

# Oral exam Questions

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# Rang 18 - 25 exam

## Questions :

20 → stability of 1 dof system subjected to a force field  
axial vibration of a beam ✓

24 → bending vibration of a beam ✓  
stability of 2 dof systems subjected to positional force field

25.2 → Bending vibration of a beam ✓  
stability of a wheel rail

24.4 → Torsional vibration of a beam ✓  
stability of rail/wheel wheel set

23 → Describe a system subjected to 3rd order non linearity ✓  
stability of a vehicle in a curve.

25.9 → describe a system subjected to 3rd order non linearity ✓  
stability of a vehicle in a curve

25.9 → non linear vibration with external force ✓  
stability of a wheel rail

23.9 → bending vibrations ✓  
stability of a 2 dof system subjected to positional force field

23.7 → forced motion in non linear vibrations  
stability of a vehicle in a curve ✓

23.9 → mode super imposition principle for distributed parameter  
stability of a train ✓

24.1 → mode super imposition principle for distributed parameter  
gear work ✓

24.3 → Equation of motion of 1 dof system with cubic nonlinearity (only free motion) ✓  
Stability of a rail wheelset

20.8 → Torsional vibrations of Beams ✓  
stability of 1Dof subjected to a force field

23.9 → positionned force field in 2d  
nonlinear vibratory forced motion ✓

22.1 → Dynamics of ground vehicles  
nonlinear vibrations - Free motion ✓

22 →

stability of 1 DEF system  
torsion in beams ✓

21 →

Torsional vibrations of beams ✓  
stability of a railway wheelset

20. →

modal super imposition principle for distributed  
parameter systems + stability of a railway  
wheelset