Fundamentals of Earthquake Engineering for Building Structures
Session 2: Dynamics and response – February 22, 2021
Due: March 22, 2021, 8:00 am EDT – Submit through the online form

Pick the best answer.

1) Structural dynamic characteristics arise out of the structure's
   a) Mass
   b) Stiffness
   c) Damping
   d) All of the above

2) Increasing the structural stiffness
   a) Decreases the period
   b) Increases the period
   c) Does not affect the period

3) Damping
   a) Decreases displacement but increases acceleration
   b) Decreases acceleration but increases displacement
   c) Decreases both acceleration and displacement

4) Resonance occurs
   a) If the period of an oscillating force is greater than the period of the structure
   b) If the period of an oscillating force is less than the period of the structure
   c) If the period of an oscillating force is near the period of the structure

5) In general a seismic acceleration response spectrum
   a) Shows higher accelerations for lower-period structures
   b) Shows accelerations greater than the peak-ground acceleration for low-period structures
   c) Both A and B
   d) Neither A nor B

6) In general a seismic displacement response spectrum
   a) Shows higher displacement for lower-period structures
   b) Shows lower displacement for lower-period structures

Fundamentals of Earthquake Engineering for Building Structures
Session 2: Dynamics and response – February 22, 2021
Due: March 22, 2021, 8:00 am EDT – Submit through the online form

7) Inelasticity
   a) Lengthens the period
   b) Increases damping
   c) Both A and B
   d) Neither A nor B

8) True or False: Inelasticity in a structure increases acceleration.
   a) True
   b) False

9) Increasing post-yield stiffness
   a) Increases acceleration
   b) Decreases displacement
   c) Both A and B
   d) Neither A nor B

10) Ductility can mean
   a) Inelastic displacement demand on a structure
   b) Structural damage
   c) Inelastic displacement capacity of a structure
   d) Aren't A and B the same?
   e) All of the above.

11) Bonus question: The tripartite spectrum
   a) Graphs period versus displacement, pseudo velocity, and pseudo acceleration
   b) I thought you said this wasn't going to be on the exam!