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Courses » Experimental Stress Analysis-An Overview

Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 6 - Unit 4 - Week 4

Course outline

How to access the portal

Pre-requisite Assignment

Unit 1 - Week 1

Unit 2 - Week 2

Unit 3 - Week 3

Unit 4 - Week 4

Introduction to Caustics

Introduction to Coherent Gradient Sensor

Naming of Experimental Methods

Fringe Patterns - Richness of Qualitative Information

Key technologies that have influenced Experimental Mechanics

Multiscale analysis and

Assignment 4

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-09-26, 23:59 IST.**

1) In optics the envelop of light rays reflected or refracted by a curved surface or object is called **1 point**

- Caustics
- Interference
- Birefringence
- Refraction

No, the answer is incorrect.

Score: 0

Accepted Answers:

Caustics

2) The dimple formation near the point of high stress concentration is used advantageously in stress analysis through the method of **1 point**

- Photoelasticity
- DIC
- Holography
- Caustics
- Coherent gradient sensor

No, the answer is incorrect.

Score: 0

Accepted Answers:

Caustics

3) In Coherent Gradient Sensor technique (transmission), the fringes relate to **1 point**

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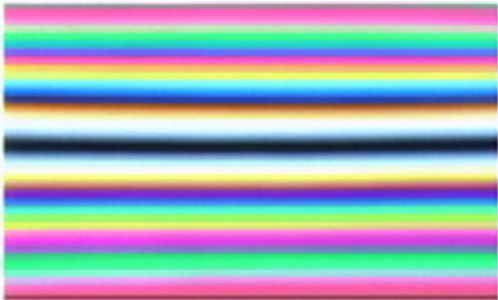
Funded by

- Selection of an experimental technique- Part 2
- Quiz : Assignment 4
- Week 4 - Feedback - Experimental Stress Analysis-An Overview

VIDEO DOWNLOAD

No, the answer is incorrect.
Score: 0
Accepted Answers:
direction cosines of the object wave front.

4) The fringe pattern shown in the figure is **1 point**



- observed under white light for a beam under pure bending
- Observed under white light for a beam under three-point bending
- Observed under white light for a specimen under uniaxial compression
- Observed under white light for a specimen under uniaxial tension.

No, the answer is incorrect.
Score: 0
Accepted Answers:
observed under white light for a beam under pure bending

5) Phase shifting techniques are useful when one aims to acquire whole field information using any optical technique **1 point**

- True
- False

No, the answer is incorrect.
Score: 0
Accepted Answers:
True

6) Answer True/False for the following statements (Type T for True, F for False without any spacing. For example, if first statement is false and other three statements are true type FTFT)

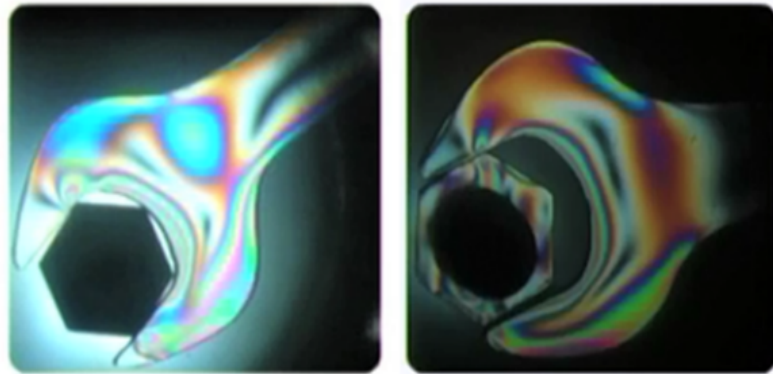
- A. The thickness of fringes in most of the experimental techniques are uniform
- B. The thickness of the fringe band is inversely related to the gradient of the variable it represents.
- C. When fringes are closely packed, it is the zone of low stress concentration.
- D. For circular disc under diametral compression the gradient of fringes are high near the point of loading

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) FTFT

2 points

7) Predict which spanner (A/B) is strong based on the appreciation of the photoelastic fringes

observed in the figure.



A

B

Hint

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) B

1 point

8) This is because the shape of the fillet is.

A. Circular B. Elliptical C. Streamlined D. Involute

Give the answer as a string. If more than one answer is correct, for example if A and B are correct, answer AB in the same order without any spacing

No, the answer is incorrect.

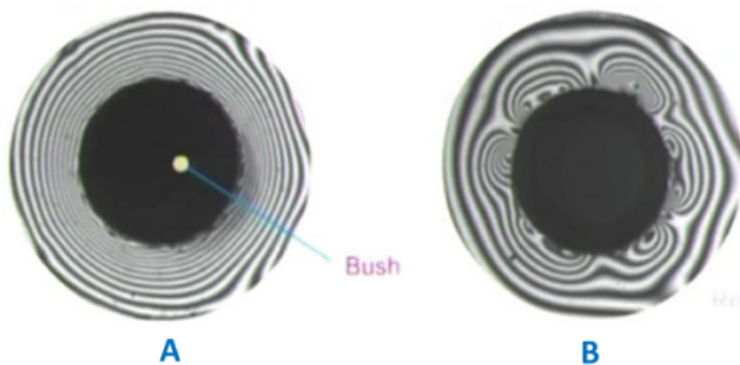
Score: 0

Accepted Answers:

(Type: String) C

1 point

9) The fringe patterns shown in figure are observed when a bush is inserted in a circular hole of a component. Based on your knowledge of appreciation of fringe patterns, predict which component (A/B) could be rejected? (Answer A or B).



No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) B

1 point

10) This is because

- A. Fringe order is high at the inner hole
- B. Fringes are not uniform over the inner boundary
- C. Fringe patterns indicate that the bush is not a perfect cylinder
- D. The fit between the bush and the component is loose

Give the answer as a string. If more than one answer is correct, for example if A and B are correct answer AB in the same order without any spacing.

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) ABC

1 point

11) Answer True/False for the following statements (Type T for True, F for False without any spacing. For example, if first statement is false and other three statements are true type FTTF)

- A. Brittle coating technique is the right choice to identify the zone of interest for a refined analysis when it comes to analysis of large components
- B. When one wants to get a whole field appreciation of the stress field then strain gauge is the right choice
- C. Photoelasticity can give quick comparison of different designs
- D. Photoelasticity is not much useful for measurement of residual and assembly stresses

No, the answer is incorrect.

Score: 0

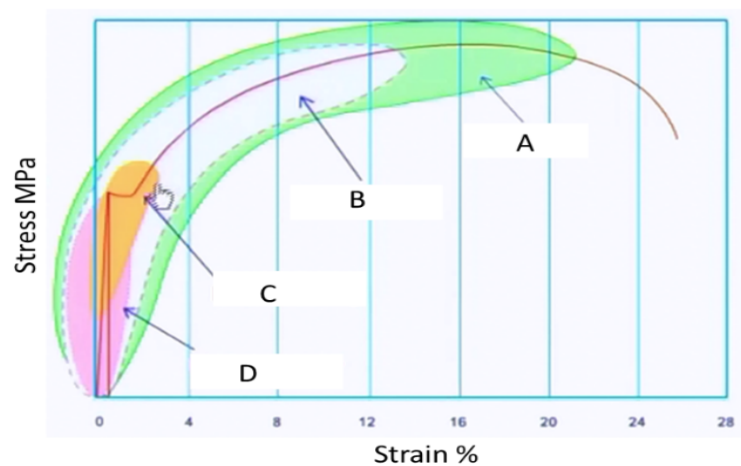
Accepted Answers:

(Type: String) TFTF

2 points

12) The figure shows different stress/strain range represented using alphabets A, B, C and D. 2 points

As an experimentalist which experimental technique would you chose for regions represented by the alphabets



- A- Thermoelastic stress analysis
 B- Strain gauge
 C- Brittle coating
 D- Photoelasticity

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No, the answer is incorrect.

Score: 0

Accepted Answers:

A- Thermoelastic stress analysis

B- Strain gauge

C- Brittle coating

D- Photoelasticity

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