadvantages of having computers networked. [4]

a)

  (i) Ring

  (ii) Star

b)

  Advantages

  Two from:

  1. Share hardware
  2. Share software
  3. Share data/information
  4. (Electronic) communication
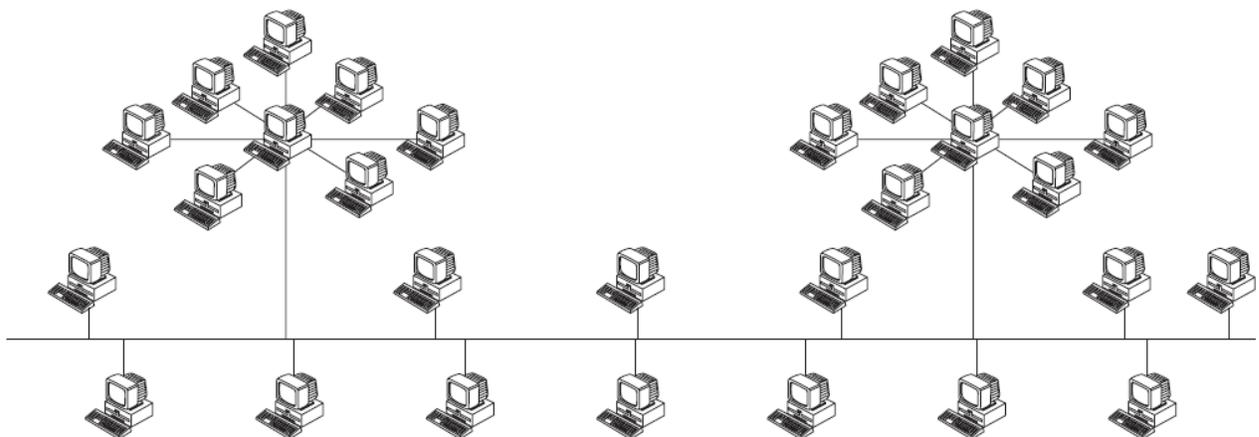 5. Users can be more effectively controlled/monitored

  Disadvantages

  Two from:

  1. Work can be misused more easily
  2. Viruses more easily spread
  3. Printer queues
  4. Slower access to Internet
  5. If server crashes all computers are affected
  6. Increased security risk

5)   Two types of network topology have been combined to form a larger network.

(a) Give the name of the type of the larger network topology [1]

(b) Give the names of the other two types of topology in this network.

(c) Complete each sentence below using one item from the list.

                A bridge| a hub| a proxy server| a switch

(i) _____ does not manage any of the data traffic through it.

(ii) _____ forwards data packets to computers and printers.

(iii) _____ can be a major component of a firewall.

(iv) _____ usually only has two ports.

a) Hybrid/tree
b) Star & Bus
c)
      (i) A hub
      (ii) A switch
      (iii) A proxy server
      (iv) A bridge

0417/01/M/J/09/Q7

6)
    a) **Name two network devices that could be used to connect a LAN to a WAN. [2]**
    b) **Describe the differences between a WAN and a LAN. [5]**

a)
   Two from:
     1. Modem
     2. Router
     3. Or any other suitable answer

b)
   Five from:
     1. WAN is a wide area network
     2. WAN covers a large geographical area/worldwide
     3. The Internet is a WAN
     4. LAN is a Local Area Network
     5. LAN covers a small area such as one building/A school network is a LAN
     6. A WAN consists of connected LANs
     7. More difficult to share peripherals using a WAN

0417/01/O/N/09/Q7

7)   **Complete each sentence below using one item from the list.**

       A hub| an intranet | A proxy server| A WAN | A WLAN

(a) _____is a device used to connect computers together to form a LAN.

(b) _____is a network with restricted access.

(c) _____can allows networked computers to connect to the internet.

(d) _____ is a wireless local area network.

    a) a hub is a device used to connect computers together to form a LAN
    b) an Intranet is a network with restricted access
    c) a Proxy server can allow networked computers to connect to the internet
    d) a WLAN is a wireless local area network

<div align="right">0417/11/M/J/10/Q5</div>

8)   **Aftab and his family have three computers in their home. He wants to connect the computers into a network. Explain why he would need:**
a) A router
b) A browser
c) Email
d) An ISP

    a)   A router – so that data can be transferred from one network to another
    b)   A browser – to access the (worldwide) web /view web pages/surf the net
    c)   Email – so that he can send messages to people outside the network/home
    d)   An ISP – in order that he can access the internet/email/to provide internet service

<div align="right">0417/11/M/J/10/Q12</div>

9)   **Ali and his family have three computers in their home. He wants to connect the computers into a network which will have access to the internet.**
(a) Give two advantages of doing this.
(b) Give two disadvantages of doing this.

    a)
    Two from:
    1) Only one printer is needed
    2) Only one scanner is needed
    3) Data can be shared between computers/data can be accessed by one computer from another more easily
    4) Software can be shared
    5) All computers can access the internet through one connection
    6) Network games can be played

    b)
    Two from:
    1) Viruses will be more easily spread

2) All computers would now be susceptible to hackers
3) If all computers are using the internet at the same time there will be speed issues

10) **A desktop computer is already used in an office which does not have an internet connection.**
   a) **Name two items of hardware which could enable the computer to be connected to a network.**
   b) **Name one item of hardware which would enable the network to be connected to the Internet.**
      a) Two from:
         1. Switch
         2. Network card
         3. Hub
      b) One from
         1. Router
         2. Modem

11) **A large company has a LAN. The manager of the company wants to replace it with a WLAN. Explain the differences between a LAN and a WLAN, giving an advantage and a disadvantage of a WLAN.**

   LAN uses cables to transmit data
   WLAN uses wireless technology
   <u>Advantage</u>
   Cheaper as less cabling/new workstations can be sited anywhere/different devices can be connected easily
   <u>Disadvantage</u>
   Slower transfer rates/limited transmission distance/physical obstacles can limit transmission/less security

12) **A large company has a LAN. The manager of the company wants to allow all the network users to access the internet and communicate with other companies.**
   a) **Describe the hardware and software he would need in order to achieve this. [4]**
   b) **Give three disadvantages to the manager of allowing workers to access the internet.**

a) <u>Four from:</u>
1. Router to connect LAN to Internet
2. Proxy server to send requests for pages/receive pages for passing on to users
3. Internet browser to search for information
4. Email software to communicate with other (external) users
5. Description of electronic conferencing hardware
6. Description of electronic conferencing software

b) <u>Three from:</u>
1. Get distracted from own work
2. Viruses could be downloaded
3. Spyware could be downloaded
4. Hackers could get into the system

<div align="right">0417/13/M/J/11/Q13</div>

13) A manager of a new company has just purchased some computers. She wishes to connect these computers together to form a LAN. Name and describe three network devices she might need to have in order to achieve this.

<u>Three matched pairs from:</u>
1. <u>Hub</u>
Broadcasts data packets to computers in a LAN
2. <u>Switch</u>
Directs data to specific computers
3. <u>Bridge</u>
Connects two LANs together to form larger LAN/Directs data packets to specific networks
4. <u>NIC</u>
Enables computer to be connected to a network

<div align="right">0417/13/M/J/12/Q11</div>

14) Name three network devices and for each one describe what it does.

<u>Three pairs from:</u>
1. <u>Hub</u>
Broadcasts data packets to computers in a LAN
2. <u>Router</u>

Connects LANs to a WAN/Internet

3. Switch

Directs data packets to specific computers

4. NIC

Enables computers to be connected to a network

5. Bridge

Connects networks/LANs together/Directs data packets to specific networks

6. Proxy server

Stores web pages for faster re-use by computers/can act as a firewall

7. Modem

Modulates data and demodulates phone signals

15) **Tick which of the following statements apply to traditional LANs and which apply to WLANs.**

	LANs	WLANs
Uses wireless technology to transmit data		
Faster transmission of data		
Greater security		
Is cheaper as there is less cabling		

LAN	WLAN
	✓
✓	
✓	
	✓