Assignment 06

The due date for submitting this assignment has passed. Due on 2018-09-12, 23:59 IST.
As per our records you have not submitted this assignment.

1) (Problem 1 to 5 have the same data as follow):
A semi-infinite plate is simply supported and pinned at one end, while simply supported on the roller at the other end. The plate is subjected to a uniformly distributed load of $q$ N/m$^2$.
The lamination sequence of the plate is shown in the figure.

The direction of $u^0(x)$ depends on the sign of ……..

![Lamination Sequence](image)

No, the answer is incorrect.
Score: 0
Accepted Answers: B11

2) Find the value of reduced bending stiffness $(D)_{11}$. Use the following data:

<table>
<thead>
<tr>
<th>$[A]$</th>
<th>$[B]$</th>
<th>$[D]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\begin{bmatrix} 119.6 &amp; 18.9 &amp; 0 \ 18.9 &amp; 29.6 &amp; 0 \ 0 &amp; 0 &amp; 18.9 \end{bmatrix}$</td>
<td>$\begin{bmatrix} 100.9 &amp; 0 &amp; 0 \ 0 &amp; -341 &amp; 0 \ 0 &amp; 0 &amp; 0 \end{bmatrix}$</td>
<td>$\begin{bmatrix} 571.0 &amp; 123.0 &amp; 0 \ 123.0 &amp; 181.0 &amp; 0 \ 0 &amp; 0 &amp; 123 \end{bmatrix}$</td>
</tr>
</tbody>
</table>

$\bigcirc$ 534.85

No, the answer is incorrect.
Score: 0
3) Find the value of reduced extensional stiffness \( A_{11} \). (Use data given in problem 2.)

- 534.85
- 485.88
- 101.77
- 89.63

No, the answer is incorrect.
Score: 0

4) If the lamination sequence of a plate changes from \([0_2/90_2] \) to \([90_2/0_2] \) then……

- \( u_0(x) \) will change only in magnitude.
- \( u_0(x) \) will change only in direction.
- \( u_0(x) \) will change in magnitude as well as in direction.
- \( u_0(x) \) will remain unchanged.

No, the answer is incorrect.
Score: 0

5) If higher is the value of \( B_{11} \),……

- Higher is the value of the reduced extensional stiffness but lesser is value of the reduced bending stiffness.
- Higher is the value of the reduced bending stiffness but lesser is the value of the reduced extensional stiffness.
- Higher is the value of the reduced extensional as well as reduced bending stiffness.
- Lesser is the value of the reduced extensional as well as reduced bending stiffness.

No, the answer is incorrect.
Score: 0

6) Stresses and strains can be calculated in a rectangular composite plate by using only CLT (Classical Lamination Theory) when....

- laminate is subjected to non-uniformly distributed in-plane forces and out of plane moments.
- laminate is subjected to uniformly distributed in-plane forces and out of plane moments only.
- laminate is subjected to transverse loads only.
- laminate is subjected to both uniformly distributed in-plane as well as transverse loads.

No, the answer is incorrect.
Score: 0

7) The equilibrium equations given by

- laminate is subjected to uniformly distributed in-plane forces and out of plane moments only.

No, the answer is incorrect.
Score: 0
are valid for ..........  
- only isotropic plates.
- only anisotropic plates.
- only laminated composites plates.
- All of these.

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
All of these.

8) A semi-infinite composite plate as shown in figure is subjected to a uniformly 
distributed load of 250 N/m². The length of plate is 0.8 m. Find the moment about x axis  
(Mₓ) at the middle of plate. The composite plate having [0/90]ₗ lamination sequence  
with unit thickness of each lamina.

\[
\frac{\partial M_x}{\partial x} + 2 \frac{\partial^2 M_x}{\partial x \partial y} + \frac{\partial^2 M_x}{\partial y^2} + p = 0
\]

- 4.31 N
- 20.0 N
- 80 N
- 3.66 N

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

9) The moment about y axis at middle of the plate (Mᵧ) =…… (use data given in problem 2).

- 4.31 N
- 20.0 N
- 80 N
- 3.66 N

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

10) If lamination sequence is changed from [0/90]ₗ to [0₂/90₂] in above problem  
8, value of moment (Mₓ) at the middle of the plate = ………

- 4.31 Nm
- 80 Nm
- 20.0 Nm
No, the answer is incorrect.
Score: 0
Accepted Answers:
20.0 Nm