

Code No: 58091

Set No. 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

IV B.Tech. II Sem., II Mid-Term Examinations, April-2014

ANALYSIS OF COMPOSITE STRUCTURES

Objective Exam

Name: \_\_\_\_\_ Hall Ticket No. 

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

**I. Choose the correct alternative:**

1. Shear strain in terms of displacement is given by [      ]  
(a)  $\gamma_{xy} = \frac{\partial u}{\partial y} + \frac{\partial v}{\partial x}$       (b)  $\gamma_{xy} = \frac{\partial u}{\partial y} - \frac{\partial v}{\partial x}$       (c)  $\gamma_{xy} = \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y}$       (d) none
2. According to Law of Schmid, shear stress = \_\_\_\_\_ [      ]  
(a)  $\sigma \cos \alpha$       (b)  $\sigma \cos \alpha \cos \beta$       (c)  $\sigma \cos \alpha \sin \beta$       (d) none
3. Zero degree angle lamina means fibers are parallel to \_\_\_\_\_ axis [      ]  
(a) Z      (b) y      (c) X      (d) any one
4. \_\_\_\_\_ laminate is weak against shear stress [      ]  
(a) Angle ply      (b) cross ply      (c) both      (d) none
5. Kirchhoff does not account for \_\_\_\_\_ within the layer [      ]  
(a) Shear      (b) normal      (c) both      (d) none
6. First order shear deformable theory \_\_\_\_\_ accounts for shear deformation in layers. [      ]  
(a) Kinetics      (b) all      (c) static      (d) kinematics
7. Decreasing trend of the buckling load with increase in the \_\_\_\_\_ [      ]  
(a) fiber orientation      (b) matrix      (c) both      (d) none
8. The \_\_\_\_\_ buckling load occurred for  $0^\circ$  fiber orientation. [      ]  
(a) maximum      (b) minimum      (c) half      (d) none
9. Length-to-thickness ratio increases as buckling load \_\_\_\_\_ [      ]  
(a) constant      (b) increases      (c) decreases      (d) None
10. The rate of decrease of buckling load is \_\_\_\_\_ with the rate of increase of a/t ratio. [      ]  
(a) uniform      (b) not uniform      (c) both      (d) none

Cont.....2

**II Fill in the Blanks:**

11. Anisotropic generalized hook's law \_\_\_\_\_
12. \_\_\_\_\_ Criterion is applied to anisotropic materials which posses 3 mutually orthogonal planes of symmetry at every point.
13. Laminated structure  $[0, 90]_s =$  \_\_\_\_\_
14. Lamina thickness means \_\_\_\_\_
15. \_\_\_\_\_ is only removed entirely if the laminate both balanced and symmetric about the centre line.
16. Fiber matrix shearing failure mode of uni direction ply is predicted, the material losses its \_\_\_\_\_
17. Higher order beam/plate kinematics allow for the \_\_\_\_\_ in the ply.
18. Shear strain= \_\_\_\_\_ [INTERMS OF DISPLACEMENTS]
19. \_\_\_\_\_ Manufacturing techniques imports a high degree of anisotropic to the polymers.
20. Strain energy density  $U_0 =$  \_\_\_\_\_. [in terms of stress and strain]

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Set No. 2

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

IV B.Tech. II Sem., II Mid-Term Examinations, April-2014

ANALYSIS OF COMPOSITE STRUCTURES

Objective Exam

Name: \_\_\_\_\_ Hall Ticket No. 

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

**I. Choose the correct alternative:**

1. \_\_\_\_\_ laminate is weak against shear stress [      ]  
(a) Angle ply                      (b) cross ply                      (c) both                      (d) none
2. Kirchhoff does not account for \_\_\_\_\_ within the layer [      ]  
(a) Shear                      (b) normal                      (c) both                      (d) none
3. First order shear deformable theory \_\_\_\_\_ accounts for shear deformation in layers. [      ]  
(a) Kinetics                      (b) all                      (c) static                      (d) kinematics
4. Decreasing trend of the buckling load with increase in the \_\_\_\_\_ [      ]  
(a) fiber orientation                      (b) matrix                      (c) both                      (d) none
5. The \_\_\_\_\_ buckling load occurred for  $0^\circ$  fiber orientation. [      ]  
(a) maximum                      (b) minimum                      (c) half                      (d) none
6. Length-to-thickness ratio increases as buckling load \_\_\_\_\_ [      ]  
(a) constant                      (b) increases                      (c) decreases                      (d) None
7. The rate of decrease of buckling load is \_\_\_\_\_ with the rate of increase of a/t ratio. [      ]  
(a) uniform                      (b) not uniform                      (c) both                      (d) none
8. Shear strain in terms of displacement is given by [      ]  
(a)  $\gamma_{xy} = \frac{\partial u}{\partial y} + \frac{\partial v}{\partial x}$                       (b)  $\gamma_{xy} = \frac{\partial u}{\partial y} - \frac{\partial v}{\partial x}$                       (c)  $\gamma_{xy} = \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y}$                       (d) none
9. According to Law of Schmid, shear stress = \_\_\_\_\_ [      ]  
(a)  $\sigma \cos \alpha$                       (b)  $\sigma \cos \alpha \cos \beta$                       (c)  $\sigma \cos \alpha \sin \beta$                       (d) none
10. Zero degree angle lamina means fibers are parallel to \_\_\_\_\_ axis [      ]  
(a) Z                      (b) y                      (c) X                      (d) any one

Cont.....2

**II Fill in the Blanks:**

11. Lamina thickness means \_\_\_\_\_
12. \_\_\_\_\_ is only removed entirely if the laminate both balanced and symmetric about the centre line.
13. Fiber matrix shearing failure mode of uni direction ply is predicted, the material losses its \_\_\_\_\_
14. Higher order beam/plate kinematics allow for the \_\_\_\_\_ in the ply.
15. Shear strain=\_\_\_\_\_ [INTERMS OF DISPLACEMENTS]
16. \_\_\_\_\_ Manufacturing techniques imports a high degree of anisotropic to the polymers.
17. Strain energy density  $U_0 =$ \_\_\_\_\_. [in terms of stress and strain]
18. Anisotropic generalized hook's law \_\_\_\_\_
19. \_\_\_\_\_ Criterion is applied to anisotropic materials which posses 3 mutually orthogonal planes of symmetry at every point.
20. Laminated structure  $[0, 90]_s =$  \_\_\_\_\_

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Set No. 3

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

IV B.Tech. II Sem., II Mid-Term Examinations, April-2014

ANALYSIS OF COMPOSITE STRUCTURES

Objective Exam

Name: \_\_\_\_\_ Hall Ticket No. 

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

**I. Choose the correct alternative:**

1. First order shear deformable theory \_\_\_\_\_ accounts for shear deformation in layers. [      ]  
(a) Kinetics                      (b) all                      (c) static                      (d) kinematics
2. Decreasing trend of the buckling load with increase in the \_\_\_\_\_. [      ]  
(a) fiber orientation      (b) matrix                      (c) both                      (d) none
3. The \_\_\_\_\_ buckling load occurred for  $0^\circ$  fiber orientation. [      ]  
(a) maximum                      (b) minimum                      (c) half                      (d) none
4. Length-to-thickness ratio increases as buckling load \_\_\_\_\_. [      ]  
(a) constant                      (b) increases                      (c) decreases                      (d) None
5. The rate of decrease of buckling load is \_\_\_\_\_ with the rate of increase of a/t ratio. [      ]  
(a) uniform                      (b) not uniform                      (c) both                      (d) none
6. Shear strain in terms of displacement is given by [      ]  
(a)  $\gamma_{xy} = \frac{\partial u}{\partial y} + \frac{\partial v}{\partial x}$       (b)  $\gamma_{xy} = \frac{\partial u}{\partial y} - \frac{\partial v}{\partial x}$       (c)  $\gamma_{xy} = \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y}$       (d) none
7. According to Law of Schmid, shear stress = \_\_\_\_\_. [      ]  
(a)  $\sigma \cos \alpha$                       (b)  $\sigma \cos \alpha \cos \beta$                       (c)  $\sigma \cos \alpha \sin \beta$                       (d) none
8. Zero degree angle lamina means fibers are parallel to \_\_\_\_\_ axis [      ]  
(a) Z                      (b) y                      (c) X                      (d) any one
9. \_\_\_\_\_ laminate is weak against shear stress [      ]  
(a) Angle ply                      (b) cross ply                      (c) both                      (d) none
10. Kirchhoff does not account for \_\_\_\_\_ within the layer [      ]  
(a) Shear                      (b) normal                      (c) both                      (d) none

Cont.....2

**II Fill in the Blanks:**

11. Fiber matrix shearing failure mode of uni direction ply is predicted, the material losses its \_\_\_\_\_
12. Higher order beam/plate kinematics allow for the \_\_\_\_\_ in the ply.
13. Shear strain=\_\_\_\_\_ [INTERMS OF DISPLACEMENTS]
14. \_\_\_\_\_ Manufacturing techniques imports a high degree of anisotropic to the polymers.
15. Strain energy density  $U_0$  = \_\_\_\_\_. [in terms of stress and strain]
16. Anisotropic generalized hook's law \_\_\_\_\_
17. \_\_\_\_\_ Criterion is applied to anisotropic materials which posses 3 mutually orthogonal planes of symmetry at every point.
18. Laminated structure  $[0, 90]_s$  = \_\_\_\_\_
19. Lamina thickness means \_\_\_\_\_
20. \_\_\_\_\_ is only removed entirely if the laminate both balanced and symmetric about the centre line.

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Set No. 4

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

IV B.Tech. II Sem., II Mid-Term Examinations, April-2014

ANALYSIS OF COMPOSITE STRUCTURES

Objective Exam

Name: \_\_\_\_\_ Hall Ticket No. 

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

**I. Choose the correct alternative:**

1. The \_\_\_\_\_ buckling load occurred for  $0^\circ$  fiber orientation. [      ]  
(a) maximum                      (b) minimum                      (c) half                      (d) none
2. Length-to-thickness ratio increases as buckling load \_\_\_\_\_. [      ]  
(a) constant                      (b) increases                      (c) decreases                      (d) None
3. The rate of decrease of buckling load is \_\_\_\_\_ with the rate of increase of a/t ratio. [      ]  
(a) uniform                      (b) not uniform                      (c) both                      (d) none
4. Shear strain in terms of displacement is given by [      ]  
(a)  $\gamma_{xy} = \frac{\partial u}{\partial y} + \frac{\partial v}{\partial x}$       b)  $\gamma_{xy} = \partial u / \partial y - \frac{\partial v}{\partial x}$       c)  $\gamma_{xy} = \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y}$       d) none
5. According to Law of Schmid, shear stress = \_\_\_\_\_. [      ]  
(a)  $\sigma \cos \alpha$                       (b)  $\sigma \cos \alpha \cos \beta$                       (c)  $\sigma \cos \alpha \sin \beta$                       (d) none
6. Zero degree angle lamina means fibers are parallel to \_\_\_\_\_ axis [      ]  
(a) Z                      (b) y                      (c) X                      (d) any one
7. \_\_\_\_\_ laminate is weak against shear stress [      ]  
(a) Angle ply                      (b) cross ply                      (c) both                      (d) none
8. Kirchhoff does not account for \_\_\_\_\_ within the layer [      ]  
(a) Shear                      (b) normal                      (c) both                      (d) none
9. First order shear deformable theory \_\_\_\_\_ accounts for shear deformation in layers. [      ]  
(a) Kinetics                      (b) all                      (c) static                      (d) kinematics
10. Decreasing trend of the buckling load with increase in the \_\_\_\_\_ [      ]  
(a) fiber orientation      (b) matrix                      (c) both                      (d) none

Cont.....2

**II Fill in the Blanks:**

11. Shear strain=\_\_\_\_\_ [INTERMS OF DISPLACEMENTS]
12. \_\_\_\_\_ Manufacturing techniques imports a high degree of anisotropic to the polymers.
13. Strain energy density  $U_0$  = \_\_\_\_\_. [in terms of stress and strain]
14. Anisotropic generalized hook's law \_\_\_\_\_
15. \_\_\_\_\_ Criterion is applied to anisotropic materials which posses 3 mutually orthogonal planes of symmetry at every point.
16. Laminated structure  $[0, 90]_s$  = \_\_\_\_\_
17. Lamina thickness means \_\_\_\_\_
18. \_\_\_\_\_ is only removed entirely if the laminate both balanced and symmetric about the centre line.
19. Fiber matrix shearing failure mode of uni direction ply is predicted, the material losses its \_\_\_\_\_
20. Higher order beam/plate kinematics allow for the \_\_\_\_\_ in the ply.