# Special test PDC

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To recover the message signal from the sampled values, a filter is applied. Which is                    1 point

☐ A sinc function in time domain

☐ A rectangular function in time domain

☐ A rectangular function in frequency domain

☐ A sinc function in frequency domain

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A multiplexing system is using several carrier signals of different frequencies – identify the multiplexing system *                    1 point

◯ TDM

◯ FDM

◯ PCM - TDM

◯ None of them

Which signal gives better noise immunity                                      1 point

○ Digital

○ None of them

○ Both of them

○ Analog

In PCM the carrier used is                                                     1 point

○ Both analog and digital

○ Digital

○ No carrier used

○ Analog

Delta modulation is better than PCM                                           1 point

○ both PCM and delta have the same bit rate for a given signal

○ bit rate is less compared to PCM

○ PCM is having less quantization error than delta

○ quantization noise is less in Delta modulation than PCM

An analog signal of bandwidth 1KHz is to be transmitted using PCM. The maximum tolerable error is 0.3% of peak signal amplitude. The minimum data rate of the system is

**2 points**

○ 24 kbps

○ 18 kbps

○ 20 kbps

○ 16 kbps

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A regenerative repeater can be used in

**1 point**

○ Digital Systems

○ None of them

○ Analog systems

○ Both Analog and Digital Systems

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Which signal is easier to transmit in a band limited channel

**1 point**

○ Analog

○ None of them

○ Digital

○ Both of them

What is the error introduced in Flat top sampling -                    1 point

○ Aperture error

○ Quantization error

○ Over Sampling error

○ No error

Synchronization is very important in which multiplexing technique                    1 point

○ TDM

○ Both of them

○ None of them

○ FDM

Significance of guard time in PCM- TDM system is                    1 point

☐ separates the samples from other sample vales

☐ its used to add more no of bits in the frame so bit rate can be high

☐ its used for synchronization

☐ its used to lengthen the frame time

A PCM system is having 1024 level of quantization. A signal 12cos(2000Πt)   1 point
is applied in it. Find the SNR

○ 100 dB

○ 61.8 dB

○ can't be calculated from the information

○ 60 dB

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Synchronization is very important in which multiplexing technique   1 point

○ FDM

○ Both of them

○ TDM

○ None of them

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In a resources constrained TDM system   1 point

○ PPM can be used because it has fixed frequency and amplitude

○ PWM can be used because it has fixed amplitude

○ none of the given answers

○ PAM can't be used because amplitude varies in PAM

A PCM-TDM system multiplexes 15 voice band channels. Each sample is encoded into 10 bits and there are 3 synchronizing bits per frame. The sampling rate is 108 samples per second. Determine the minimum transmission bandwidth required for communication.

3 points

○ 16.5 kHz

○ 16.524 kHz

○ 8.262 kHz

○ 8.35 kHz

A flat top sampling if compared with natural sampling

1 point

☐ Will be better as we have flat sample values compared to natural one which is varying

☐ will not be advantageous as signal information is lost in flat top sampling

☐ Error will be more in flat top sampling in a noiseless environment

☐ Error can be less in natural sampling in noisy environment

A PCM system is having 1024 level of quantization. A signal $12\cos(2000\Pi t)$ is applied in it. Find the total Quantization noise.

1 point

○ 1

○ Can't be calculated

○ 0.023

○ 0.000046

while taking samples in a sampling process, should we over sample or
under sample for practical applications                                   1 point

○ under sample

○ critically sample

○ all of them

○ over sample

A PCM system is having 1024 level of quantization. A signal 12cos(2000Пt)    1 point
is applied in it. Find the step size.

○ none of them

○ 0.0468

○ 0.023

○ 0.011

Is it always advantageous to take more samples than the Nyquist rate       1 point

○ No, because more samples will increase the system bandwidth

○ No, we just need enough samples to avoid spectral overlapping and use of available
  devices.

○ Yes, because more samples can be used for better reconstruction

○ Yes, because the more samples will increase the possibility of aliasing

Sampling theorem and Reconstruction theorem                                      1 point

○ Both are applied for continuous time signals

○ both satisfy the same condition

○ Sampling theorem is applied on discrete time signals and Reconstruction theorem is applied on continuous time signals

○ Both are applied for discrete time signals

If 7cos(4000Πt) is applied for sampling process. At which maximum sampling rate, aliasing will happen ?                        1 point

○ 4000 samples / sec

○ 7999 samples/ sec

○ 8000 samples/ sec

○ 3999 samples/ sec

Anti-aliasing filer is used to                                      1 point

○ remove unwanted low frequencies

○ reject all the low frequencies

○ remove both high and low frequencies

○ remove unwanted high frequencies

If three signals 2cos(5000Πt), 1+7cos(4000Πt) & 12cos(8000Πt) are applied for sampling. What should be the sampling frequency

○ 8000 samples / sec

○ 5000 samples / sec

○ 17000 samples / sec

○ 4000 samples / sec

1 point

Which signal is easier to transmit in a band limited channel

○ Both of them

○ None of them

○ Digital

○ Analog

1 point

Aliasing is a problem happens during -

○ none of them

○ over sampling

○ under sampling

○ both of them

1 point

If three signals 2cos(5000Пt), 1+7cos(4000Пt) & 12cos(8000Пt) are applied for sampling. What should be the sampling time.

1 point

○ 0.000125 sec

○ 0.00025 sec

○ 0.0002 sec

○ 0.000059 sec

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