

國立臺北科技大學 103 學年度碩士班招生考試

系所組別：1202 製造科技研究所

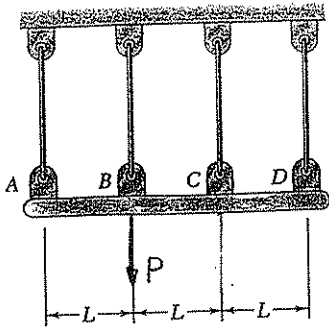
第三節 材料力學 試題 (選考)

第一頁 共一頁

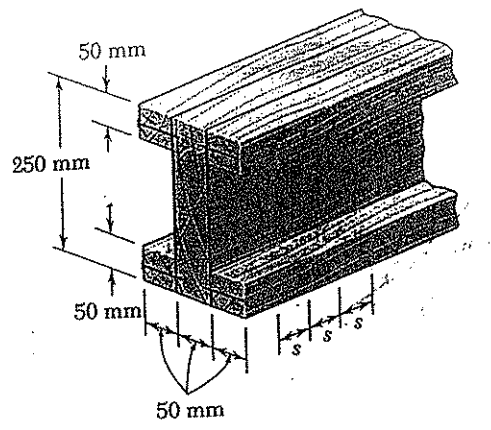
注意事項：

1. 本試題共五題，配分共 100 分。
2. 請標明大題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

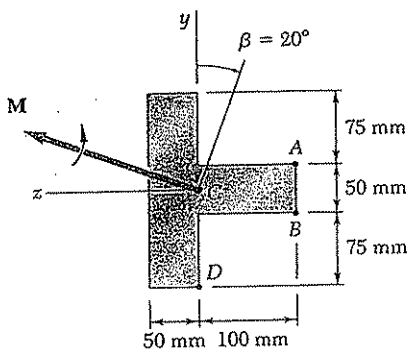
- 一、(20%) The rigid bar ABCD is suspended from four identical truss bars. Determine the load in each bar caused by force P shown. (Fig.A)
- 二、(20%) The build-up beam is subjected to a vertical of 6 kN. Knowing that the allowable shearing force in each nail is 300 N. determine the largest permissible spacing s of the nail. (Fig.B)
- 三、(20%) The 1.6-kN·m bending moment M is applied to a beam of the cross section shown in a plane forming an angle β with the vertical. Determine: the stress at (a) point A, (b) point B, (c) point D. (Fig.C)
- 四、(20%) A 12-kN force P is applied at point D of the steel post shown. Knowing that the post has a diameter 40 mm, determine the principal stresses and maximum shearing stress at element H. (Fig.D)
- 五、(20%) Before the uniformly distributed load w is applied, a gap, $\delta_0 = 1.0$ mm, exists between the ends of the cantilever beams AB and CD. Knowing that $E = 105$ GPa and $w = 30$ kN/m, determine: (a) the deflection at B, (b) the reaction at A, (c) the reaction at D (Fig.E)



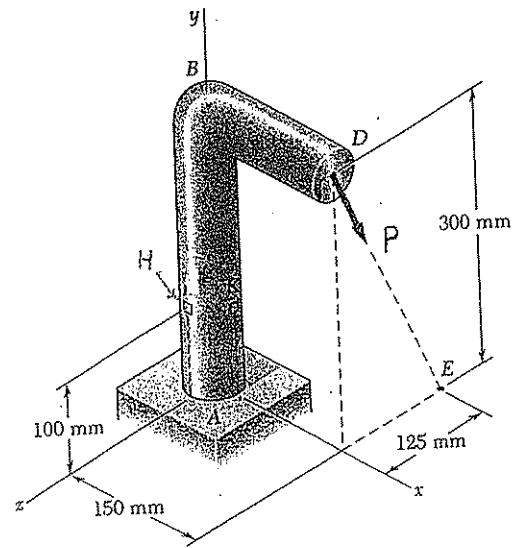
(Fig.A)



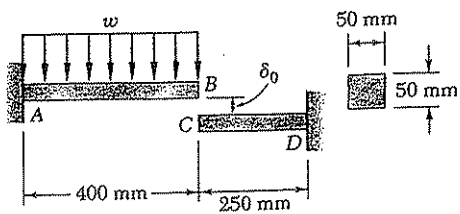
(Fig.B)



(Fig.C)



(Fig.D)



(Fig.E)