



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2021/2022**

COURSE NAME : DATA COMMUNICATION AND NETWORK

COURSE CODE : DAT 20703

PROGRAMME CODE : DAT

EXAMINATION DATE : JULY 2022

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION : 1. ANSWER ALL QUESTIONS.

2. THIS FINAL EXAMINATION IS A (ONLINE) ASSESSMENT AND CONDUCTED VIA (OPEN BOOK).

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES.

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Q1 (a) Calculate the **network IP addresses** of the following host.

- (i) 10.1.1.18/28
- (ii) 192.168.100.10/24
- (iii) 172.16.10.1/16
- (iv) 192.168.90.200/24
- (v) 172.16.11.90/16

(10 marks)

(b) Calculate the **broadcast address** of the following host.

- (i) 192.168.20.5/24
- (ii) 10.10.19.100/8
- (iii) 192.168.10.50/30
- (iv) 120.1.70.90/8
- (v) 172.50.60.10/28

(10 marks)

(c) Discuss appropriate condition for the implementation UDP transmission protocol.

(5 marks)

Q2 A local area network of company ABC shown on **Figure Q2**. The company network management decided that all internal routing interconnection between LAN should be done by a layer 3 switches.

(a) Show the vlan creation configuration commands for the following vlan in catalyst switch 3550.

- (i) Vlan 2
- (ii) Vlan 3
- (iii) Vlan 10

(3 marks)

(b) Show the command for creating vlan 10 on catalyst switch 2950

(1 marks)

(c) Show the IP address assignment to hosts;

- (i) Server_1
- (ii) Server_2
- (iii) Host_1
- (iv) Host_2

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(4 marks)

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- (d) Show the ip routing configuration on the LAN so that Host_1 and Host_2 could access all servers (Server_1, Server_2 and Server_3)
(6 marks)
- (e) Add Host_3 and Server_4 to switch for LAN 2 and Host_4 and Server_5 to switch for LAN 3 - configure the host IP addresses to each host.
(4 marks)
- (f) Show the disabling commands of the catalyst switch 3550 IP routing by removing the switch layer 3 routing configuration and this time configure the 7206VXR router using dot1Q routing protocol.
(7 marks)
- Q3**
- (a) Differentiate between connection oriented and connectionless oriented.
(6 marks)
- (b) State the functions of the following OSI network layer architecture;
- (i) Application Layer
 - (ii) Physical Layer
- (4 marks)
- (c) A network topology diagram given in **Figure Q3** where all subnetwork uses 192.168.100.xxx network addresses and variable netmask addresses. Find;
- (i) The subnet mask for net A, B, C, D and E.
(5 marks)
 - (ii) The network address for net A, B, C, D and E.
(10 marks)
- Q4**
- (a) Discuss the following types of transmission in communications technology.
- (i) broadcast
 - (ii) unicast
 - (iii) multicast
- (6 marks)
- (b) Draw the following topology;
- (i) Mesh
 - (ii) Star
 - (iii) Bus
 - (iv) Tree
- (4 marks)

FINAL EXAMINATION

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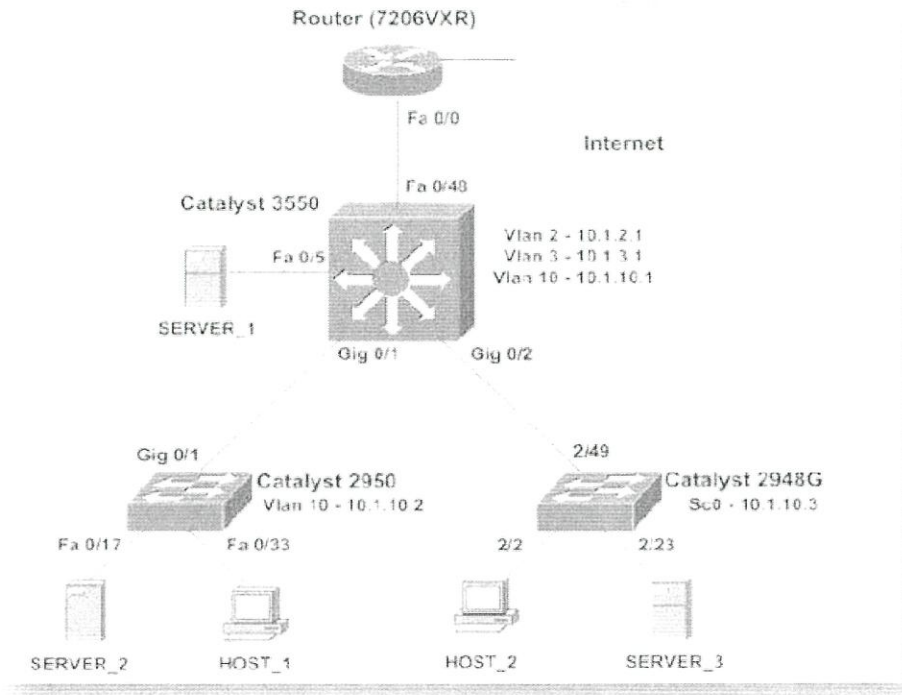


Figure Q2

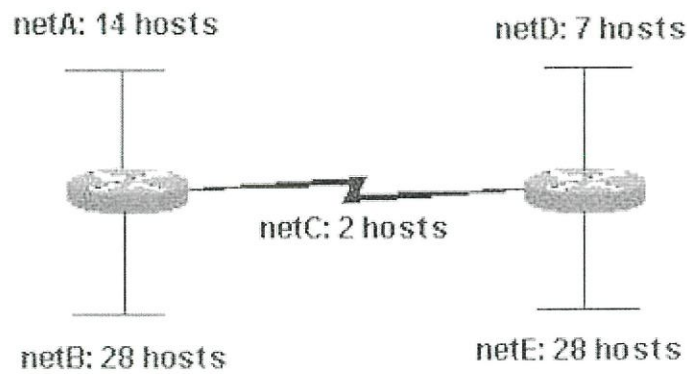


Figure Q3

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Handwritten notes in Indonesian, including the word 'Handwritten' and some illegible text.