

**SOUTH EASTERN UNIVERSITY OF SRI LANKA**

**SECOND EXAMINATION IN BACHELOR OF SCIENCE IN INFORMATION  
TECHNOLOGY FOR MANAGEMENT STUDIES**

**-2010/2011**

**SEMESTER-I, JULY/AUGUST-2012**

**ITMS 2153R DATA COMMUNICATION AND NETWORK ADMINISTRATION**

**Answer all questions**

**Time: Three Hours**

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**Question 1**

i. Explain analog data and digital data by using suitable graph illustration.

(04 Marks)

ii. Explain the following with the help of a suitable diagram

- a. Peak Amplitude,
- b. Period,
- c. Phase
- d. Frequency

(04 Marks)

iii. Compare and contrast OSI architecture model from TCP/IP model.

(07 Marks)

iv. What do you mean by Bit Rate and Bit Interval? Illustrate it using a graph.

(05 Marks)

**(Total Marks 20)**

## Question 2

- i. Explain the functions of Repeater and Bridge in a communication network.  
(04 Marks)
- ii. Compare the characteristics of Twisted Pair Cable from Coaxial Cables and mention the usages of each cable in real time applications.  
(04 Marks)
- iii. What do you mean by Time Division Multiplexing (TDM)? How data is organized at the receiving point under this technique?  
(04 Marks)
- iv. How does Distance Vector protocol differ from Link State protocol? Give example for each type of protocol.  
(04 Marks)
- v. Compare and contrast the major protocols which are running in the transport layer of OSI reference model.  
(04 Marks)

**(Total Marks 20)**

## Question 3

Answer the following questions by using the following address: **128.20.80.20/19**

- i. Write the above address and the mask in binary format.  
(02 Marks)
- ii. Write the above address's default mask and subnet mask in dotted decimal format.  
(03 Marks)
- iii. Calculate number sub networks and IP addresses per sub network for this mask?  
(03 Marks)
- iv. Find the network address for the above IP address using a Logical AND operator.  
(03 Marks)

- v. Write the valid host range and broadcast address for the above IP address's sub network. (03Marks)
- vi. Write the IP table including sub network address, valid host range and broadcast address for all sub networks. (06 Marks)

**(Total Marks 20)**

#### Questions 4

- i. What are the IP address governing bodies? Briefly explain their duties. (04 Marks)
- ii. How does DHCP server differ from DNS server? Explain the usefulness of DHCP server for a larger organization. (04 Marks)
- iii. List the roles available in Windows Server 2008 and write the steps to create **MITSTUDENTS** group and to add a student as a member of this group in the Active Directory Domain Services. (06 Marks)
- iv. Explain the Flow Control and the following flow control techniques.  
a. Stop-and-wait  
b. Sliding window. (06 Marks)

**(Total Marks 20)**

#### Question 5

Explain the following terms.

- i. Network Address Translation(NAT), Address Resolution Protocol(ARP) (04 Marks)
- ii. Cyclic Redundancy Check (CRC), Humming Code (04 Marks)

iii. MAC Header, Frame Check Sequence (FCS)

(04 Marks)

iv. Hardware firewall, Intrusion Detection System.

(04 Marks)

v. Ethernet, Fiber Distributed Data Interface (FDDI)

(04 Marks)

**(Total Marks 20)**