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Courses » Introduction To Composites

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## Unit 12 - WEEK-11

Register for  
Certification exam

### Course outline

How to access  
the portal

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WEEK-11

Lecture 61:  
Strain  
displacement  
relations for a  
laminate

Lecture 62:  
Stress-strain  
relations for  
individual

## Assignment 11

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2019-04-17, 23:59 IST.**

1) Matrices [A], [B] and [D] are called \_\_\_\_\_ **1 point**

- extensional, coupling, and bending stiffness matrices, respectively.
- extensional, decoupling, and bending stiffness matrices, respectively.
- coupling, bending, and extensional stiffness matrices, respectively.
- None of the above.

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*extensional, coupling, and bending stiffness matrices, respectively.*

2) Each stress component in a laminate \_\_\_\_\_ of the laminate. **1 point**

- varies linearly
- is discontinuous across adjacent layer, but linear within a layer
- is constant
- None of these

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*is discontinuous across adjacent layer, but linear within a layer*

3) Which one of the following assumptions does not relate to the classical lamination theory? **1 point**

- Each lamina is orthotropic and in a state of plane stress.
- Thickness of laminate is equal to sum of thickness of all individual layers.
- Each lamina is elastic.
- Slip may occur between lamina interfaces.

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Relations between force and moment resultants and mid-plane strains and curvatures

Lecture 65: Physical significance of extensional stiffness matrix [A], coupling matrix [B] and bending stiffness matrix [D] matrices

Lecture 66: Lamination sequence (standard laminate code)

Quiz : Assignment 11

Introduction To Composites : Feedback For Week 11

Assignment 11 Solution

## WEEK 12

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## Interaction Session

- ce De a). Thickness of laminate is equal to sum of thickness of all individual layers.  
b). Bond between two layers is perfectly rigid.

- Only a is true  
 Only b is true  
 Both a and b are true  
 None of these are true

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

**Accepted Answers:**  
*Both a and b are true*

- 5) [0/90/90/90/0] is an example of

- an angle-ply laminate.  
 an un-symmetric laminate.  
 a cross-ply laminate.  
 None of these

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

**Accepted Answers:**  
*a cross-ply laminate.*

- 6) Which of the following laminates has a zero [B] matrix?

- [0,90].  
 [0,45].  
 [0,45,45,0].  
 [0,45, -45].

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

**Accepted Answers:**  
*[0,45,45,0].*

- 7) Non-symmetric laminates undergo \_\_\_\_\_ when subjected to thermal loads.

- warpage.  
 no warpage  
 failure  
 none of these

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

**Accepted Answers:**  
*warpage.*

- 8) The extensional stiffness matrix [A] for a laminate will not change if

- stacking sequence is changed.  
 angle of plies is changed.  
 elastic properties of the lamina are changed.  
 None of these

**No, the answer is incorrect.**



**1 point**



**1 point**

**1 point**

**1 point**

**Score: 0**

**Accepted Answers:**

*stacking sequence is changed.*

9) Mid-plane curvatures for a laminate are zero according to classical laminate theory if the **1 point**

- laminate is symmetric
- laminate is asymmetric
- laminate is symmetric and is subjected to only in-plane forces
- $D_{16} = D_{26} = 0$

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*laminate is symmetric and is subjected to only in-plane forces*

10) Which of the following laminates will not undergo bending when subjected to thermal loads? **1 point**

- [0,45, -45].
- [0,45,90,90,45,0].
- [0,30, -45].
- [0,45,90,45, -45].

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*[0,45,90,90,45,0].*

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