

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

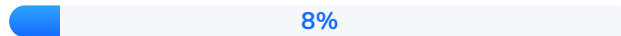


N eigenfrequencies
and mode shapes



11 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



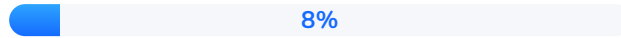
0 votes



2. The damping matrix for Rayleigh damping is given by

11 correct answers
out of 12 respondents

C = constant



1 vote



C = alpha K + beta M



11 votes

C = alpha omega K



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



5 votes

inversely
proportional to the
frequency



2 votes

independent of the
frequency



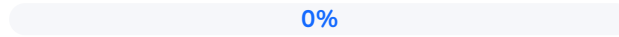
4 votes

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 votes



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



4 votes

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



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

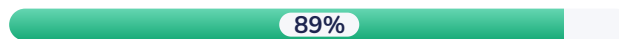
0.02



1 vote



0.01



8 votes

0.05



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