Ministry of Higher Education Giza Higher Institute for Eng. & Tech.

Civil Engineering Department

Course Name: Theory of Structures (4)

Course Code: CIV 302



Academic Year : 2014-2015

Semester: Second

Level:  $3^{rd}$ 

Time: 1½ Hours
Date: 29/3/2015

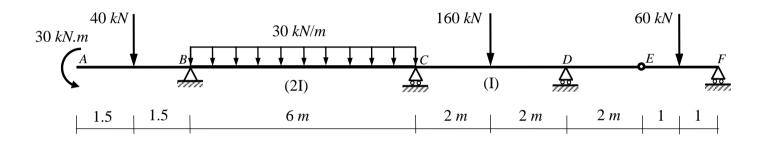
Examiner: Dr. M. Abdel-Kader

## Mid-Term Exam

- The Exam consists of 2 questions in 1 page.

## **Question (1): (10 Marks)**

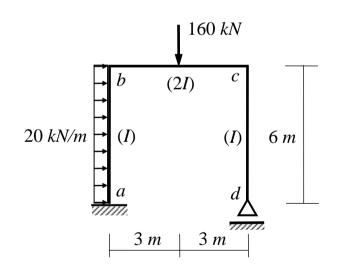
Using the **three-moments equation**, draw the shear force and bending moment diagrams for the shown beam. The relative moments of inertia are given between brackets.



## Question (2): (10 Marks)

For the shown frame with variable moment of inertia, using the **Consistent Deformations** (**Virtual Work**) method, draw the bending moment diagram due to the given loads.

E is constant. The relative moments of inertia are given between brackets.



With my best wishes

Dr. M. Abdel-Kader