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reviewer3@nptel.iitm.ac.in ▼

Courses » Experimental Stress Analysis-An Overview

Announcements Course Ask a Question Progress Mentor FAQ

Unit 5 - Unit 3 - Week 3

Course outline

How to access the portal

Pre-requisite Assignment

Unit 1 - Week 1

Unit 2 - Week 2

Unit 3 - Week 3

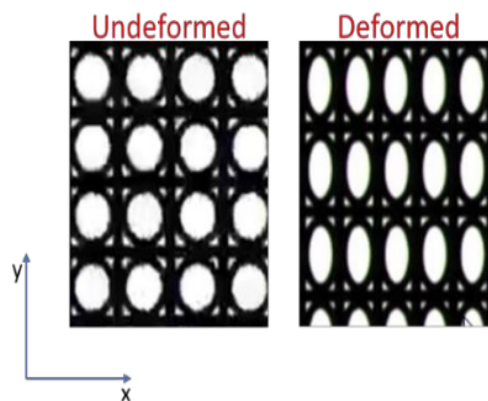
- Principles of Moiré
- Introduction to Moiré
- Introduction to Brittle Coatings
- Introduction to Holography
- Introduction to Hologram Interferometry
- Introduction to Double exposure hologram interferometry
- Introduction to Speckle Methods
- Introduction to Speckle

Assignment 3

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-09-19, 23:59 IST.**

1) In Moiré technique, circles are printed within the grids to measure strains. The initial and final pattern of the printed patterns are shown in the figure. Identify the tensile direction from the pattern. **1 point**



- x direction
- y direction
- 45° to x direction
- both in x and y direction

No, the answer is incorrect.

Score: 0

Accepted Answers:

y direction

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Unit 4 - Week 4

VIDEO
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Speckle deformation

No, the answer is incorrect.

Score: 0

Accepted Answers:

Mechanical interference

3) When the yield strength of the material could not be identified clearly from the stress-strain **1 point** curve. One can take the yield stress as the point in the stress-strain curve corresponding to the strain value of

- 2 $\mu\epsilon$
- 20 $\mu\epsilon$
- 200 $\mu\epsilon$
- 2000 $\mu\epsilon$

No, the answer is incorrect.

Score: 0

Accepted Answers:

2000 $\mu\epsilon$

4) In Moiré technique the fringes denote the component of displacement in **1 point**

- the same direction of master grating
- the direction perpendicular to the master grating
- the direction parallel to the master grating
- All of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

the direction perpendicular to the master grating

5) The cracks noticed during a brittle coating technique are called____. The boundary enclosing these cracks are called____. **1 point**

- Isopachics, Isostatics
- Isostatics, Isoentatics
- Isoentatics, Isostatics
- Isoclinics, Isopachics

No, the answer is incorrect.

Score: 0

Accepted Answers:

Isostatics, Isoentatics

6) The difference between normal photography and holography is that **1 point**

- Photography records both intensity and phase while holography records only phase
- Photography records only intensity whereas holography records both intensity and phase
- Photography records only phase while holography records intensity
- Both photography and holography are same

No, the answer is incorrect.

Score: 0

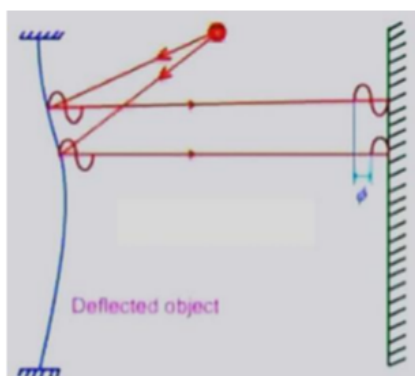
Accepted Answers:

Photography records only intensity whereas holography records both intensity and phase

7)

1 point

The figure shows the principle of holography. In the figure ϕ indicates the



- Intensity
- Wave length
- Phase
- Frequency

No, the answer is incorrect.

Score: 0

Accepted Answers:

Phase

8) The isopachic contours obtained using holography are contours of

1 point

- $\sigma_1 - \sigma_2$
- $\sigma_1 + \sigma_2$
- σ_1
- $\sigma_1 \sigma_2$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$\sigma_1 + \sigma_2$

9) Any smooth surface when looked at the scale of wavelength of light, will be rough

1 point

True or False?

- True
- False

No, the answer is incorrect.

Score: 0

Accepted Answers:

True

10) Waves scattered from any single point of the object are focused to a corresponding point of **1 point** the image in a subjective speckle method due to the use of

- Lens
- Beam splitter
- Spatial filter
- High resolution camera

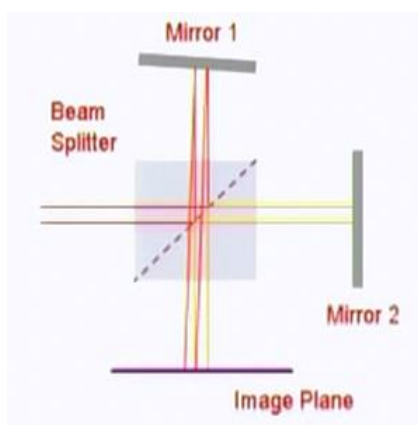
No, the answer is incorrect.

Score: 0

Accepted Answers:

Lens

11) The figure shows the schematic of which of the following experimental technique **1 point**



- Holography
- Speckle interferometry
- Shearography
- Geometric Moiré

No, the answer is incorrect.

Score: 0

Accepted Answers:

Shearography

12) A thermoelastic stress analysis provides **1 point**

- Variation of principal stresses under random loading
- Variation of sum of principal stresses under random loading
- Contours of sum of principal stresses
- Thermal stresses under random loading

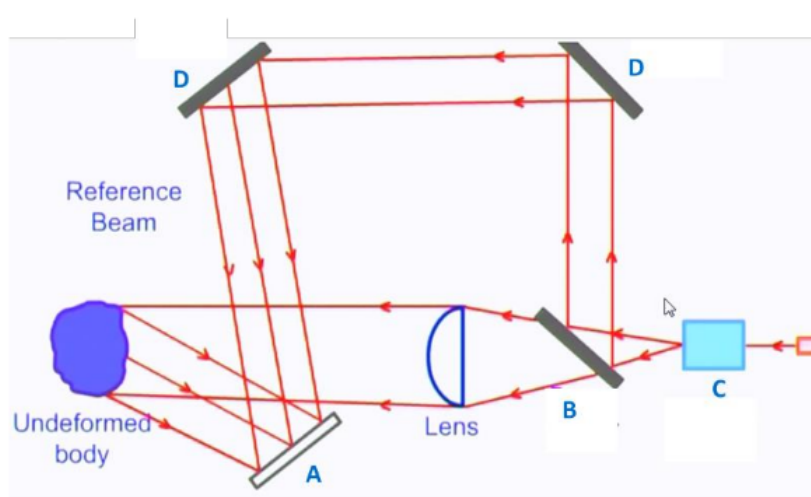
No, the answer is incorrect.

Score: 0

Accepted Answers:

Variation of sum of principal stresses under random loading

13) The figure shows the setup of a double exposure hologram interferometry. Name the parts **2 points** indicated by A, B, C, D respectively



- Beam splitter, Hologram, spatial filter, Mirror
- Spatial filter, Hologram, Beam splitter, Mirror
- Hologram, Beam splitter, Spatial filter, Mirror
- Mirror, Hologram, Spatial filter, Mirror

No, the answer is incorrect.

Score: 0

Accepted Answers:

Hologram, Beam splitter, Spatial filter, Mirror

14) Which of the statements are true regarding subjective speckles.

2 points

- A. The speckles are regularly shaped and uniformly distributed
- B. The speckle pattern is temporally constant and spatially determined.
- C. Every surface structure generates the same speckle pattern
- D. The speckle pattern provides a fingerprint of the illuminated area.

- B and C
- B and D
- A and C
- A and D

No, the answer is incorrect.

Score: 0

Accepted Answers:

B and D

15) Which of the statements are true regarding thermoelastic stress analysis

2 points

- A. Expensive IR cameras are used for data interpretation
- B. Under cyclic loading the local temperature change of specimen is observed
- C. The order of temperature change is 0.001 o C
- D. It is a non-contact technique

- ABC
- ABD

DAB

ABCD

No, the answer is incorrect.

Score: 0

Accepted Answers:

ABCD

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