EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
EXTERNAL DEGREE EXAMINATION IN SCIENCE – 2008/2009
THIRD YEAR, SECOND SEMESTER (FEB./ APRIL, 2011)

EXTCS 302 – COMPUTER NETWORKS

(Proper & Repeat)

Answer all questions **Time: 2 Hours**

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1)

a. Describe the advantages of having a Computer Network.

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 and contrast the connection oriented and connectionless services.

2)

a. Briefly describe the 'ISO-OSI' reference model, stating the major responsibilities of each layer.

b. Describe the process of data transmission through the layers of 'ISO-OSI' reference model.

c. Describe how the following methods handle collision in a network:

   I. CSMA / CD;

   II. Token ring.

3)

a. Describe the following modulation techniques:

   i). Amplitude Modulation (AM);

   ii). Frequency Modulation (FM).

b. Compare and contrast 'Go-back-N' and 'Selective Repeat' protocols.

c. Discuss the necessity of connecting the schools and the government institutes via network.

4)

a. List three types of extended versions of the Phase Shift Keying (PSK) te and explain how they are achieved.

b. Describe the Two-Dimensional parity bit error detection methods for b characters. Illustrate your answer for the following block.

B6	B5	B4	B3	B2	B1	B0
0	1	0	1	0	0	0
1	0	0	0	0	1	0
0	1	0	0	1	0	0
0	1	0	1	1	0	1
1	0	0	0	0	0	0
1	1	0	1	0	1	1

c. Suppose a series of 8 bit message blocks (frames) are to be transmitted a data link using a CRC error detection and correction method.

If the generator polynomial is $G(x) = x^4 + x$, then generate the CRC code message bit **1110110110**.