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Courses » Introduction To Composites

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## Unit 9 - WEEK 08

Register for  
Certification exam

### Course outline

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the portal

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WEEK 08

- Lecture 43:  
Concept of  
Tensor
- Lecture 44:  
Stress  
Transformation  
(Two  
Dimensional)
- Lecture 45:  
Analysis of  
Specially  
Orthotropic  
Lamina
- Lecture 46:  
Analysis of

## Assignment 08

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2019-03-27, 23:59 IST.**  
assignment.

1) For the orthotropic lamina (shown in figure), the stresses in L and T direction are.....and....., respectively. **1 point**

- 5.24 MPa and 3.16 MPa
- 0.34 MPa and 5.24 MPa
- 3.16 MPa and 0.34 MPa
- 3.16 MPa and 5.24 MPa

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*3.16 MPa and 0.34 MPa*

2) In above example 1, the shear stress is..... **1 point**

- 5.24 MPa
- 0.34 MPa
- 3.16 MPa
- 4.14 MPa

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*5.24 MPa*

3) A tensile specimen of a unidirectional composite with a rectangular cross section of dimensions 12.5 mm x 4 mm has the fibers oriented at 45° to a longitudinal edge of the specimen. It is subjected to an axial force of 500 N. The normal strains in the axial (X) and perpendicular direction (Y) are ..... and ....., respectively. **1 point**

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<ul style="list-style-type: none"> <li><input checked="" type="radio"/> Lecture 48: Transformation of Engineering Constants-Part II</li> <li><input type="radio"/> Quiz : Assignment 08</li> <li><input type="radio"/> Introduction To Composites : Feedback For Week 8</li> <li><input type="radio"/> Assignment 8 Solution</li> </ul>
<b>WEEK-09</b>
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**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*0.001345 and 0.000155*

4) For a 'Constant Stress Model' the transverse modulus of a composite with 'n' number of materials is obtained by equation..... (where  $V_i$  = Volume fraction of  $i$  th constituent of composite) **1 point**

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**

5) **Assertion (A):** The presence of the fibers in a matrix causes reduction of transverse strength of the matrix. **1 point**

**Reason (R):** The constraints placed on the matrix by the fibers cause strain and stress concentration in the matrix adjacent to the fibers.

Both A and R are true and R is the correct explanation of A.  
 Both A and R are true but R is NOT the correct explanation of A.  
 A is true but R is false.  
 A is false but R is true.

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*Both A and R are true and R is the correct explanation of A.*

6) (Note: Question 6 to 10 have same data as follows) **1 point**  
An orthotropic lamina having the following properties:

Longitudinal modulus of elasticity,  $E_x = \dots\dots\dots$  (for a lamina with fibers oriented at  $45^\circ$  to X-axis )

13.16 GPa  
 20.26 GPa  
 15.13 GPa  
 7.43 GPa

**No, the answer is incorrect.**  
**Score: 0**

**Accepted Answers:**  
*7.43 GPa*

7) Shear modulus,  $G_{xy} = \dots\dots\dots$  (for a lamina with fibers oriented at  $60^\circ$  to X-axis) **1 point**

3.15 GPa  
 4 GPa  
 5.67 GPa  
 8.33 GPa

No, the answer is incorrect.

Score: 0

Accepted Answers:

3.15 GPa

8) Poisson ratio,  $\nu_{xy}$  = ..... (for a lamina with fibers oriented at  $45^\circ$  to X-axis)

1 point

- 0.03
- 0.03
- 0.072
- 0.072



No, the answer is incorrect.

Score: 0

Accepted Answers:

-0.072

9) Cross – Coefficient,  $M_x$  = ..... (for a lamina with fibers oriented at  $30^\circ$  to X-axis)

1 point

- 4.509
- zero
- 2.117
- 3.215



No, the answer is incorrect.

Score: 0

Accepted Answers:

3.215

10) Cross – Coefficient,  $M_y$  = ..... (for a lamina with fibers oriented at  $90^\circ$  to X-axis)

1 point

- 4.509
- zero
- 2.117
- 3.215

No, the answer is incorrect.

Score: 0

Accepted Answers:

zero

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