

UNIVERSITI SAINS MALAYSIA

Second Semester Examination  
Academic Session 1997/98

February 1998

**CSI533 - Design, Installation and Management of Networks**

Duration : [3 hours]

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**INSTRUCTION TO CANDIDATE:**

- Please ensure that this question paper has **SEVEN** questions in **THREE** printed pages before you begin this examination.
  - Answer **ALL** questions.
  - You can choose to answer either in Bahasa Malaysia or English.
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ENGLISH VERSION OF THE QUESTION PAPER

1. Design a network that uses 2 UNIX servers, 1 Novell server and 1 NT server. The networks consists of 3 different labs. Lab1 has 32 Windows95 based PCs. Lab2 has 100 DOS based PC and Lab3 has 20 Pentiums running Windows95.

Given the following facts, design the network as well as explain the layer 1, 2 and 3 protocols that are chosen. A network diagram is required.

- The distance between Lab1 and Lab2 are 200m, but within the main building.
- The Lab3 is in a separate building, about 100m away from Lab2.
- All servers are to be located in the main building.
- Lab1 and Lab3 must be able to access all the servers, while Lab2 is only required to access the UNIX servers.
- You are given one bridge, and repeaters/hubs are of your choice. Explain the reason for the placement of the bridge.
- Use local IP addresses (i.e. 10.x.x.x) for your IP network.

(15/100)

2. The network above will now be expanded to interconnect to the Internet.

- You are given the following IP class block: 156.143.2.0 to 156.143.2.255.
- Your Internet Gateway/Router is one of the UNIX workstations, using a modem.

Redraw the network above, with the new IP addresses - define the broadcast, netmask, and network addresses as well.

(10/100)

3. (a) Name and describe the 5 different classes of IP addressing that exists.

- (b) Who are the main Internet Service Providers in Malaysia?

(5/100)

4. Answer the following questions:

- (a) Indicate the ISDN Bandwidth channels type B, C, D and E. If there is more than one value, please indicate all of them.
- (b) What is the bandwidth of 2B+D (Basic Rate)?
- (c) Given a 128kbps ISDN line is used to transmit video data that has 8 bit resolution per pixel and 20 x 20 pixels per frame. What is the maximum frame rate (Frames per second) that can be transmitted?

(15/100)

5. You are asked to design a network using the top down approach. Answer the following questions:
- (a) What is top-down approach to network design.
  - (b) Is the MSC (Multimedia Super Corridor) a top-down approach? Explain your answer.
  - (c) Using the top-down approach, design a network for the School of Computer Sciences. Applications are to be Administration based.
- (25/100)
6. Answer the following questions:
- (a) What is Microsoft Networks?
  - (b) Name 3 devices you can share using Microsoft Networks and explain the advantages of sharing such devices.
- (10/100)
7. Answer the following questions:
- (a) What is Network Management from the viewpoint of network devices?
  - (b) Name and explain the international standard network management protocol and its hierarchical structure.
  - (c) Explain the concepts behind RSW Control Criteria for Multimedia Conferencing.
  - (d) Describe the main difference between an ATM network as compared to an Ethernet Network.
- (20/100)

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