This exam has two (2) questions on six (6) pages. The marks for each question are as indicated. There are a total of 7 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		3
2		4
Total		9

Question 1 (3 marks)

Draw the waveform that would transmit the sequence of bits 01100 with a Manchester line code using the conventions used in the lecture notes. Label the time interval used to transmit each of the bits and the value (0 or 1) of the bit being transmitted in each interval.

3

Question 2 (4 marks)

The diagram below shows the magnitude of the transfer function of a channel, $H(f)$. The vertical axis is in linear units (*not* dB) and extends from 0 to 1. What is the -10 dB bandwidth? *Hint: you can use similar triangles.*

|H(f)|

1

0

6   8   10   f(MHz)

5
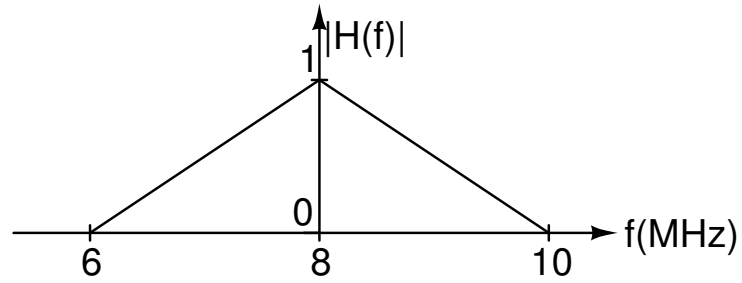
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ELEX 3525 : Data Communications
Term 201810

MID-TERM EXAMINATION # 2
9:30 – 10:20 AM
February 22, 2018

This exam has two (2) questions on six (6) pages. The marks for each question are as indicated. There are a total of 7 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 2   A00123456

Each exam is equally difficult.
Answer your own exam.

Do not start until you are told to do so.
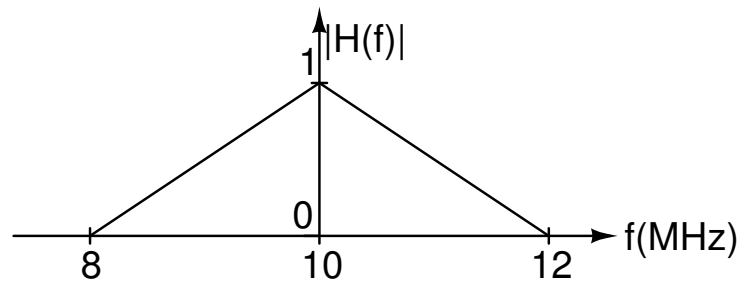
Name: _____

BCIT ID: _____

Signature: _____

Question	Mark	Max.
1		3
2		4
Total		9

Question 1 (3 marks)

Draw the waveform that would transmit the sequence of bits 10011 with a Manchester line code using the conventions used in the lecture notes. Label the time interval used to transmit each of the bits and the value (0 or 1) of the bit being transmitted in each interval.

3

Question 2 (4 marks)

The diagram below shows the magnitude of the transfer function of a channel, $H(f)$. The vertical axis is in linear units (*not* dB) and extends from 0 to 1. What is the $-10\,\text{dB}$ bandwidth?
Hint: you can use similar triangles.

5

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