

# Unit 8 - Week 6

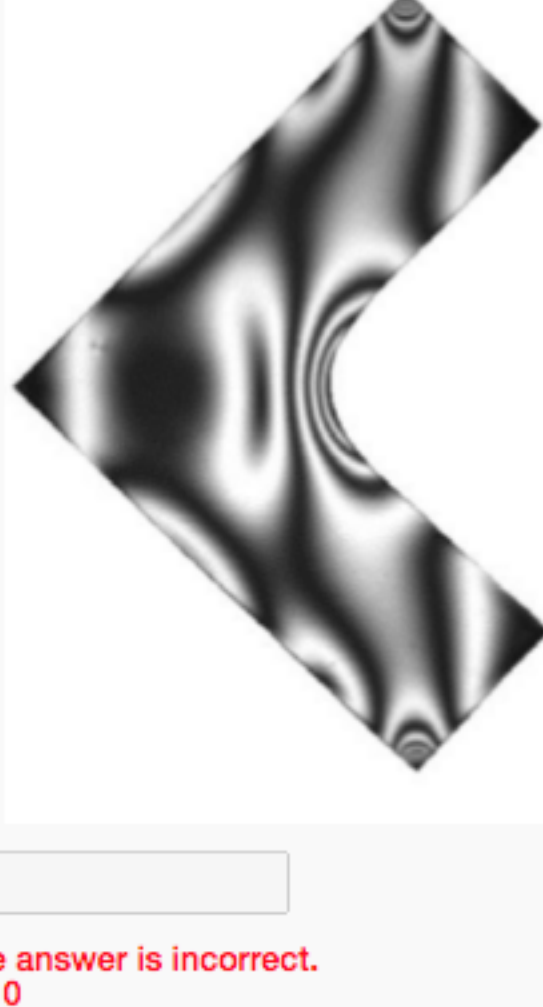
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How does an NPTEL online course work?	
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Week 6	<ul style="list-style-type: none"> <li>Calibration of Photoelastic Materials</li> <li>Fringe Thinning Methodologies</li> <li><b>Fringe Ordering in Photoelasticity</b></li> <li>Quiz : Assignment 6</li> </ul>
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## Assignment 6

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

**Due on 2020-03-11, 23:59 IST.**

1) Fringe patterns (isochromatics) corresponding to an angle bracket subjected to a diametral load is shown in figure. How many zeroth fringe order are there in the model domain shown in the figure

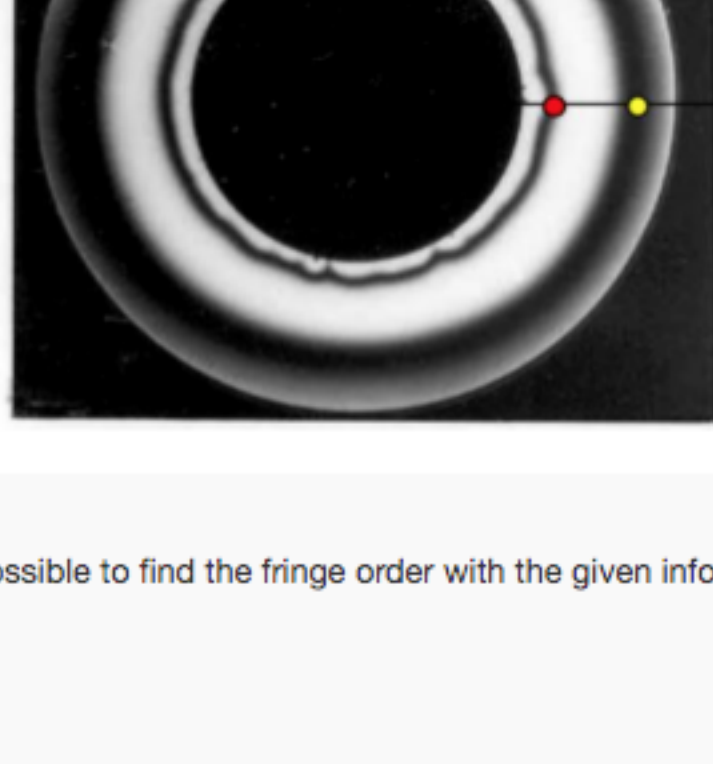



No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 6

1 point

Figure shows dark field fringe patterns corresponding to a circular tube under internal pressure



2) Is it possible to find the fringe order with the given information?

- Yes  
 No

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
No

1 point

3) Which of the following statements are true for the problem given?

- Fringe order at red points are higher than that of yellow points  
 Fringe order at yellow points are higher than that of red points  
 Fringe orders are same at red and yellow points  
 Fringe order is zero at the inner boundary

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Fringe order at red points are higher than that of yellow points

1 point

4) A circular disc of diameter 50 mm and thickness 6 mm is compressed diametrically using a point load of 200 N. The fringe order at the center of the disc is found to be 1. What is the  $F_c$  value of the disc material in N/mm/fringe

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 10.00,10.50

2 points

Fringe patterns for two different cases are given in figures I and II. Identify appropriate scanning direction for fringe skeleton identification using an intensity-based algorithm. Enter the value for angle  $\theta$  in degrees with respect to the reference axis shown (only integer values)



5) Scanning direction for Image I

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 0

1 point

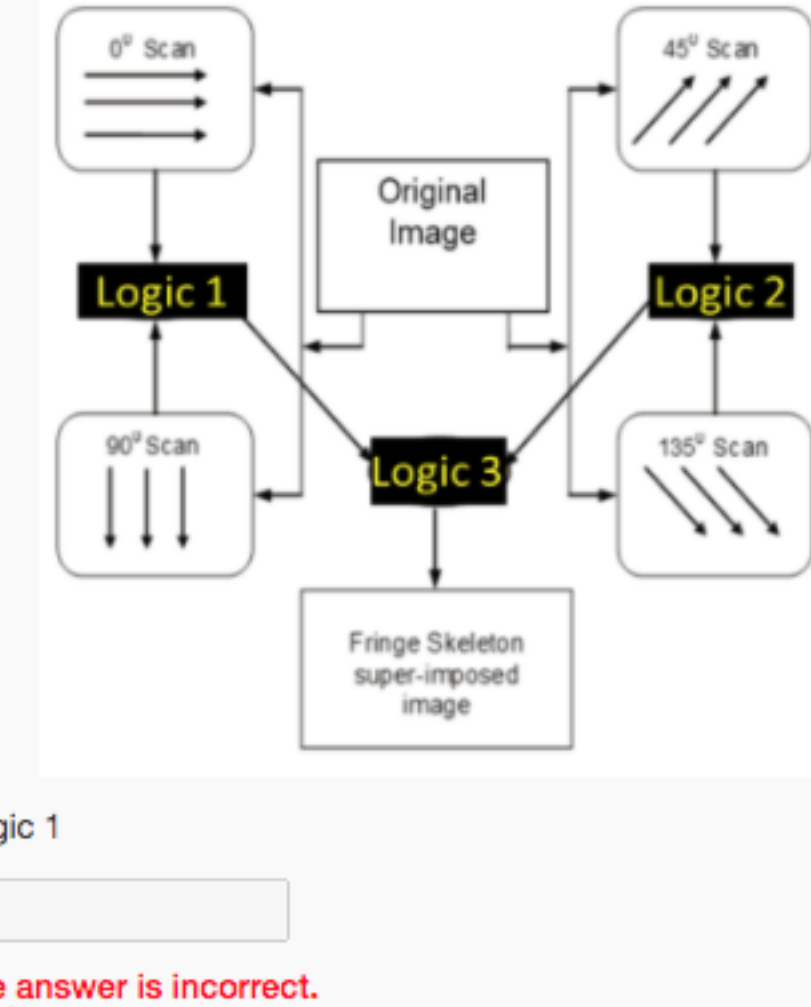
6) Scanning direction for Image II

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 90

1 point

For fringe skeletonization of a generic image, a global fringe thinning algorithm as shown in figure is found suitable. Give the correct logic operators in for Logic 1, 2 and 3 as indicated in figure. Enter the logic operators from the given options [ AND, OR, NOT, NOT EQUAL, XOR, OR EQUAL]



7) Logic 1

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) OR

0.7 points

8) Logic 2

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) OR

0.7 points

9) Logic 3

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) AND

0.6 points

Different fringe features associated with isochromatics as well as isoclinics fringes are given. Identify whether the feature belongs Enter A for isochromatics and enter B for isoclinics

10) Source

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) A

0.4 points

11) Singular point

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) B

0.4 points

12) Sink

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) A

0.4 points

13) Saddle point

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) A

0.4 points

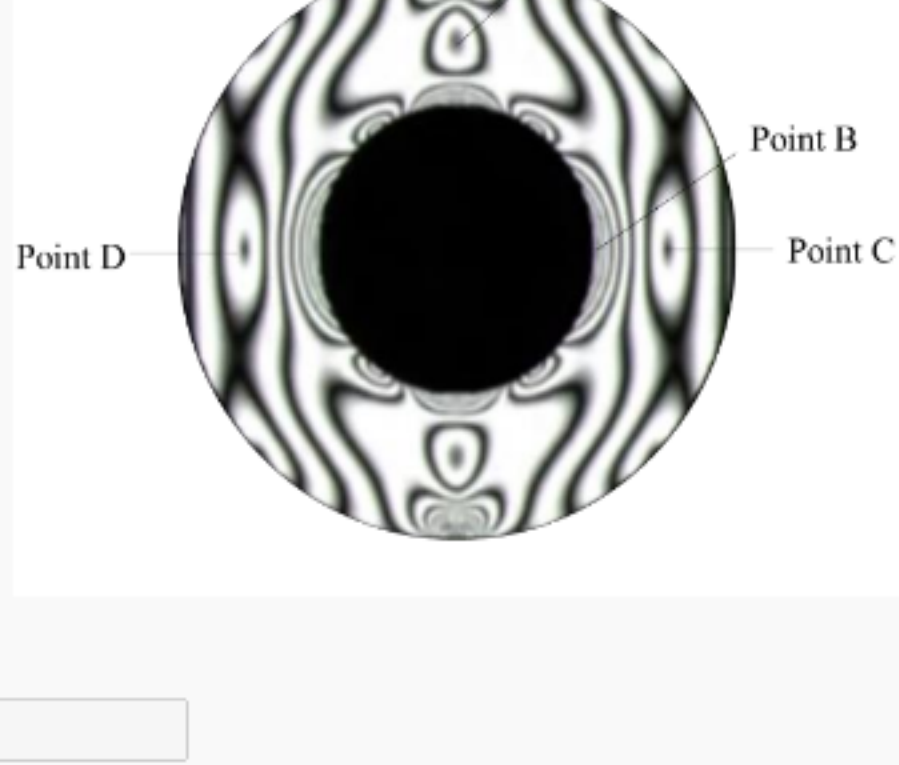
14) Isotropic point

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) B

0.4 points

The fringes pattern for a ring under diametral compression is shown in figure. Different points are marked in the figure. Enter the correct name of the fringe feature which the points represent. For Source enter 'SO', for sink enter 'SI', for singular point enter 'SIP', for saddle point enter 'SDP' and for isotropic point enter 'ISO'



15) Point A

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) SI

0.4 points

16) Point B

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) SO

0.4 points

17) Point C

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) ISO

0.4 points

18) Point D

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) ISO

0.4 points

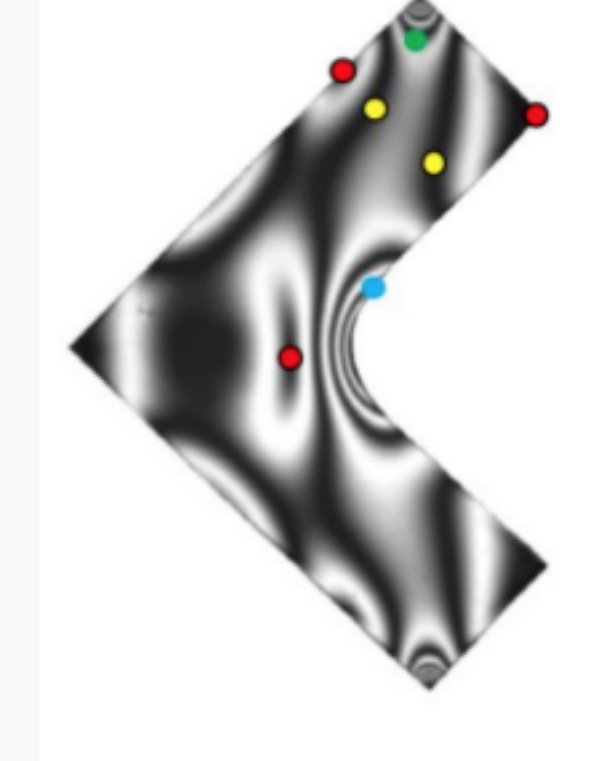
19) Point E

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: String) SO

0.4 points

Fringe patterns (isochromatics) corresponding to an angle bracket subjected to a diametral load is shown in figure. Different points are marked using red, yellow, green and blue colors. Identify the fringe order(integers) at the points indicated by these colors.



20) Red

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 0

0.5 points

21) Yellow

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 1

0.5 points

22) Green

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 2

0.5 points

23) Blue

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Numeric) 3

0.5 points

At a point D in a photoelastic material, a fringe order of 4.25 was measured. The isoclinic parameter at the same point was  $35^\circ$ . The material stress fringe value of the model material is 12 N/mm/fringe. The model material's Young's modulus is 3.275 GPa and Poisson's ratio is 0.36. Before application of the loads, the thickness of the model was 6 mm; and after the application of the loads, the thickness at D measured by a lateral extensometer was 6.01 mm

24) Find the principal stress difference ( $\sigma_1 - \sigma_2$ )

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 8,9

1 point

25) Find Normal stress difference ( $\sigma_{xx} - \sigma_{yy}$ )

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 2.60,3.00

1 point

26) Find shear stress ( $\tau_{xy}$ )

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 3.5,4.5

1 point

27) Stress component ( $\sigma_{xx}$ )

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) -7.00,-5.50

1 point

28) Stress component ( $\sigma_{yy}$ )

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) -10.50,-8.50

1 point