X

NPTEL

Unit 4 - Week 2: Modeling of flexures and finite element analysis

Assignment Week 2

The due date for submitting this assignment has passed. Due on 2018-02-07, 23:59 IST.
As per our records you have not submitted this assignment.

1) Precision flexure mechanism has *1 point*

- Discrete compliance.
- Distributed compliance.
- Both.
- None.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Discrete compliance.

2) The right order to be followed while formulating a beam finite element model of a compliant mechanism is *1 point*

1. Determining beam cross-sections
2. Implement the FEA code
3. Identifying the nodes
4. Identifying the elastic segments

- 1-2-3-4
- 4-3-1-2
- 3-4-1-2
- 4-1-3-2

No, the answer is incorrect.
Score: 0

Accepted Answers:
3-4-1-2

3) Nonlinearity in elastic bodies cannot arise solely due to *1 point*

- Contact
- Large rotations
- Initial geometry of the elastic member
- Large strains

No, the answer is incorrect.
Score: 0

Accepted Answers:
Initial geometry of the elastic member

4) A good compliant revolute joint is expected to have the following primary characteristic? *1 point*

- Low axis-drift
- Large range of motion
- Low stress concentrations
- High ratio of on-axis to off-axis stiffness

No, the answer is incorrect.
Score: 0

Accepted Answers:
High ratio of on-axis to off-axis stiffness

5) Multi-axis compliance matrix of a compliant mechanism is a ***1 point***

- Triangular matrix
- Diagonal matrix
- Symmetric matrix
- Skew symmetric matrix

No, the answer is incorrect.
Score: 0

Accepted Answers:
Symmetric matrix

6) If you were to assemble the compliant crimper shown in the figure with the compliant mechanism kit, the minimum number of semi-rigid connectors you would need is ***1 point***

- 8
- 9
- 10
- 11

No, the answer is incorrect.
Score: 0

Accepted Answers:
10

7) During nonlinear deformation of a cantilever beam with an end load, stress stiffening can occur due to ***1 point***

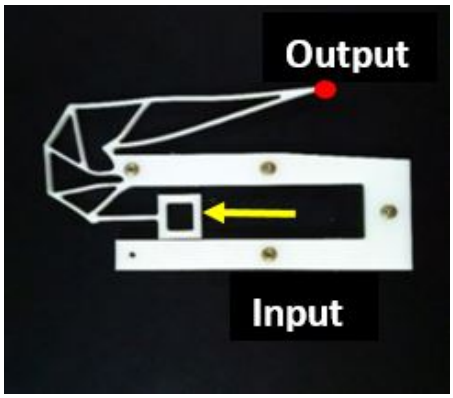
1. Axial deformation.
2. Large transverse deformation.

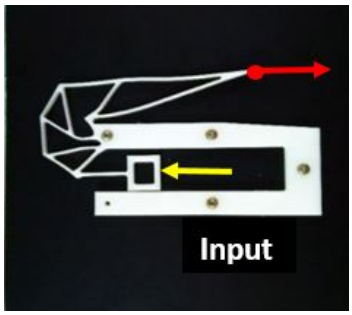
- Only 1.
- Only 2.
- Both 1 and 2
- Neither 1 nor 2.

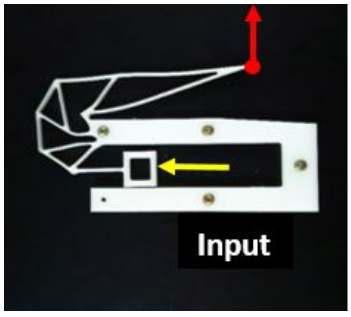
No, the answer is incorrect.
Score: 0

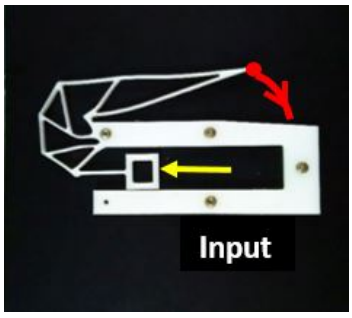
Accepted Answers:
Both 1 and 2

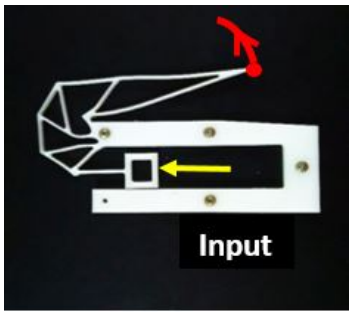
8) Identify the direction of the output for the given compliant mechanism, if the input is as shown in the figure ***1 point***





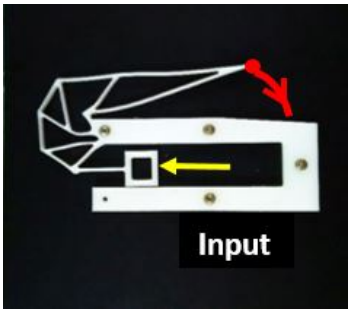






No, the answer is incorrect.
Score: 0

Accepted Answers:



9) Which of the following is NOT a 1-DoF elastic rotational pair? *1 point*

- Split-tube flexure
- Cruciform flexure
- Spherical notch joint
- Bendix joint

No, the answer is incorrect.
Score: 0

Accepted Answers:
Spherical notch joint

10) A circular flexure hinge undergoes a rotation of 45 degrees. Which of the following is most reliable to compute its compliance? *1 point*

- Mitosis method
- Nonlinear finite element analysis.
- Paros and Weisbord's empirical relations.
- Smith et al.'s empirical rotational compliance equation.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Nonlinear finite element analysis.

Previous Page End

© 2014 NPTEL - Privacy & Terms - Honor Code - FAQs -

A project of

NPTEL National Programme on Technology Enhanced Learning

In association with

NASSCOM®

Funded by

Government of India
Ministry of Human Resource Development

Powered by

Google