Unit 3 - Week 2: Dynamic Properties and Selection of Materials

Assignment 2

The due date for submitting this assignment has passed. Due on 2018-02-21, 23:59 IST.
As per our records you have not submitted this assignment.

1) In a hysteretic damping system, \( \alpha = 3.14 \times 10^{-2} \) and the excitation frequency is 10 rad/s, then the equivalent damping constant will be

- 0.001
- 0.01
- 3.14
- 31.4

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.001

2) The loss factor for a material whose loss modulus and storage modulus is same will be

- 0.1 - 5 GPa
- 1
- 200 - 500 GPa
- 45

No, the answer is incorrect.
Score: 0
Accepted Answers:
1

3) Hysteretic damping coefficient is used for

- Measuring vortex induced vibration
- Active vibration control
- Vibration isolator
- Structural damping

No, the answer is incorrect.
Score: 0
Accepted Answers:
Structural damping

4) Energy dissipation in viscous damping

- Varies directly with square of amplitude
- Varies inversely with the frequency
- Varies inversely with damping

Score: 1 point
26/07/2020

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- Varies directly with amplitude
  
  **No, the answer is incorrect.**
  
  **Score: 0**
  
  **Accepted Answers:**
  
  Varies directly with square of amplitude
  
  5) A vibrating system is dissipating energy at the rate of 0.01 J per ten cycle. Maximum potential energy of system is 10 J. The loss factor for the system is
  
  - 0.001
  - 0.1
  - 0.011
  - 0.0001
  
  **No, the answer is incorrect.**
  
  **Score: 0**
  
  **Accepted Answers:**
  
  0.0001
  
  6) Find the wrong fact about tanδ
  
  - δ ranges between 0 to 90 degree
  - As it approaches 0 degree, it shows purely elastic behaviour
  - As it approaches 90 degree, it shows purely viscous flow behaviour
  - As it approaches 90 degree, elastic modulus increases steeply
  
  **No, the answer is incorrect.**
  
  **Score: 0**
  
  **Accepted Answers:**
  
  As it approaches 90 degree, elastic modulus increases steeply
  
  7) What is the correct set of parameter for Kelvin-Voight model in terms of Standard Linear Solid Model?
  
  - \( a_0 = 1, a_1 = 1, b_0 = E, b_1 = 0 \)
  - \( a_0 = 0, a_1 = 0, b_0 = E, b_1 = \eta \)
  - \( a_0 = 1, a_1 = 0, b_0 = E, b_1 = \eta \)
  - \( a_0 = 1, a_1 = 0, b_0 = E, b_1 = 0 \)
  
  **No, the answer is incorrect.**
  
  **Score: 0**
  
  **Accepted Answers:**
  
  \( a_0 = 1, a_1 = 0, b_0 = E, b_1 = \eta \)
  
  8) A Coulomb friction model has excitation frequency of 7 rad/s, displacement amplitude 1 m and excitation force amplitude of 44 N. The equivalent viscous damping coefficient is
  
  - 24 N-s/m
  - 0.8 N-s/m
  - 1 N-s/m
  - 8 N-s/m
  
  **No, the answer is incorrect.**
  
  **Score: 0**
  
  **Accepted Answers:**
  
  8 N-s/m
  
  9) Critical frequency in a viscoelastic material
  
  - Indicates the frequency corresponding to the highest loss factor

https://onlinecourses-archive.nptel.ac.in/noc18_me07/unit?unit=13&assessment=39
1. Indicates the frequency corresponding to the highest storage modulus
2. Indicates the frequency corresponding to rubbery flow
3. Indicates structural resonance

No, the answer is incorrect.
Score: 0

Accepted Answers:
Indicates the frequency corresponding to the highest loss factor

10. Find the correct fact about the creep recovery response in Maxwell model subjected to stress

No, the answer is incorrect.
Score: 0

Accepted Answers:
The spring deforms immediately and later the dashpot deforms