Multiple Choice Quiz: Section 4.3: Stress-Strain Relationships for a Laminate

_____ 1. Matrix [A*] is known as the

A Pending stiffness matrix.

B Transformation matrix.

C Coupling stiffness matrix.

D Extensional compliance matrix.

_____ 2. The coupling matrix [B] is zero for

A symmetric laminates.

B all quasi isotropic laminates.

C non-symmetric laminates.

_____ 3. A typical graphite epoxy lamina with 70% FVF of 0.005 inch thickness and 1 inch width will fail at about an extensional load applied in direction of fibers

A 2000 lbs

B 1100 lbs

C 3000 lbs

D 250 pounds.

_____ 4. The following assumptions relate to the classical lamination theory **except**

A Each lamina is orthotropic.

B Each lamina is elastic.

C Slip occurs between lamina interfaces.

D The lamina is thin.

_____ 5. (A) (B) and (D) are called

A Coupling, Bending, and Extensional Stiffness matrices, respectively.

B Extensional, Bending, and Coupling Stiffness matrices, respectively.

C Extensional, Coupling, and Bending Stiffness matrices, respectively.

_____ 6. The [B] matrix for an asymmetric laminate is

A zero.

B non-zero.

_____ 7. The extensional stiffness matrix [A] for a laminate will not change if

A elastic properties of the lamina are changed.

B stacking sequence is changed.

C angle of plies is changed.

_____ 8. Under an axial load on a [20/30/30/20] laminate, the global strains vary linearly (choose all that apply).

A through the thickness of the laminate

B through the thickness of each lamina

_____ 9. For a symmetric [34/65/65/34] Graphite/epoxy laminate, the following is true under a uniaxial load applied in the global x-direction

A mid plane strains will be zero

B mid plane curvatures will be zero

_____ 10. For a symmetric [34/65/65/34] Graphite/epoxy laminate, the following is true under a twisting load applied on the face perpendicular to the x-axis.

A mid-plane curvatures will be zero

B mid-plane strains will be zero

_____ 11. Under an axial load on a [20/30/30/20] laminate, the global stresses vary linearly

A through the thickness of the laminate

B through the thickness of each lamina

_____ 12. In addition to the thickness of the laminate, the in-plane elastic moduli of a symmetric laminate are found by knowing which of the following matrices?

A coupling stiffness matrix

B bending stiffness matrix

C extensional stiffness matrix