

Unit 2 - Week 0 : Prerequisite

Course outline
How does an NPTEL online course work?
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Assignment 0

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

Due on 2020-09-14, 23:59 IST.

- 1) The assumption that a body having same properties in all the directions at a point leads to the material being classified as

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) isotropic

1 point

- 2) If the state of the material properties is independent of their spatial coordinates then the material is called

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) homogeneous

1 point

For Questions 3 to 6 use the following:

The state of stress at a point in a deformable body is given by

$$\boldsymbol{\sigma} = \begin{bmatrix} 10 & 4 & -15 \\ 4 & 0 & -5 \\ -15 & -5 & 11 \end{bmatrix} \text{ MPa.}$$

Now consider a plane normal to which makes equal acute angles with the coordinate axis.

- 3) The hydrostatic component of the stress is MPa.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 7

1 point

- 4) The magnitude of the normal traction vector on the given plane is MPa.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) -3.7,-3.6

1 point

- 5) The magnitude of the shear component of the traction vector on the given plane is MPa.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 3.7,3.8

1 point

- 6) The magnitude of the traction vector on the given plane is MPa.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 5.2,5.3

1 point

For Questions 7 and 8 use the following:

A steel tube is subjected to hydrostatic pressure of 1.25 MPa and experiences dilatation of -7×10^{-6} . Assume Young's modulus of 210 GPa.

- 7) The Poisson's ratio of the steel tube is

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.29,0.31

1 point

- 8) The bulk modulus of the steel tube is MPa.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 173,177

1 point