VIB : Finite Elements

Number of participants: 25

1. A finite element model with N degrees of freedom has

14 correct answers out of 18 respondents

✔	N eigenfrequencies and mode shapes	78%	14 votes
	2N eigenfrequencies and mode shapes	6%	1 vote
	an infinity number of eigenfrequencies and mode shapes	17%	3 votes
	It depends on the frequency band and location of the excitation	0%	0 votes

2. The damping matrix for Rayleigh damping is given by

13 correct answers out of 15 respondents

	C = constant	7%	1 vote

✔	C = alpha K + beta M	87%	13 votes
	C = alpha omega K	7%	1 vote

3. For a global viscous damping model, the modal damping coefficient is

9 correct answers out of 14 respondents

✔	linearly proportional to the frequency	64%	9 votes
	inversely proportional to the frequency	21%	3 votes
	independent of the frequency	14%	2 votes

4. The use of a constant material loss factor for damping leads to modal damping coefficients

3 correct answers out of 7 respondents

	which depend linearly on the frequency and the loss factor	43%	3 votes
✔	which are constant with the frequency equal to the loss factor divided by 2	43%	3 votes

	which evolve with the square of the frequency and proportionally to the loss factor	14%	1 vote

5. If a structure is made of a single material with a loss factor eta=0.02, the modal damping coefficient for all modes is equal to

0 correct answer
out of 0 respondent

	0.02	0%	0 votes
✔	0.01	0%	0 votes
	0.05	0%	0 votes

6. When using local damping models

1 correct answer
out of 5 respondents

	the damping matrix in the modal domain remains diagonal	40%	2 votes
✔	the damping matrix in the modal domain is not diagonal	20%	1 vote

7. For structures which undergo base excitation, the mode shapes are computed

1 correct answer
out of 0 respondent

	the damping matrix can be made diagonal if the damping is small	80%	4 votes
✔	damping can be neglected when solving the equations of motion	0%	0 votes
	With the DOFS fixed where the acceleration is imposed	0%	0 votes
	In free-free boundary conditions	0%	0 votes