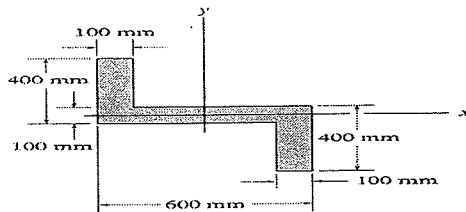考試科目：工程力學

系所名稱：系統工程暨造船學系碩士班不分組 ＊可使用計算器

1.答案以橫式由左至右書寫。2.請依題號順序作答。

1. Explain the following terminology: stress-strain relationship for a mild steel material, Pa, Free body diagram, harmonic motion。 (10%)

2. Determine the principal moment inertia of the cross section area. (25%)

3. Determine the member forces and vertical displacement at joint B in the truss; The cross-sectional area of each member A=800mm^2 and E$_{alum}$=70Gpa. (20%)
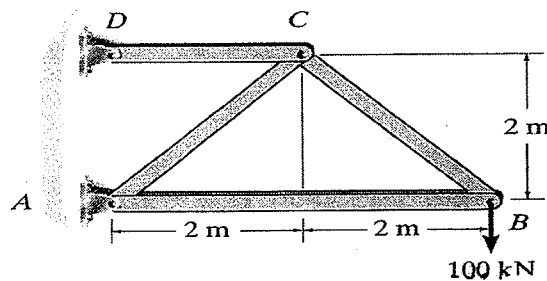
4. Determine the maximum displacement at the top of the pipe if the load is applied by suddenly releasing it from the top of the pipe when h=10mm. Take E$_{st}$=210Gpa and assume that the steel behaves elastically. Thickness=10mm, radius=60mm. (20%)
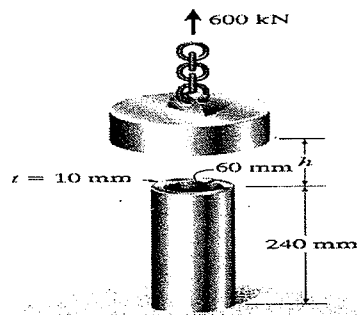
5. Determine the vertical displacement at point C of the beam. E=200Gpa, I= 17(10^6) mm^4. (25%)

(a)