

ELEX 3525 : Data Communications
Term 201810

MID-TERM EXAMINATION # 1
12:30 PM – 1:20 PM
February 21, 2018

This exam has two (2) questions on six (6) pages. The marks for each question are as indicated. There are a total of 9 marks. Answer all questions. Write your answers and all rough work in this paper and nowhere else. Show your work. Draw a box around your final answer. Numerical answers must include units. Books and notes are allowed. No electronic devices other than calculators are allowed. Show your work.

This exam paper is for:

Exam 1 A00123456

Each exam is equally difficult.
Answer your own exam.

Do not start until you are told to do so.

Name: _____

BCIT ID: _____

Signature: _____

Question	Mark	Max.
1		5
2		4
Total		9

Question 1 (5 marks)

Draw the waveform used to transmit the binary value 0110 1001 (written in order from m.s. to l.s. bit) assuming a bit rate of 4800 kbps, 7bits per character and even parity. Include one stop bit in the waveform.

Label the duration of one bit on the time axis (in microseconds) and the minimum transmit levels on the voltage axis (in Volts).

Question 2 (4 marks)

Estimate the characteristic impedance of household 12-gauge wire assuming signals propagate along it as if it were twisted pair. The conductor diameter is 12 AWG and diameter of the wire plus insulation is 3.5mm.

Note that 24-AWG wire has a diameter of 0.5 mm and the wire gauge diameter doubles for each decrease of 6 in the wire gauge.

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This exam paper is for:

Exam 2 A00123456

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Name: _____

BCIT ID: _____

Signature: _____

Question	Mark	Max.
1		5
2		4
Total		9

Question 1 (5 marks)

Draw the waveform used to transmit the binary value 1001 0110 (written in order from m.s. to l.s. bit) assuming a bit rate of 2400 kbps, 8bits per character and even parity. Include one stop bit in the waveform.

Label the duration of one bit on the time axis (in microseconds) and the minimum transmit levels on the voltage axis (in Volts).

Question 2 (4 marks)

Estimate the characteristic impedance of household 12-gauge wire assuming signals propagate along it as if it were twisted pair. The conductor diameter is 12 AWG and diameter of the wire plus insulation is 3.5mm.

Note that 24-AWG wire has a diameter of 0.5 mm and the wire gauge diameter doubles for each decrease of 6 in the wire gauge.

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