

King Fahd University of Petroleum & Minerals

Department of Civil Engineering

CE 201 – Static

Semester: 111
Examination: Second Major
Date (Day): December 6, 2011 (Tuesday)
Time: 07:00 – 09:00 p.m.

Section	1 & 6	2 & 5	3	4 & 13	7	8	9	10	11	12
Instructor	Tayyib	Mandil	Qahtani	Hussein	Chowdhury	Qadhib	Amoudi	Shamshad	Malack	Arifulzaman
Time	07:00 & 10:00	08:00 & 10:00	09:00	08:00 & 07:00	10:00	11:00	11:00	13:10	07:00	09:00
Tick										

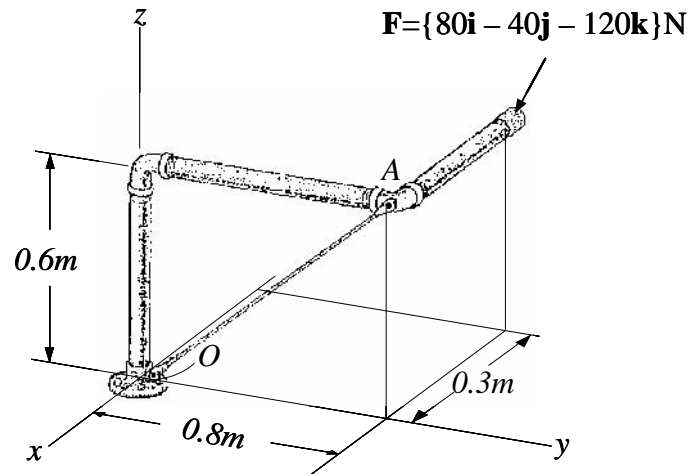
Student	Name:	ID:
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Problem	Assigned Grade	Earned Grade
1A	10 (Points)	
1B	15 (Points)	
2	25 (Points)	
3	25 (Points)	
4	25 (Points)	
Total	100 (Points)	

Good Luck

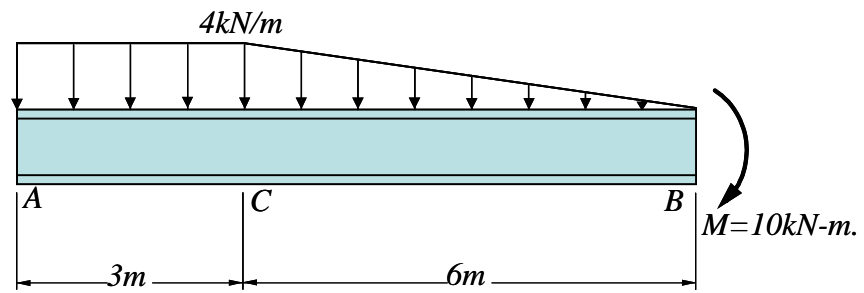
Problem 1A (10 Points)

- (7 points) Find the magnitude of the moment of force \mathbf{F} about the OA axis. Express the result as a Cartesian vector.
- (3 points) Determine the perpendicular distance between the force \mathbf{F} and the OA axis.



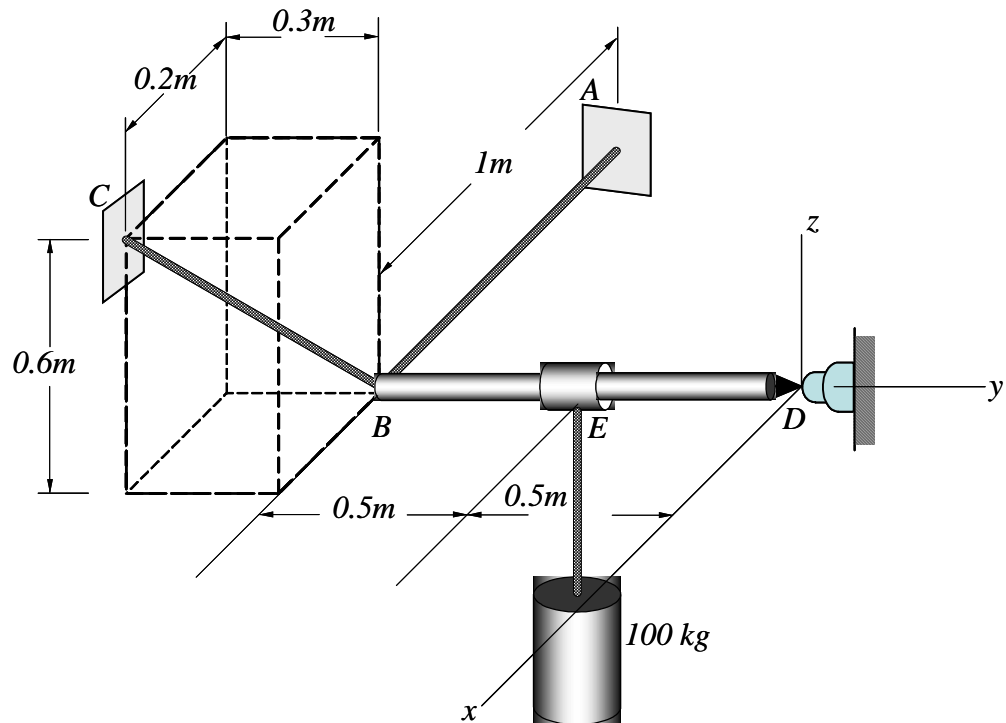
Problem 1B (15 Points)

Replace the loading system by an equivalent resultant force and couple moment acting at point A.



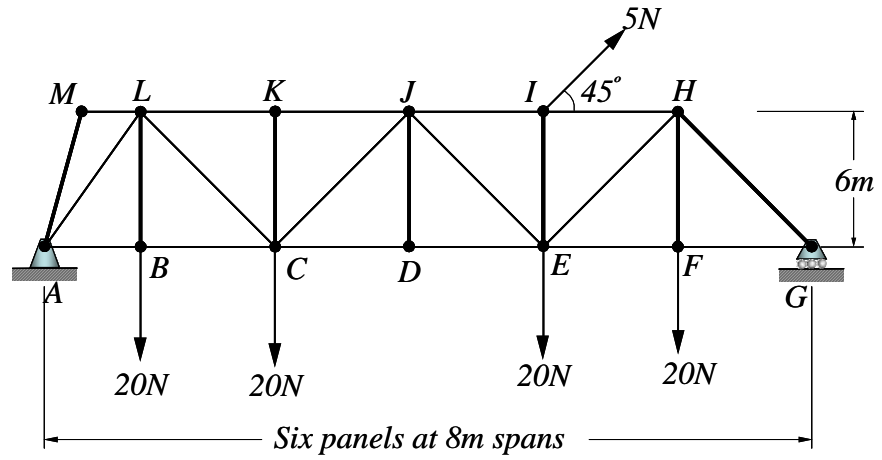
Problem 2 (25 Points)

The rod shown in the figure below is supported at D by a ball-and-socket joint and at B by means of two cables; cable BC and cable BA . Using only one equilibrium equation, obtain a direct solution for the tension in cable BC . Also, Determine the tension in cable BA and reactions at the ball-and socket D ; D_x , D_y , and D_z . (**Draw FBD showing all forces: applied loads/unknowns and support reactions**).



Problem 3 (25 Points)

- (a) Find the zero force members
- (b) Find forces in members IJ, JE and DE using the method of sections
- (c) Find forces in members AB and AL using the method of joints



Problem 4 (25 Points)

A two-member frame is pin connected at E, C and B as shown in the Figure below. The cable is attached to A, passes over the smooth pulley, and is attached to a load of 500 N. The dimensions of the pulley are negligible. Determine the horizontal and vertical components of the force at pin E and the support reactions at C and B.

