Unit 6 - Week 4: Kinematics - 1

Assignment 4

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

Due on 2020-10-14, 23:59 IST.

1) An observer, sitting still in room, is observing and describing the outside world phenomenon through the window of the room. Such a description of the outside world is called the _____ description.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) spatial
(Type: String) Eulerian
(Type: String) eulerian
(Type: String) Spatial
(Type: String) spatial/Eulerian

1 point

2) Choose True/False for the following assertion: "The deformation gradient tensor maps the relative spatial position vector to the relative material position vector." ***1 point***

- (a) True.
- (b) False.

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

3) A deformation in which the components of the deformation gradient tensor are independent of the coordinates, i.e. are constant, is called a _____ deformation.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) homogeneous
(Type: String) Homogeneous

0 points

4) The determinant of the deformation gradient tensor for isochoric deformation is _____ .

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: String) 1
(Type: String) one
(Type: String) 1.0
(Type: String) One
(Type: String) unit
(Type: String) unity

1 point

5) Choose True/False for the following assertion: "Simple shear deformation is both homogeneous and isochoric." ***1 point***

- (a) True.
- (b) False.

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

6) Right polar decomposition can be understood as ***1 point***

- (a) first rotation and then deformation.
- (b) both rotation and deformation are simultaneous.
- (c) first deformation and then rotation.
- (d) none of these.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(c) first deformation and then rotation.

7) Left polar decomposition can be understood as ***1 point***

- (a) first rotation and then deformation.
- (b) both rotation and deformation are simultaneous.
- (c) first deformation and then rotation.
- (d) none of these.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) first rotation and then deformation.

8) Which of the following statements are correct. ***1 point***

- (a) The principal values of the right Cauchy-Green tensor and the right stretch tensor are same.
- (b) The principal vectors of the right Cauchy-Green tensor and the right stretch tensor are same.
- (c) The principal values of the right stretch tensor and the left stretch tensor are same.
- (d) The principal vectors of the right stretch tensor and the left stretch tensor are same.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b) The principal vectors of the right Cauchy-Green tensor and the right stretch tensor are same.
(c) The principal values of the right stretch tensor and the left stretch tensor are same.

9) Stretch is defined as the ***1 point***

- (a) ratio of change in length of an element to its original length.
- (b) ratio of final length to original length.
- (c) ratio of original length to final length.
- (d) ratio of change in length of an element to its final length.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(b) ratio of final length to original length.

10) Fill in the blanks: In solid mechanics usually _____ description is followed while in fluid mechanics _____ description is preferred. ***1 point***

- (a) Lagrangian; Eulerian
- (b) spatial; material
- (c) material; spatial
- (d) Eulerian; Lagrangian

No, the answer is incorrect.
Score: 0
Accepted Answers:
(a) Lagrangian; Eulerian
(c) material; spatial