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Courses » **Compliant Mechanisms : Principles and Design**

Announcements   **Course**   Ask a Question   Progress

Unit 13 - Week 11: Compliant mechanisms and microsystems; materials and prototyping of compliant mechanisms

Course outline

How to access the home page?

Assignment 0

Week 1: Overview of compliant mechanisms; mobility analysis.

Week 2: Modeling of flexures and finite element analysis

Week 3: Large-displacement analysis of a cantilever beam and pseudo rigid-body modeling

Week 4: Analysis and synthesis using pseudo rigid-body models

Week 5: Structural optimization approach to "design for deflection" of compliant mechanisms

Week 6: Designing compliant mechanisms using continuum topology optimization; distributed compliance

Week 7: Spring-lever (SL) and spring-mass-lever (SML) models for compliant mechanisms, and selection maps
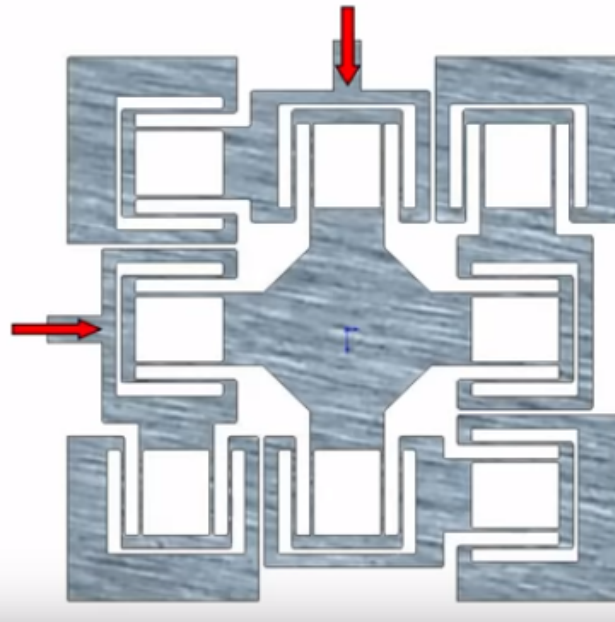
Assignment Week 11

The due date for submitting this assignment has passed.   **Due on 2018-04-11, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Identify under what classification the following compliant mechanism falls.   *1 point*

○ Displacement-amplifying mechanism
○ Suspension mechanism
○ X and Y de-coupler mechanism
○ Both B and C

No, the answer is incorrect.
Score: 0

Accepted Answers:
Both B and C

2) Identify the incorrect statement among the following   *1 point*

○ Tuning of stiffness of compliant mechanism is possible with the help of contact aided compliant mechanism.
○ Anisotropy can be used to make new compliant mechanisms.
○ It is not possible to obtain non-smooth response from smooth actuation.
○ Compliant mechanism can be used for signal processing and logic gates.

No, the answer is incorrect.
Score: 0

Accepted Answers:

It is not possible to obtain non-smooth response from smooth actuation.

3) Which of the following, if used in micromachined accelerometer design, enhances sensitivity and resolution?　　　**1 point**

○ Compliant suspension

○ Displacement amplifying compliant mechanism
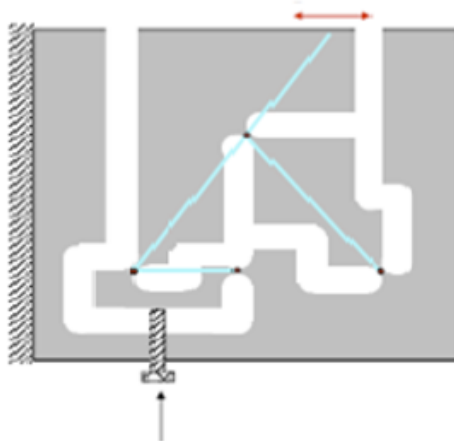
○ Contact aided compliant mechanism

○ None of these

No, the answer is incorrect.
Score: 0

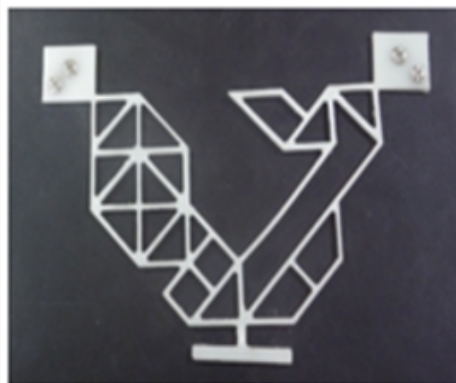**Accepted Answers:**
Displacement amplifying compliant mechanism

4) Which of the following is a distributed compliant mechanism?　　　**1 point**

I

II

III

IV

○ I

○ II

○ III

○ IV

No, the answer is incorrect.
Score: 0

Accepted Answers:
III

5) Assertion: Displacement amplifying compliant mechanisms improves the resolution of MEMS accelerometers.　　　**1 point**

　　Reasoning: Thermo-mechanical noise is significantly less compared to electronic noise.

○ Assertion is correct but not the reasoning.

○ Assertion is incorrect but the reasoning is correct.

○ Assertion and reasoning are both correct.

Operations

MATLAB:
Advanced Topics

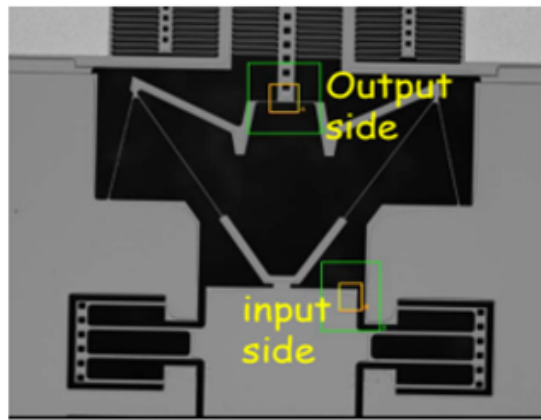○ Neither the assertion nor the reasoning is correct.

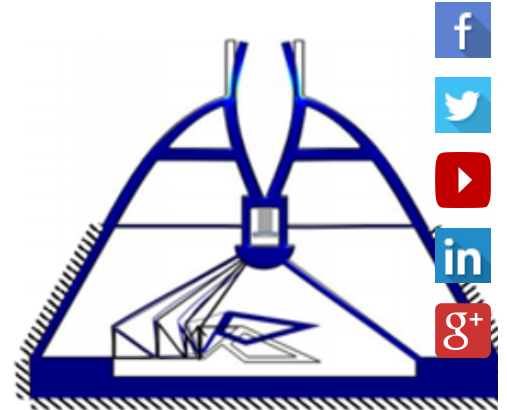**No, the answer is incorrect.**
Score: 0

Accepted Answers:
Assertion and reasoning are both correct.
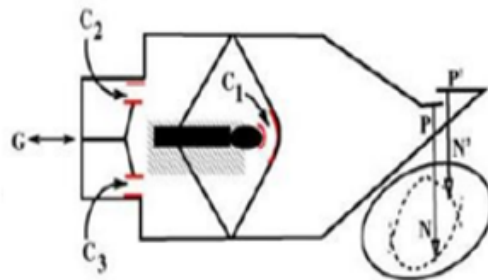
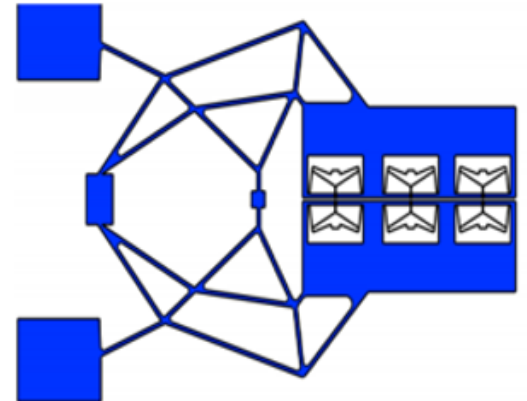6) Which among these does not fall under the category of a composite compliant mechanism?   *1 point*

I.

II.

III.

IV.

○ I
○ II
○ III
○ IV

No, the answer is incorrect.
Score: 0

Accepted Answers:
III

7) Which of the following statements is true for this compliant mechanism design technique: Pseudo   *1 point*
Rigid Body Model?

○ Minimal user involvement in required.
○ Can be used in synthesis problem involving function generation.
○ Feasibility study for given user specifications.
○ Mostly depends on user's creativity and intuition.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Can be used in synthesis problem involving function generation.

8) Which of the following statements is true for this compliant mechanism design technique: Spring Lever/ Spring Mass Lever Model? *1 point*

○ Minimal user involvement in required.

○ Can be used in synthesis problem involving function generation.

○ Feasibility study for given user specifications.

○ Mostly depends on user's creativity and intuition.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Feasibility study for given user specifications.

9) Which of the following statements is true for this compliant mechanism design technique: Topology Optimization? *1 point*

○ Minimal user involvement in required.

○ Can be used in synthesis problem involving function generation.

○ Feasibility study for given user specifications.

○ Mostly depends on user's creativity and intuition.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Minimal user involvement in required.

10) Which of the following statements is true for this compliant mechanism design technique: Building-block method? *1 point*

○ Minimal user involvement in required.

○ Can be used in synthesis problem involving function generation.

○ Feasibility study for given user specifications.

○ Mostly depends on user's creativity and intuition.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Mostly depends on user's creativity and intuition.

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