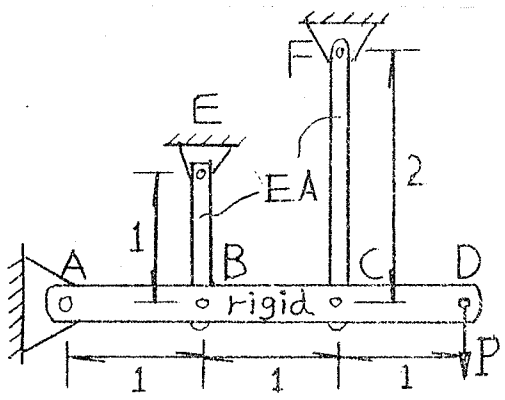
大葉大學 九十四 學年度 研究所碩士班 招生考試試題紙					
系 所 別	組 別	考 試 科 目 (中 文 名 稱)	考 試 日 期	節 次	備 註
機械工程研究所	甲	材料力學	3月27日	第三節 13:30~15:00	共乙頁

註：考生可否攜帶計算機或其他資料作答，請在備註欄註明（如未註明，一律不准攜帶）

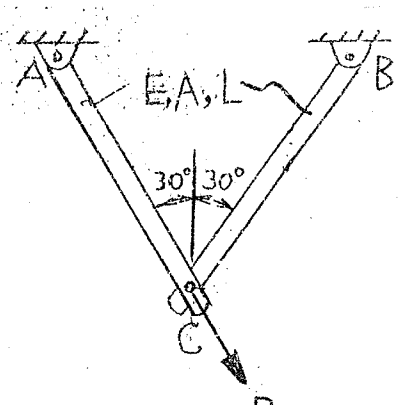
下列題目皆須作答,每題 25 分,總計 100 分

1. (See Fig. 1) A rigid bar AD is supported by two bars BE and CF. Find the maximum allowable load P_{max} if the displacement of the loaded point D is not to exceed a value of 0.01. (若 D 點之垂直位移不超過 0.01,求最大允許外力 P_{max})
2. (See Fig.2) The truss as shown is subjected to a load P at joint C in the direction of bar AC. Determine the *horizontal* displacement of joint C. (Hint: It is easier if the method of *work and strain energy* is used. 提示:以功與應變能之方法求之較爲簡易)
3. (See Fig.3) A cantilever . beam is loaded over the middle half by a uniform load of intensity $q = 1$ along the length. Use the *moment-area method* to find the angle of rotation θ_B and deflection δ_B at the free end B. (以力矩-面積法求解)
4. (See Fig.4) A sender column AC is supported as shown, with its cross section being a rectangle. Find the *height to width ratio* h/b (高與寬之比值) such that the critical load for *Euler buckling*(挫曲) of the column is the same in the two principal planes. Also determine the critical load P_{cr} , using a safety factor(安全係數) of n=2.

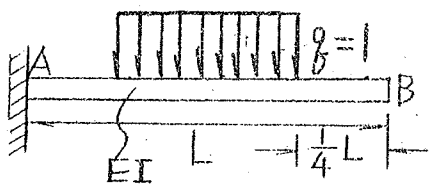
   Note: Use symbols E, A, I, P, etc, denoted in the figures to express the results, if values have not been assigned to them. (若未給定數值,則以圖中所示之各符號表示所得之結果)



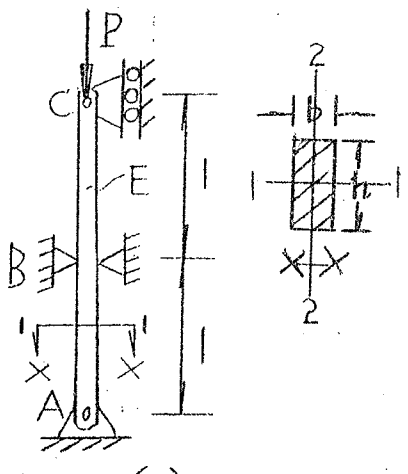
(1)



(2)



(3)



(4)