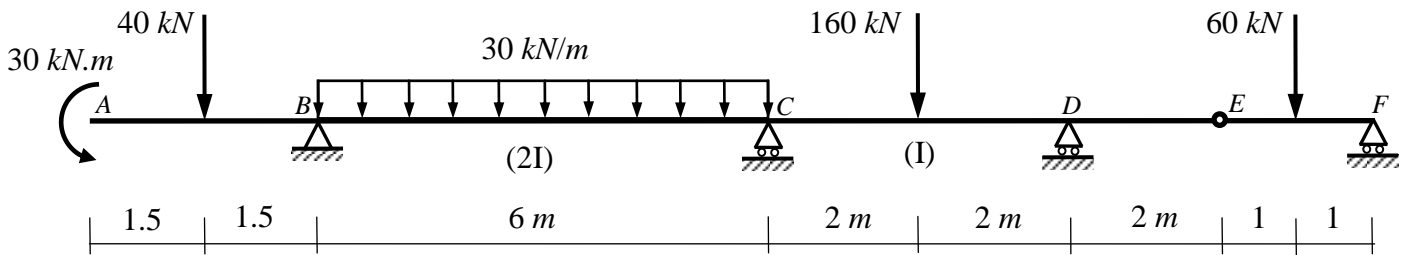


Mid-Term Exam

- The Exam consists of **2** questions in **1** page.

Question (1): (10 Marks)

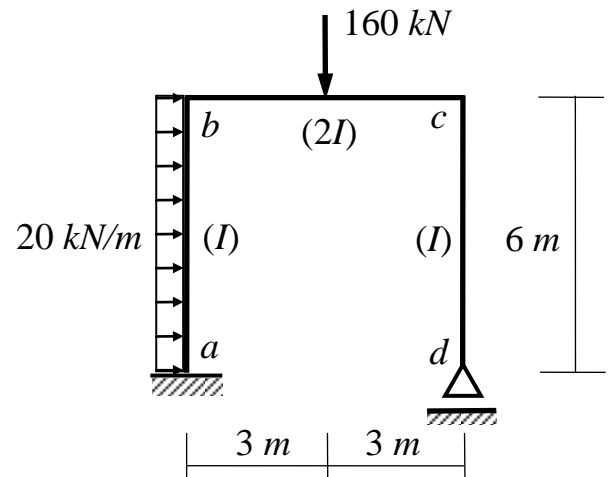
Using the **three-moments equation**, draw the shear force and bending moment diagrams for the shown beam. The relative moments of inertia are given between brackets.



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