

VIB : Finite Elements

Number of participants: 29



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

18 correct answers
out of 22 respondents



N eigenfrequencies
and mode shapes



18 votes

$2N$
eigenfrequencies
and mode shapes



1 vote

an infinity number
of eigenfrequencies
and mode shapes



0 votes

It depends on the
frequency band and
location of the
excitation



3 votes



2. The damping matrix for Rayleigh damping is given by

19 correct answers
out of 19 respondents

C = constant

0%

0 votes



C = alpha K + beta M

100%

19 votes

C = alpha omega K

0%

0 votes



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

8 correct answers
out of 19 respondents



linearly
proportional to the
frequency

42%

8 votes

inversely
proportional to the
frequency

26%

5 votes

independent of the
frequency

32%

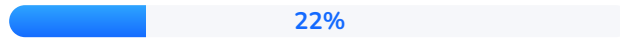
6 votes



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

11 correct answers
out of 18 respondents

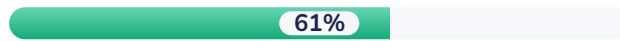
which depend linearly on the frequency and the loss factor



4 votes



which are constant with the frequency equal to the loss factor divided by 2



11 votes

which evolve with the square of the frequency and proportionally to the loss factor



3 votes



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

16 correct answers
out of 16 respondents

0.02



0 votes



0.01



16 votes

0.05



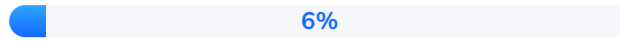
0 votes



6. When using local damping models

4 correct answers
out of 16 respondents

the damping matrix in the modal domain remains diagonal



1 vote



the damping matrix in the modal domain is not diagonal



9 votes



the damping matrix can be made diagonal if the damping is small



10 votes

damping can be neglected when solving the equations of motion



0 votes



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

17 correct answers
out of 22 respondents



With the DOFS fixed where the acceleration is imposed



17 votes

In free-free boundary conditions



5 votes