

Unit 6 - Week 4

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Week 4

Classical Mechanics: L21: Triatomic molecule normal coordinates

Classical Mechanics: L22: Coupled pendulums, normal modes

Classical Mechanics: L23: Coupled pendulums, Beats

Classical Mechanics: L24: Oscillations, General solution

Classical Mechanics: L25: Forced oscillations

Classical Mechanics: L26: Damped oscillations

Classical Mechanics: L27: Forced Damped oscillations

Week 4 Feedback Form : Introduction to Classical Mechanics

Quiz : Assignment 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Live session

Video Download

Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-10-14, 23:59 IST.

1) Which of the following statements is correct: When a molecule is vibrating in a normal mode then

2 points

- all the atoms oscillate at the same frequency but some may remain stationary
- all atoms oscillate at different frequencies

No, the answer is incorrect.
Score: 0

Accepted Answers:
all the atoms oscillate at the same frequency but some may remain stationary

2) If the middle atom of a linear tri-atomic molecule is taken to be infinitely massive then in this limit both the longitudinal modes

2 points

- have same frequency
- symmetric mode has higher frequency
- asymmetric mode has higher frequency

No, the answer is incorrect.
Score: 0

Accepted Answers:
have same frequency

3) Let ω_s represent frequency of the symmetric mode of a linear tri-atomic molecule in which all the atoms have equal mass (say m). If ω represents frequency of a diatomic molecule whose atoms have the same masses (m) as that of the above tri-atomic molecule then the ratio ω_s/ω is equal to

6 points

Take all the spring constants to be equal.

- 1
- $\sqrt{2}$
- $1/\sqrt{2}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $1/\sqrt{2}$