Unit 9 - Week 7: Kinetics - 2

Assignment 7

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

Due on 2020-11-04, 23:59 IST.

1) Choose True/False for the following assertion: "Kirchhoff stress tensor is work conjugate with the rate of deformation tensor with respect to the current volume." *1 point*

(a) True
(b) False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b) False

2) Choose True/False for the following assertion: "The push-forward of the second Piola-Kirchhoff stress tensor to the current configuration gives the Kirchhoff stress tensor." *1 point*

(a) True
(b) False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) True

3) Choose True/False for the following assertion: "Work per unit current volume is equal to the work per unit initial volume." *1 point*

(a) True
(b) False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b) False

4) Choose True/False for the following assertion: "Work per unit mass is invariant." *1 point*

(a) True
(b) False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) True

5) Choose True/False for the following assertion: "The stress tensor work conjugate with the material rate of the stretch tensor $\boldsymbol{U}$ is the symmetric part of the tensor $\boldsymbol{SU}$." (Hint: Start with the fact that the second Piola-Kirchhoff stress tensor $\boldsymbol{S}$ is work conjugate with the material rate of Green-Lagrange strain tensor $\boldsymbol{E}$ and then substitute for $\boldsymbol{E}$ in terms of $\boldsymbol{U}$ to check.) *1 point*

(a) True
(b) False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) True

6) Choose True/False for the following assertion: "Expression for the hydrostatic pressure p is given as $p = J^{-1}\boldsymbol{P} : \boldsymbol{F}$." (Hint: Decompose $\boldsymbol{P}$ into deviatoric and hydrostatic part and then proceed) *1 point*

(a) True
(b) False

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b) False

7) The deviatoric part of the second Piola-Kirchhoff stress tensor is $\boldsymbol{orthogonal}$ to the _____ tensor.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) right cauchy-green
(Type: String) right cauchy green
(Type: String) right cauchy green tensor
(Type: String) right Cauchy-Green
(Type: String) right Cauchy Green
(Type: String) Right Cauchy Green Deformation

1 point

8) The deviatoric part of the first Piola-Kirchhoff stress tensor is $\boldsymbol{orthogonal}$ to the _____ tensor.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) deformation gradient
(Type: String) deformation-gradient tensor
(Type: String) deformation gradient tensor

1 point