

SOUTH EASTERN UNIVERSITY OF SRI LANKA

SECOND EXAMINATION IN BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY FOR
MANAGEMENT STUDIES - 2009/2010
SEMESTER -I, AUGUST - 2011

**ITMS 2153R - DATA COMMUNICATION & NETWORK
ADMINISTRATION**

Answer all questions

Time : 03 hours

Q1.

- i. Explain the terms Digital Data, Analog Data, Digital Signal and Analog Signal with suitable illustration. (05 Marks)
 - ii. Give the architecture of TCP/IP Model. Mention the need of protocol in each layer. How TCP/IP is different from other architectures. (06 Marks)
 - iii. Compare the various guided transmission media with reference to transmission characteristics and applications. (04 Marks)
 - iv. Explain the terms WDM and TDM in data communications using suitable illustrations. (05 Marks)
- (Total Marks 20)**

Q2.

- i. Explain the components and the function of Peer to Peer Network and Client Server Network. (04 Marks)
 - ii. Discuss the data frame's components and illustrate how these components are involving in data communication. (06 Marks)
 - iii. Explain how default mask differs from subnet mask; give examples, and importance of using subnet mask in sub-netting. (06 Marks)
 - iv. Explain the role of session layer in data transmission and describe the protocols which are running in this layer. (04 Marks)
- (Total Marks 20)**

Q3.

Answer the following questions by using the IP address: **150.50.50.50/26**

- i. Find the network address and host address bits of this mask. (04 Marks)
- ii. Find start and ending host IP addresses of this sub network. (04 Marks)
- iii. Calculate maximum number of hosts and possible sub networks. (03 Marks)
- iv. Find network address of this IP address and Broadcast address of this sub network. (04 Marks)
- v. Write the IP table including sub network address, valid host range and broadcast address for each sub network. (05 Marks)

(Total Marks 20)

Q4.

- i. Explain Network Address Translation (NAT) and Address Resolution Protocol (ARP) with their necessity in routing. (04 Marks)
- ii. Explain what you mean by Social Engineering and explain the mostly used techniques in it. (04 Marks)
- iii. Assume that you are the Network Administrator in your organization. What are the security mechanism would you take to safeguard your network from network security threats with suitable example. (07 Marks)
- iv. Write the steps to create **MITSTUDENTS** group and to add three students to this group in the Active Directory of Windows Server 2008. (05 Marks)

(Total Marks 20)

Q5.

Explain the following terms.

- i. Intrusion Detection Systems (IDS) and Secure Sockets Layer (SSL)? (04 Marks)
- ii. Explain the differences between Packet Switching and Circuit Switching. (04 Marks)
- iii. Differentiate the IPv 4 from IPv6 and give examples with reference to each. (04 Marks)
- iv. Internet Control Message Protocol (ICMP) and Simple Mail Transfer Protocol (SMTP) (04 Marks)
- v. Switches increase the number of collision domains in the network. Explain this statement. (04 Marks)

(Total Marks 20)