Unit 3 - Week 2

Assignment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-08-21, 23:59 IST.

1) Modulus of rigidity is defined as *1 point*

- Shear stress / Shear strain
- Lateral strain / longitudinal strain
- Shear stress / Axial stress
- Axial stress / Longitudinal strain

No, the answer is incorrect.
Score: 0

Accepted Answers:
Shear stress / Shear strain

2) Bulk modulus of elasticity (K) is defined as *1 point*

- Increase in volume / Volumetric strain
- Increase in volume / Longitudinal strain
- Increase in pressure / Volumetric strain
- Increase in pressure / Axial strain

No, the answer is incorrect.
Score: 0

Accepted Answers:
Increase in pressure / Volumetric strain

3) Compressibility (b) is the reciprocal *1 point*

- Modulus of elasticity
- Modulus of rigidity
- Volumetric strain of the body
- Bulk modulus of elasticity

No, the answer is incorrect.
Score: 0

Accepted Answers:
Bulk modulus of elasticity

4) Which of the following relation holds good for E, G and η of the material? *1 point*
Where, E is the Modulus of elasticity, G is the Modulus of rigidity and η is the Poisson ratio of the material.

- $E = 2G (1 + \eta)$
- $E = 3G (1 + \eta)$
- $E = 2G (1 - \eta)$
- $E = 3G (1 - \eta)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$E = 2G (1 + \eta)$

5) Which of the following relation holds good for E, K and η of the material? *1 point*
Where, E is the Modulus of elasticity, K is the Bulk modulus of elasticity and η is the Poisson ratio of the material

- $E = 2K (1- 2\eta)$
- $E = 3K (1- 2\eta)$
- $E = 2K (1 + 2\eta)$
- $E = 3K (1 + 2\eta)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$E = 3K (1- 2\eta)$

6) Which of the following statement is/are correct for Hooke's law? *1 point*
(i) According to the Hooke's law, stress is directly proportional to the strain.
(ii) Hooke's law is valid for plastic zone.

- Only i
- Only ii
- Both i and ii
- None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
Only i

7) Which of the following relation holds good for E, K and G of the material? *1 point*
Where, E is the Modulus of elasticity, K is the Bulk modulus of elasticity and G is the Modulus of rigidity of the material.

- $E = (12 KG) / (3K + G)$
- $E = (3K + G) / (12 KG)$
- $E = (3K + G) / (9 KG)$
- $E = (9KG) / (3K + G)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$E = (9KG) / (3K + G)$

8) The state of plane stress at a point is given by s_X = 200 MPa, s_Y = 100 MPa and τ_{xy} = 100 MPa. The maximum shear stress (in MPa) is *1 point*

- 111.8
- 150.1
- 180.3
- 223.6

No, the answer is incorrect.
Score: 0

Accepted Answers:
111.8

9) The state of plane stress at a point is described by $s_X = s_Y = s$ and $\tau_{xy} = 0$. The stress on the plane inclined at 45^0 to the x – plane will be *1 point*

- s
- 3s
- s/3
- 5s

No, the answer is incorrect.
Score: 0

Accepted Answers:
s

10)Strain along the direction of x is defined as *1 point*
Where, s_X, s_Y & s_Z are the normal stresses along the x, y and z direction, E & η are the Young's modulus of elasticity and Poisson ratio respectively.

- $(1/E) [s_X - \eta (s_Y - s_Z)]$
- $(1/E) [s_X - \eta (s_Y + s_Z)]$
- $(1/E) [s_X + \eta (s_Y - s_Z)]$
- $[s_X - \eta (s_Y - s_Z)]$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$(1/E) [s_X - \eta (s_Y + s_Z)]$