https://courses.edx.org/courses/HKUSTx/EL...

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/)

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)

2.2 QUIZ QUESTION 1 (1/1 point)

Consider a system that uses 8-bit ASCII codes to encode letters. How long will it take to transmit the bit sequence encoding "**Hello**" (not including quotation marks) if we use a bit time of 10 samples per bit, and transmit samples at a rate of 1MHz?

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

400

400

Answer: 400

EXPLANATION

The correct answer is $400 \mu s$.

- Sample rate $F_s = 1\text{MHz} = 1 \cdot 10^6 \text{samples/second}$

- Sample period $T_s = (F_s)^{-1} = 1 \cdot 10^{-6} \text{second} = 1 \mu s$

- The bit time $= \text{SPB} \cdot T_s = 10 \cdot 1 \mu s = 10 \mu s$

- The number of bits to encode "Hello" (5 characters) = $8 \cdot 5 = 40$

- The transmission time = number of bits · bit time = 40 · 10 = 400 μ s

---

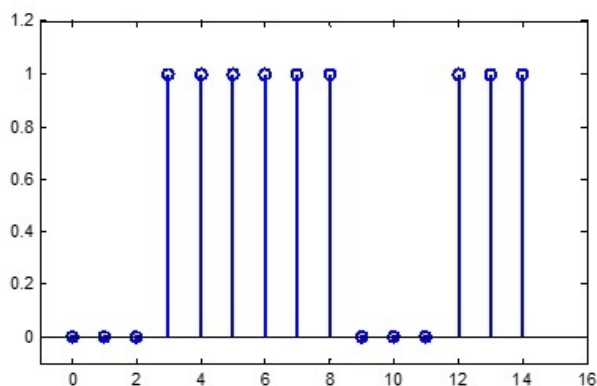Check   Save   Hide Answer   *You have used 1 of 3 submissions*

2.2 QUIZ QUESTION 2 (1/1 point)

Consider a communication system where the transmitter uses 0V to represent bit "0" and 1V to represent bit "1". An example of a transmitted waveform is given in the following figure.

Assume that the first bit starts at sample 0 what is the **largest** possible bit time (in SPB) used in the transmission?

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

3

3

Answer: 3

| Final Check | Save | Hide Answer | *You have used 2 of 3 submissions* |