DOS : Finite Elements

Number of participants: 16

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

11 correct answers
out of 12 respondents

✓	N eigenfrequencies and mode shapes	92%	11 votes
	2N eigenfrequencies and mode shapes	8%	1 vote
	an infinity number of eigenfrequencies and mode shapes	0%	0 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

11 correct answers
out of 12 respondents

	C = constant	8%	1 vote
✓	C = alpha K + beta M	92%	11 votes
	C = alpha omega K	0%	0 votes

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

5 correct answers
out of 11 respondents

✓	linearly proportional to the frequency	45%	5 votes
	inversely proportional to the frequency	18%	2 votes
	independent of the frequency	36%	4 votes

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

4 correct answers
out of 5 respondents

	which depend linearly on the frequency and the loss factor	0%	0 votes
✓	which are constant with the frequency equal to the loss factor divided by 2	80%	4 votes
	which evolve with the square of the frequency and proportionally to the loss factor	20%	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

8 correct answers
out of 9 respondents

	0.02	11%	1 vote
✓	0.01	89%	8 votes
	0.05	0%	0 votes

6. When using local damping models

3 correct answers
out of 9 respondents

	the damping matrix in the modal domain remains diagonal	0%	0 votes
✓	the damping matrix in the modal domain is not diagonal	78%	7 votes
✓	the damping matrix can be made diagonal if the damping is small	56%	5 votes
	damping can be neglected when solving the equations of motion	11%	1 vote

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

10 correct answers
out of 11 respondents

✓	With the DOFS fixed where the acceleration is imposed	91%	10 votes
	In free-free boundary conditions	9%	1 vote