DOS : Continuous systems

Number of participants: 0

1. A continuous system has

0 correct answer
out of 0 respondent

	as many eigenfrequencies as there are joints in the structure	0%	0 votes
✓	an infinite number of eigenfrequencies	0%	0 votes
	it depends on the frequency band of the excitation signal	0%	0 votes

2. Can you match the boundary condition type for these real world structures

0 respondent

Lower control arm of a car

0 respondent

1 — C

Hinged

Bridge support

0 respondent

2 — A

Rolling

Wind turbine

0 respondent

3 — B

Clamped

3. If the length of a bar is divided by 4, its natural frequency corresponding to traction-compression modes is

0 correct answer
out of 0 respondent

	divided by 2	0%	0 votes
	multiplied by 2	0%	0 votes
✓	multiplied by 4	0%	0 votes
	divided by 4	0%	0 votes

4. If the length of a beam is divided by 2, its first natural frequency corresponding to a bending mode shape is

0 correct answer
out of 0 respondent

	divided by 2	0%	0 votes
	multiplied by 2	0%	0 votes
✓	multiplied by 4	0%	0 votes
	divided by 4	0%	0 votes

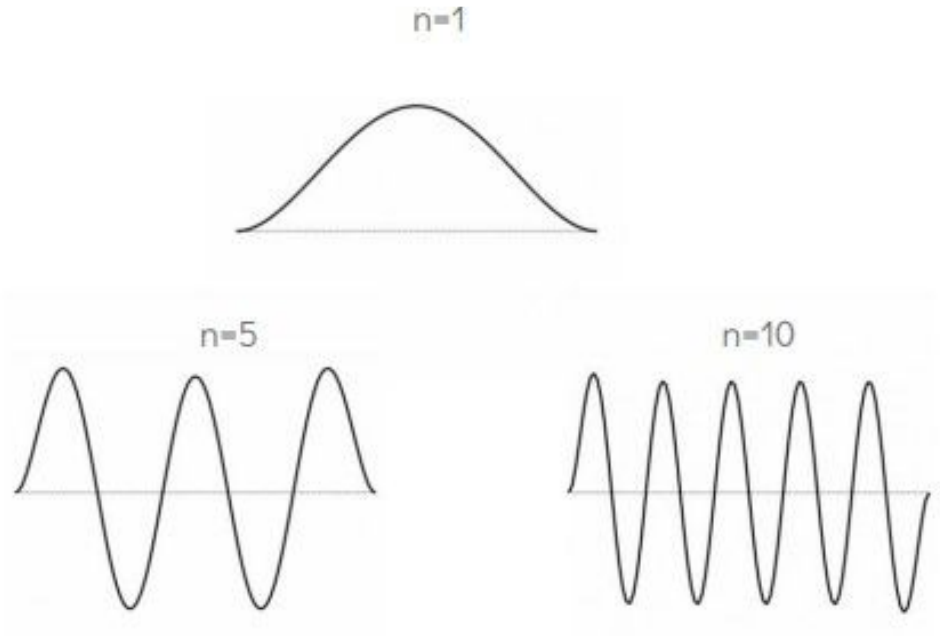
5. If the stiffness of a beam is multiplied by 4, its natural frequencies are

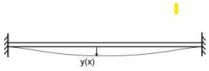
0 correct answer
out of 0 respondent

	multiplied by 4	0%	0 votes
✓	multiplied by 2	0%	0 votes
	divided by 2	0%	0 votes
	multiplied by 16	0%	0 votes

6. From which kind of continuous system are these the modeshapes?

0 correct answer
out of 0 respondent



	A simply supported beam	0%	0 votes
	A cantilevered beam	0%	0 votes
	A double cantilevered beam	0%	0 votes

7. Modal truncation consists in

0 correct answer
out of 0 respondent

✓	computing the response of a system using only the modes which are excited by the external forces	0%	0 votes
	computing the response of a system using only the first 5 modes	0%	0 votes
	using a truncation of the Fourier series of the excitation signal	0%	0 votes

8. When we truncate, what error do we introduce?

0 correct answer
out of 0 respondent

	We change the number of resonance frequencies in the frequency band of interest	0%	0 votes
	We change the frequencies of the first 5 modes	0%	0 votes
✓	We ignore the influence of out-of-band modes in the frequency band of interest	0%	0 votes

9. When performing modal truncation, the usual practice consists in

0 correct answer
out of 0 respondent

	taking strictly the number of modes present in the frequency band of interest	0%	0 votes
✓	taking the number of modes in the band [0 1.5*wmax] where wmax is the max frequency of the band of interest	0%	0 votes
	taking the number of modes in the band [0 wmax/1.5] where wmax is the max frequency of the band of interest	0%	0 votes

10. Consider a bar for which the ten first natural frequencies are at 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 Hz. You wish to compute the response using the truncation in the modal basis, from 0 to 5 Hz. How many modes should you use ?

0 correct answer
out of 0 respondent

	5 modes	0%	0 votes
	10 modes	0%	0 votes
✓	8 modes	0%	0 votes