HKUSTx: ELEC1200.1x A System View of Communications: From Signals to Packets (Part 1)   KarenWest (/dashboard) ▼

Courseware (/courses/HKUSTx/ELEC1200.1x/3T2014/courseware)   **Course Info (/courses/HKUSTx/ELEC1200.1x/3T2014/info)**

Course Outline (/courses/HKUSTx/ELEC1200.1x/3T2014/05fb01b36df14eb99ab54545dabc47f6/)

Grading Scheme (/courses/HKUSTx/ELEC1200.1x/3T2014/6e2be4dac3e44b4d9f812e7b5a5d5a29/)

Help

Instructors (/courses/HKUSTx/ELEC1200.1x/3T2014/674fdd6887fe4f4bb73b984df4a5675b/)

Resources (/courses/HKUSTx/ELEC1200.1x/3T2014/a6a8267fef364cccbccd0128d091f11c/)

Discussion (/courses/HKUSTx/ELEC1200.1x/3T2014/discussion/forum)   **Progress (/courses/HKUSTx/ELEC1200.1x/3T2014/progress)**

The figure below shows an example set of input and output bit streams from a binary channel. Use the data in this figure to answer the four questions below.

n	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
IN	0	0	0	1	1	0	0	1	1	0	0	1	1	0	1	0	1	1	1	1
OUT	1	0	0	1	1	0	1	1	1	0	1	1	1	0	1	0	0	1	1	0

8.4 QUIZ QUESTION 1 (1 point possible)

Estimate the bit error rate (BER) of this channel.

Please key in the numerical value of your answer with in the box provided below.

0.1225

0.1225

Answer: 0.25

EXPLANATION

Out of the 20 bits, there are five bit errors. Thus, $BER = \frac{5}{20} = 0.25$

Hide Answer   *You have used 3 of 3 submissions*

8.4 QUIZ QUESTION 2 (1/1 point)

Estimate the probability the transmitter sends a 0 bit, $P[IN = 0]$.

Please key in the numerical value of your answer in the box provided below.

0.45

0.45

Answer: 0.45

EXPLANATION

There are nine 0 bits in the input stream.

Thus, $P[IN = 0] = 9/20 = 0.45$

Check   Save   Hide Answer   *You have used 1 of 3 submissions*

8.4 QUIZ QUESTION 3 (1 point possible)

Estimate the probability of an error if a 0 bit is tranmitted, P_{e0}.

Please key in the numerical value of your answer to two significant digits in the box provided below.

.068

.068

Answer: 0.33

EXPLANATION

Out of the nine transmitted 0s, three are received as 1s.

Thus, $P_{e0} = 3/9 \approx 0.33$

Hide Answer   *You have used 3 of 3 submissions*

8.4 QUIZ QUESTION 4 (1/1 point)

Estimate the probability of an error if a 1 bit is tranmitted, P_{e1}?

Please key in the numerical value of your answer to two significant digits in the box provided below.

.18

.18

Answer: 0.18

EXPLANATION

Out of the 11 transmitted 1s, two are received as 0s.

Thus, $P_{e1} = 2/11 \approx 0.18$

| Check | Save | Hide Answer | *You have used 1 of 3 submissions* |

Help

edX

EdX offers interactive online classes and MOOCs from the world's best universities. Online courses from MITx, HarvardX, BerkeleyX, UTx and many other universities. Topics include biology, business, chemistry, computer science, economics, finance, electronics, engineering, food and nutrition, history, humanities, law, literature, math, medicine, music, philosophy, physics, science, statistics and more. EdX is a non-profit online initiative created by founding partners Harvard and MIT.

© 2014 edX, some rights reserved.

Terms of Service and Honor Code (https://www.edx.org/edx-terms-service)

Privacy Policy (Revised 4/16/2014) (https://www.edx.org/edx-privacy-policy)

About & Company Info

About (https://www.edx.org/about-us)

News (https://www.edx.org/news)

Contact (https://www.edx.org/contact)

FAQ (https://www.edx.org/student-faq)

edX Blog (https://www.edx.org/edx-blog)

Donate to edX (https://www.edx.org/donate)

Jobs at edX (https://www.edx.org/jobs)

Follow Us

Twitter (https://twitter.com/edXOnline)

Facebook (http://www.facebook.com/EdxOnline)

Meetup (http://www.meetup.com/edX-Global-Community)

LinkedIn (http://www.linkedin.com/company/edx)

Google+ (https://plus.google.com/+edXOnline)