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EN.520.645.01.FA21 Audio Signal Processing　　　　Quizzes　　Review Test Submission: Quiz3

Review Test Submission: Quiz3

User	QIHUA GONG
Course	EN.520.645.01.FA21 Audio Signal Processing
Test	Quiz3
Started	9/30/21 2:31 PM
Submitted	9/30/21 2:47 PM
Due Date	9/30/21 3:00 PM
Status	Completed
Attempt Score	75 out of 100 points
Time Elapsed	15 minutes out of 15 minutes
Instructions	You have 15 minutes to complete the quiz.
Results Displayed	All Answers, Submitted Answers, Correct Answers

Question 1

25 out of 25 points

The sequence

$$x[n] = \cos\left(\frac{\pi}{4}n\right), \qquad -\infty < n < \infty$$

as obtained by sampling a continuous-time sequence

$$x(t) = \cos(\Omega_0 t), \qquad -\infty < t < \infty$$

at a sampling rate of 1000 samples/sec. What is a possible value of Ω_0 that could have resulted in the sequence $x[n]$?

Selected Answer:　　$\Omega_0 = \dfrac{1000\,\pi}{4}$

　✅ B.

Answers:

　　$\Omega_0 = \dfrac{\pi}{4} + 2\pi.1000$

　A.

　　$\Omega_0 = \dfrac{1000\,\pi}{4}$

　✅ B.

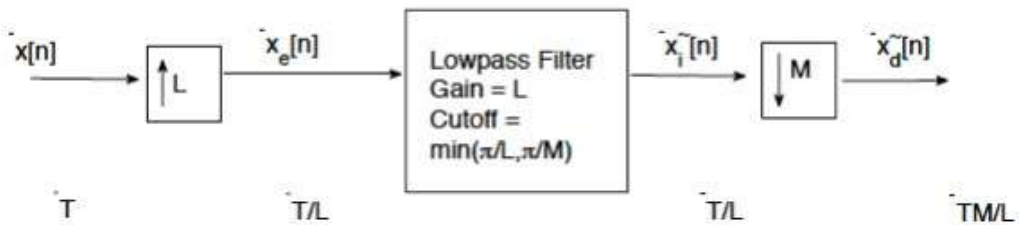　　$\Omega_0 = \dfrac{\pi}{4}$

　C.

　　$\Omega_0 = \dfrac{1000}{\frac{\pi}{4}}$

　D.

Question 2

0 out of 25 points

Consider the system below:

and consider the input $x[n] = \sin\left(\dfrac{3\pi}{4} n\right)$, and $L = 3$, $M = 5$. What is the resulting signal $\tilde{x}_d[n]$?

Selected Answer:

❌ A. $\tilde{x}_d[n] = \sin\left(\dfrac{3\pi}{4} n + \dfrac{4\pi}{5}\right)$

Answers:

A. $\tilde{x}_d[n] = \sin\left(\dfrac{3\pi}{4} n + \dfrac{4\pi}{5}\right)$

B. $\tilde{x}_d[n] = \sin(15\pi n)$

C. $\tilde{x}_d[n] = \sin\left(\dfrac{3\pi}{4} n\right)$

✅ D. $\tilde{x}_d[n] = -\sin\left(\dfrac{3\pi}{4} n\right)$

Question 3

25 out of 25 points

The purpose of using a low-pass filter before a downsampler with value M is:

Selected Answer: ✅ C. to prevent aliasing during the downsampling operation

Answers:

A. to reduce the rate of the signal by taking every M-th sample

B. to fill the zeros between the samples

✅ C. to prevent aliasing during the downsampling operation

D. to convert the samples in to a sequence of impulses

Question 4

25 out of 25 points

The primary role of the larynx is

Selected Answer:　　✅ C. To control the vocal folds

Answers:　　　　　　　A. To supply the source of energy for producing speech

　　　　　　　　　　　B. To spectrally shape the sound produced at the vocal folds

　　　　　　　　✅ C. To control the vocal folds

　　　　　　　　　　　D. To introduce zeros in the speech signal

Thursday, April 7, 2022 7:48:11 PM EDT

← **OK**