VIB : Vibration damping

Number of participants: 15

1. If the damping in a structure is doubled, the level of vibration when it is excited at resonance is

11 correct answers
out of 13 respondents

	multiplied by 2	0%	0 votes
✔	divided by 2	85%	11 votes
	not changed	0%	0 votes
	multiplied by 4	0%	0 votes
	divided by 4	15%	2 votes

2. If the damping of a structure is doubled, the level of vibrations when the structured is excited away from the resonances is

5 correct answers
out of 11 respondents

	divided by 2	18%	2 votes
	divided by 4	18%	2 votes
✔	not changed	45%	5 votes
	multiplied by 2	18%	2 votes
	multiplied by 4	0%	0 votes

3. In civil and mechanical engineering, a typical value of global damping factors for structures is

6 correct answers
out of 13 respondents

✔	0.01	46%	6 votes
	0.001	23%	3 votes
	0.1	31%	4 votes
	1	0%	0 votes

4. When using a loss factor for the materials to represent damping in a structure made of a single material, the damping coefficient is

3 correct answers
out of 12 respondents

✔	constant for all modes	25%	3 votes
	linearly increasing with the frequency of the mode	50%	6 votes
	inversely proportional to the frequency of the mode	25%	3 votes

5. Cite two methods which allow to determine the damping of the first mode of a structure. Which one can be used to estimate the damping of higher modes as well ?

1 correct answer
out of 3 respondents

Half- power

Time domain and frequency domain

Logarithmic decrement method

Correct answer

Logarithmic decrement method

6. What is the difference between constrained and unconstrained layer damping treatment ?

0 correct answer
out of 1 respondent

Shear

Correct answer

Unconstrained layer damping uses the material to damp in extensional mode only, while constraining with an upper layer makes the material also dissipate energy due to shear strains.

7. Explain why the grey line crosses the black curve exactly at w/wn=1 ?

0 correct answer
out of 2 respondents

We anly want the actual damping at natural frequency of the material

So that the equivalent viscous damper is specifically correct at the natural frequency

Correct answer

Because as the damping is only making a difference around the natural frequency of the system, it is only important that the equivalent curve matches the real one around these frequencies