

# MASSACHUSETTS INSTITUTE OF TECHNOLOGY

DEPARTMENT OF OCEAN ENGINEERING

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

## 13.013J/1.053J Dynamics and Vibration

Fall 2002

Problem Set 6

Issued: Day 15

Due: 11 am, Day 17

- (a) Problem 5.20
- (b) Problem 5.25
- (c) Problem 5.27
- (d) Problem 5.32
- (e) Problem 5.40

Solve all these problems with both the direct method of chapter 4, (ie the momentum formulation) and the indirect method (ie the variational or Lagrange method) of chapter 5. Please derive the nonlinear equations of motion, and then simplify them by providing their linearized form.

- (f) The supplementary problem of problem set 5 is due with problem set 6.
- (g) Self Evaluation in another sheet as per the instructions in the first class.

All students are supposed to work on all the problems assigned.