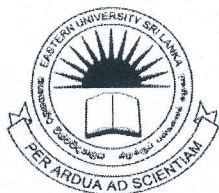


06 NOV 2015
EASTERN UNIVER



EASTERN UNIVERSITY, SRI LANKA
EXTERNAL DEGREE EXAMINATION IN SCIENCE
THIRD YEAR SECOND SEMESTER – (2009/2010)

(Feb./Mar.,2015)

EXTCS 302 – COMPUTER NETWORKS

(Proper and Repeat)

Answer all questions

Time: 2 Hours

1)

- a. Define the terms *Networking* and *Internet* stating how they differ from one another.
- b. Write short notes on the following network types:
 - i. Local Area Network (LAN);
 - ii. Wide Area Network (WAN);
 - iii. Metropolitan Area Network (MAN).
- c. List the advantages and disadvantages of the wired and wireless transmission media.
- d. Compare *circuit switching* and *message switching* techniques, listing their advantages and disadvantages. Explain how circuit switching techniques used in message switching.

2)

- a. It is important that the networking systems are designed using standard models such as *OSI*. Explain why?
- b. Briefly describe the *ISO-OSI* reference model, stating the major responsibilities of each layer.
- c. Describe the process of data transmission through the layers of *ISO-OSI* reference model.
- d. Describe how the CSMA / CD handle collision in a network:

3)

- a. Explain briefly the different types of *multiplexing* techniques.
- b. What do you understand by *piggybacking* in data transmission?
- c. Describe how the flow control is handled in the *Stop and Wait Protocol*.
- d. Analyse the transmission of a data packet for a system that uses *Stop and Wait protocol* for the following situations: (Use appropriate figures to support your answer.)
 - i. Lost or damaged frame;
 - ii. Lost acknowledgement;
 - iii. Delayed acknowledgement.

4)

- a. Describe briefly the *analog modulation* and *digital modulation*.
- b. List different types of digital modulation techniques and explain how they are achieved.
- c. Describe the Two-Dimensional parity bit error detection methods for blocks of characters. Illustrate your answer for the following data.
0101100 1001010 0110100 0100101 1011000 1111011
- d. Suppose a message frame is to be transmitted across a data link using a CRC for error detection and correction.
If the generator polynomial is $G(x) = x^4 + x^3 + 1$, then generate the CRC code for the message bit **1100111110**.