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Courses » Machinery Fault Diagnosis And Signal Processing

Announcements **Course** Ask a Question Progress FAQ

Unit 10 - Week 8

Register for
Certification exam

Course outline

How to access the
portal

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

- Lecture 36 : Introduction to Faults in Rotating Machines
- Lecture 37 : Unbalance Detection
- Lecture 38 : Field Balancing
- Lecture 39 : Misalignment
- Lecture 40 : Crack and Looseness
- Week 8 : Lecture Material
- Quiz : Assignment 8
- Feedback for Week 8

Assignment 8

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

Due on 2019-03-27, 23:59 IST

1) 1 point
In a rotating machine, with an unbalanced mass m and eccentricity e rotating at a speed ω rad/s, the magnitude of unbalanced force would be

- a. $m\omega^2$
- b. $m\omega$
- c. me
- d. $m\omega$

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

2) What is the predominant frequency for a rotating unbalance? 1 point

- a. Frequency corresponding to rotational speed
- b. Frequency corresponding to 1.5 times the rotational speed
- c. Frequency corresponding to twice the rotational speed
- d. None of these

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

3) 1 point

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Week 12

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Solution

Develop

Three unbalanced masses are rotating at a constant speed in a single plane. Which is a sufficient condition for balancing?

- a. The moments should be balanced
- b. The unbalanced forces need to be balanced
- c. Both forces and moments are to be balanced
- d. None of these

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

4)

1 point

Which condition represents misalignment in shafts?

- a. Sidebands in frequency spectrum
- b. Continuous spectrum
- c. Increased level of axial vibration levels at a frequency twice the rotating speed
- d. None

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

5) Which condition among these can represent looseness in rotating machines? 1 point

- a. Increased axial vibration
- b. Sidebands
- c. Peaks at fractional harmonics and harmonics
- d. None of these

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

6) An elliptical orbit plot represents

1 point

- a. Crack
- b. Misalignment
- c. Rub
- d. Rotating unbalance

- (a)

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

7) Which one is not true for three point balancing method?

1 point

- a. Requires phase measurement
- b. Total four vibration measurement is required
- c. Same trial weight is used
- d. Rotational speed measurement is not required

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

8) The phenomenon of rub can be identified by

1 point

- a. Peaks at fractional harmonics
- b. Peaks at harmonics
- c. Continuous spectrum
- d. None of these

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c)

9) Which method is to be adopted for balancing multistage turbine blades?

1 point

- a. Static balancing
- b. Dynamic balancing
- c. Both a. and b.
- d. None of these

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

10)

1 point

Which is true for eccentricity in rotors for electrical machines?

- a. Creates an increase in the radial vibrations at twice the rotational speeds
- b. Creates an increase in the radial vibrations equal to the rotational speeds
- c. Creates an increase in the axial vibrations at twice the rotational speeds
- d. None of these

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

11) Shaft Misalignment occurs due to

- a. Looseness of rotating components
- b. Offset present either by lateral amount or by an angular
- c. Due to internal crack present in shaft
- d. Rubbing of rotating machine component

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

12. Which coupling is suitable for preventing small misalignment?

- a. Rigid coupling
- b. Flexible coupling
- c. Beam coupling
- d. None of these

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b)

(c)

13) The presence of cracks in the shaft causes change in its stiffness

- a. True
- b. False

- (a)
- (b)

No, the answer is incorrect.



1 point

1 point

1 point

Score: 0

Accepted Answers:

(a)

14)

1 point

The unbalance force can induce additional fatigue load on the bearings and may lead to premature failure of the bearings and rotating shafts.

a. True

b. False

(a)

(b)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

15)

1 point

The rotating unbalance force acts radially outward and is proportional to the square of the angular rotational speed of shaft.

a. True

b. False

(a)

(b)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(a)

Previous Page

End