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Courses » Machinery Fault Diagnosis And Signal Processing

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## Unit 5 - Week 3

Register for  
Certification exam

### Course outline

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- Lecture 11 : Time Domain Analysis
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### Assignment 3

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2019-02-20, 23:59 IST**

1) Which factor is defined as the ratio of peak value to RMS value of a signal? **1 point**

- a. Form factor
- b. Crest factor
- c. Skewness
- d. Kurtosis

- (a)
- (b)
- (c)
- (d)

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

(b)

2) Which parameter represents shape of the distribution of data? **1 point**

- a. Form factor
- b. Crest factor
- c. Skewness
- d. Kurtosis

- (a)
- (b)
- (c)
- (d)

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

(c)

3) The discrete time signal is obtained from continuous time signal using **1 point**

- a. Differentiation

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Assignment  
Solution

Develop

- (b)  
 (c)  
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

4) What would be the Nyquist rate for the signal  $x(t) = 5\sin(100\pi t)$

1 point

- a. 50  
b. 100  
c. 200  
d. 10

- (a)  
 (b)  
 (c)  
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

5) A 12-bit data converter has a resolution of

1 point

- a. 0.001%  
b. 0.024%  
c. 0.39%  
d. 0.08%

- (a)  
 (b)  
 (c)  
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

6) An anti-aliasing filter is used

1 point

- a. To set frequency band  
b. To limit additive noise  
c. Both a. and b.  
d. None of these

- (a)  
 (b)  
 (c)  
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

7) Leakage error can be minimized by

1 point

- a. Increasing sampling frequency
- b. Increasing total time of acquired data
- c. Applying window functions
- d. Applying low pass filter

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

8)

1 point

The resolution of a 16-bit analog to digital converter (ADC) with a maximum input of 10 V

- a. 0.15 mV
- b. 0.0015 mV
- c. 1.6 V
- d. 0.625 V

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

9) In ADC, the quantization error can be reduced by

1 point

- a. Increasing sampling frequency
- b. Decreasing sampling frequency
- c. Increasing number of bits
- d. Decreasing number of bits

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

10)

1 point

For a signal ( $x$ ) with  $N$  data points, the kurtosis is defined by the following expression ( $\sigma$  is standard deviation)

- a.  $\frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^2$   
 b.  $\frac{\sum_{i=1}^N (x_i - \bar{x})^3}{(N-1)\sigma^3}$   
 c.  $\frac{\sum_{i=1}^N (x_i - \bar{x})^4}{(N-1)\sigma^4}$   
 d.  $\sqrt{\frac{\sum_{i=1}^N (x_i - \bar{x})^4}{(N-1)\sigma^4}}$

- (a)  
 (b)  
 (c)  
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

11) Cross-spectrum is a real quantity

1 point

- a. True  
 b. False

- (a)  
 (b)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

12) Fourier series expansion of a periodic even function (i.e.,  $f(-x) = f(x)$ ) contains

1 point

- a. Only sine terms  
 b. Only cosine terms  
 c. Both sine and cosine terms  
 d. Cannot be determined

- (a)  
 (b)  
 (c)  
 (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

13)

1 point

If the beat frequency is 0.8 Hz, and the frequency of one signal is 20 Hz, then what could be frequency of the other signal?

- a. 20 Hz  
 b. 19.2 Hz  
 c. 20.8 Hz  
 d. 12 Hz

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

- (b)
- (c)

14)

1 point

Orbit plot is generated from two vibration signals measured simultaneously at orthogonal directions

- a. True
- b. False

- (a)
- (b)

No, the answer is incorrect.

Score: 0

Accepted Answers:

- (a)

15) Select the option(s) which is (are) true for order analysis

1 point

- a. It is related to rotational speed
- b. Rotational speed is the first order
- c. Rotational speed measurement is not required
- d. All of the above

- (a)
- (b)
- (c)
- (d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

- (a)
- (b)

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