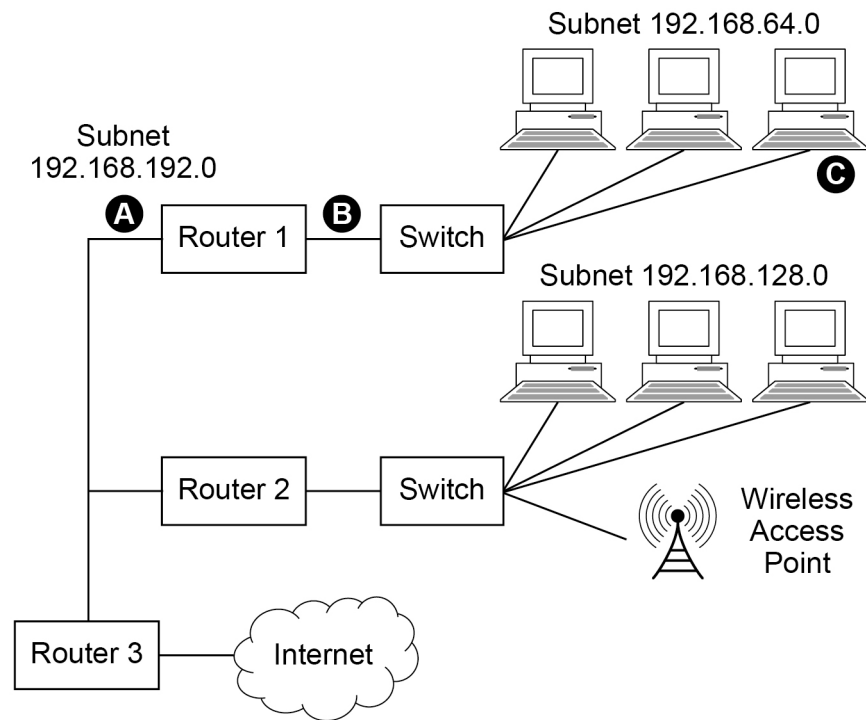


0 1

Figure 8 shows a computer network. The devices connected to the network are identified using IPv4 addresses. When assigning IP addresses, 20 bits have been allocated to the Network IDs (also known as Subnet IDs or subnet addresses) and 12 bits have been allocated to the Host IDs.

Figure 8**0 1 . 1**

State suitable IP addresses for:

[3 marks]The Router 1 port labelled **A** _____The Router 1 port labelled **B** _____The computer labelled **C** _____

0 1 . 2

Shade **one** lozenge to indicate which of the following four subnet masks is the one that has been assigned to the devices connected to the network in **Figure 8**.

[1 mark]**A** 255.255.0.0☐**B** 255.255.15.0☐**C** 255.255.240.0☐**D** 255.255.255.0☐**0 1 . 3**

The devices on the network in **Figure 8** use IPv4.

State **one** reason why IPv6 has been introduced to replace IPv4.

[1 mark]

0 1 . 4

State the name of the physical topology used in subnet 192.168.64.0 in **Figure 8**.

[1 mark]

Laptop computers and other devices can connect to the network via the wireless access point. The wireless connection uses the CSMA/CA protocol with Request to Send/Clear to Send (RTS/CTS).

[6 marks]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

A student is setting up a small computer network in their house. The network will link together the laptops, desktop computers and mobile devices that belong to the people who live in the house.

[3 marks]

[illegible]

[3 marks]

[illegible]

0	3	.	1
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A company uses a file server that stores files on magnetic hard disk drives. These files can be accessed by other computers through a network.

Describe:

- how the data for a file would be stored on a magnetic hard disk **and** read from it by the file server
- how the individual layers of the TCP/IP stack in the file server would be used to transmit the file onto the network.

In your response, you do **not** need to describe how the file would be transmitted across the network or how the TCP/IP stack would be used in the computer that has requested the file. You only need to write about how the data would be put onto the network by the file server.

[12 marks]

[illegible]

0 3 . 2 The company needs to purchase a second file server.

It is considering whether to purchase a file server with magnetic hard disk drives installed or a file server with solid-state disks (SSDs) instead. Each of the file servers has the same total storage capacity.

State **one advantage** and **one disadvantage** of purchasing the file server that uses SSDs.

[2 marks]

Advantage _____

Disadvantage _____
