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Continuing Education Course #320
What Every Engineer Should Know
About Systems Engineering

1. Every engineer should know that their discipline can be modeled as _____, where design decisions can hinder the operation of other systems, therefore impacting the overall system.
 - a. a system
 - b. an individual component
 - c. a separate entity
 - d. an isolated entity
2. Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems.
 - a. True
 - b. False
3. My case study of systems impacting other systems involves which of the following?
 - a. Structural Interferes with Electrical
 - b. Mechanical Interferes with Plumbing
 - c. Plumbing Interferes with Mechanical
 - d. Electrical Interferes with Sound
4. Spacecraft structures, like the Magnetospheric Multiscale (MMS), must account for forces created by other systems, such as those encountered during launch from which of the following?
 - a. heat shield
 - b. rocket stages
 - c. main engine
 - d. pyrotechnic
 - e. all of the above
5. Spacecraft loading conditions are most intense _____.
 - a. during testing
 - b. while under construction
 - c. while in space
 - d. during the launch sequence
6. If thermal stresses are imposed on a spacecraft's _____ appendage such as a gravity gradient boom, the spacecraft's attitude (orientation) can become greatly degraded due to boom deformations or oscillations.
 - a. structural
 - b. mechanical
 - c. electrical
 - d. propulsion

7. Bending or deformation (aka thermal flexing) of a spacecraft's _____ can cause destabilizing torques which reduce pointing accuracy and can lead to attitude inversion (i.e. the satellite is upside down).

- a. gravity gradient boom
- b. solar panels
- c. deck
- d. antenna

8. The Polar BEAR case study involves which of the following?

- a. Electrical Impacts Mechanical
- b. Structural Impacted by Launch Systems
- c. Structural Impacts Mechanical
- d. Electrical Interferes with Sound

9. The Apollo 13 case study involves which of the following?

- a. Electrical Impacts Mechanical
- b. Structural Impacted by Launch Systems
- c. Structural Impacts Mechanical
- d. Electrical Interferes with Sound

10. Which of the following are systems engineering recommendations for you?

- a. Adding systems engineering items to your design checklist
- b. Examining your systems engineering case study and adding unique design checklist items
- c. Visiting your design checklist weekly
- d. all of the above

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