UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2022/2023

COURSE NAME	:	NETWORK & DATA COMMUNICATION
COURSE CODE	:	BIT 20703
PROGRAMME	:	BIT
EXAMINATION DATE	:	JULY/AUGUST 2023
DURATION	:	3 HOURS
INSTRUCTION	:	1.ANSWER ALL QUESTIONS.

2.THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.

3.STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

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Q1 (a) Identify **TWO (2)** advantages of using switch rather than using hub in a computer network.

(4 marks)

(b) Discuss **THREE (3)** components that are required to connect two Personal Computers (PCs) by using star topology.

(6 marks)

(c) Based on the **FIGURE Q1(c)**, answer the following questions.
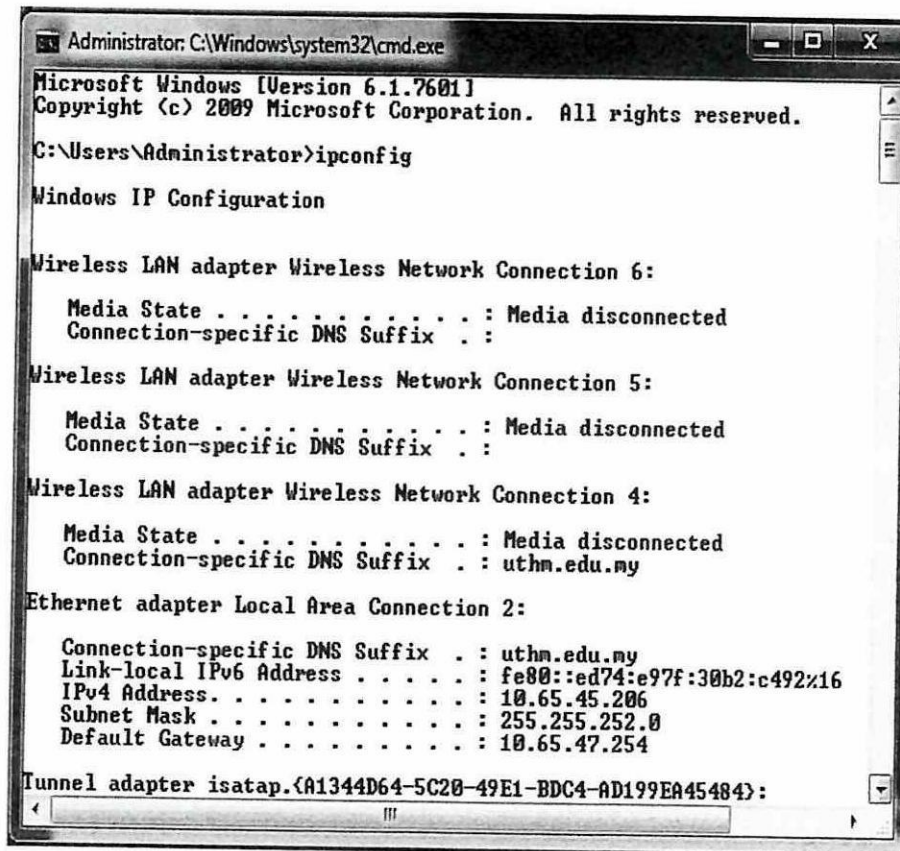
FIGURE Q1(c)

(i) Outline **TWO (2)** methods to get the information as shown in **FIGURE Q1(c)** by using Windows Operating System.

(4 marks)

(ii) Discuss **THREE (3)** Internet Protocol (IP) addresses in **FIGURE Q1(c)**.

(6 marks)

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Q2 (a) Discuss the concept of tunneling in Virtual Private Network (VPN) to secure data transmission.

(4 marks)

(b) Discuss **THREE (3)** technologies for Internet access in Malaysia that require Public Switch Telephone Network (PSTN) technology.

(12 marks)

(c) From your answer in **Q2(b)**, choose the best technology. Justify your answer.

(4 marks)

Q3 (a) Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) use sockets to send data in transport layer.

(i) Explain **TWO (2)** functions of socket.

(4 marks)

(ii) Give **THREE (3)** differences between TCP and UDP.

(6 marks)

(b) Based on **FIGURE Q3(b)**, write a command line to set up a path from Router A to Router B in Router A by using:

FIGURE Q3(b)

3
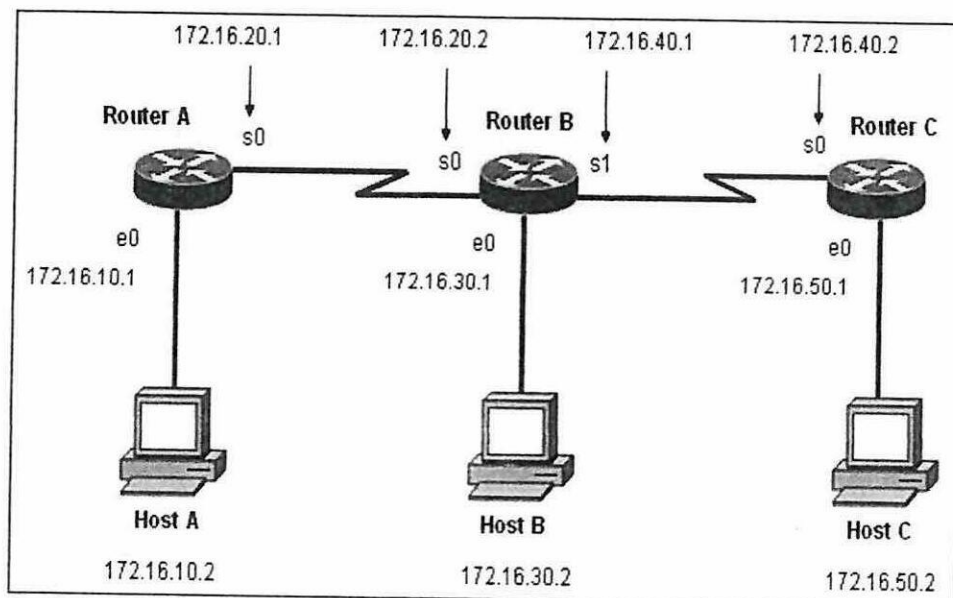
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(i)   Default routing

(5 marks)

(ii)   Static routing within a subnet of 50

(5 marks)

Q4   Given an IP address `192.168.130.0/27`. For the following questions, show your work.

(a)   How many maximum numbers of subnet?

(4 marks)

(b)   How many maximum numbers of hosts can be used on each subnet?

(4 marks)

(c)   List all the subnet and the range of their host.

(12 marks)

Q5   (a)   You are required to implement a network that consists of multi protocol nodes (clients). There will be nodes that use Transmission Control Protocol/Internet Protocol (TCP/IP), AppleTalk and Internetwork Packet Exchange/ Sequenced Packet Exchange (IPX/SPX) protocols.

(i)   Based on the above scenario, explain the operating systems (OS) utilizing the network protocols for client communication.

(6 marks)

(ii)   Discuss the best protocol to link all the clients.

(4 marks)

(b)   Security is necessary because computer systems and networks contain a wide range of information and resources that need to be protected. There are various ways to protect the system and network from threats and attacks.

(i)   Identify **THREE** (3) significant roles of configuration management to the computer network security.

(6 marks)

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(ii)   Suggest how network engineer uses configuration management to solve virus or bug problems.

(4 marks)

- END OF QUESTION -