Review Test Submission: Quiz2

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Course	EN.520.645.01.FA21 Audio Signal Processing
Test	Quiz2
Started	9/23/21 2:30 PM
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Status	Completed
Attempt Score	40 out of 100 points
Time Elapsed	15 minutes out of 15 minutes
Results Displayed	All Answers, Submitted Answers, Correct Answers

Question 1

0 out of 20 points

When sampling a continuous-time signal $x(t)$ into a discrete signal $x[n]$, aliasing could occur at which stage of this process:

Selected Answer: B. When scaling the frequency axis Ω to discrete frequency ω

Answers:
A. When multiplying the signal by a uniform impulse train
When scaling the frequency axis Ω to discrete frequency ω
B.
When converting the sampled impulses $x_s(t)$ into discrete samples $x[n]$
C.
D. Aliasing could occur in the continuous-time signal independently of the sampling process

Question 2

0 out of 20 points

A speech signal is sampled at a rate of 10KHz. A segment of length 1024 samples is selected and a 1024-pt DFT is computed. What is the frequency resolution (spacing in Hz) between the DFT samples?

Selected Answer: A. ~1000Hz

Answers: A. ~1000Hz

B. ~ 100Hz

C. ~ 10Hz

D. ~ 1Hz

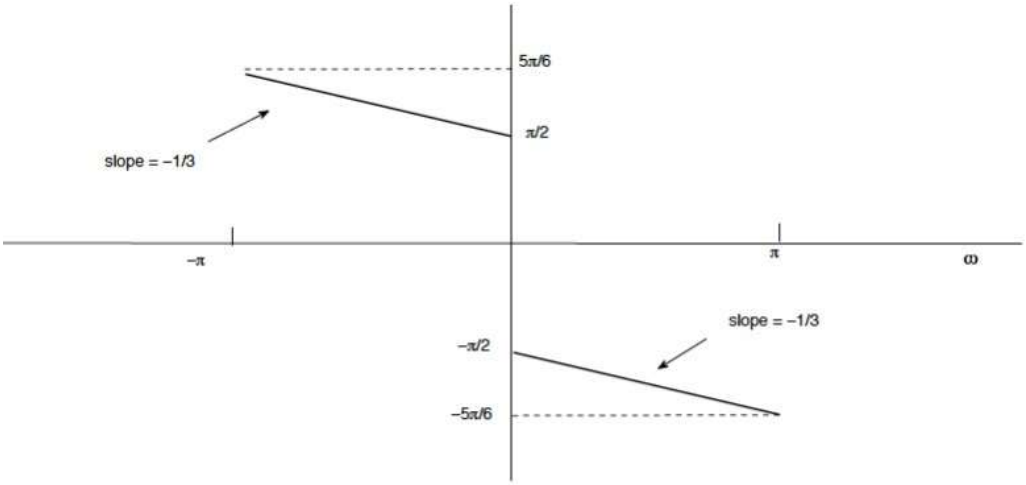
Question 3

0 out of 20 points

Consider a LTI system with transfer function such that

$$|H(\omega)| = 1, \ \forall \omega$$

and phase response given in the figure below:



If the input is $x[n] = \cos\left(\frac{3\pi}{2}n + \frac{\pi}{4}\right)$, what is the system output $y[n]$?

Selected Answer:

A. $y[n] = \sin\left(\frac{3\pi}{2}n + \frac{\pi}{4}\right)$

Answers:

A. $y[n] = \sin\left(\frac{3\pi}{2}n + \frac{\pi}{4}\right)$

B. $y[n] = \cos\left(\frac{3\pi}{2}n + \frac{11\pi}{12}\right)$

C. $y[n] = \cos\left(-\frac{1}{3}n\right)$

D. $y[n] = \cos\left(\frac{3\pi}{2}n - \frac{7\pi}{12}\right)$

Question 4

20 out of 20 points

The continuous-time Fourier transform (CTFT) is

Selected Answer: C.
Continuous and aperiodic in time-domain and continuous and aperiodic in frequency-domain

Answers:
A.
Discrete and aperiodic in time-domain and continuous and periodic in frequency-domain

B.
Continuous and periodic in time-domain and discrete and aperiodic in frequency-domain

C.
Continuous and aperiodic in time-domain and continuous and aperiodic in frequency-domain

D.
Discrete and periodic in time-domain and discrete and periodic in frequency-domain

Question 5

20 out of 20 points

If $x[n]$ is a discrete-time signal, then the value of $x[n]$ at non integer value of n is?

Selected Answer: not defined

Answers:
zero
positive
negative
not defined

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← OK