

國立交通大學 101 學年度碩士班考試入學試題

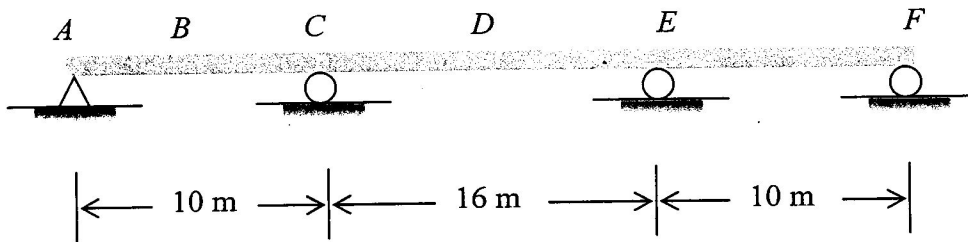
科目：結構學(3054) (3064)

考試日期：101 年 2 月 17 日 第 3 節

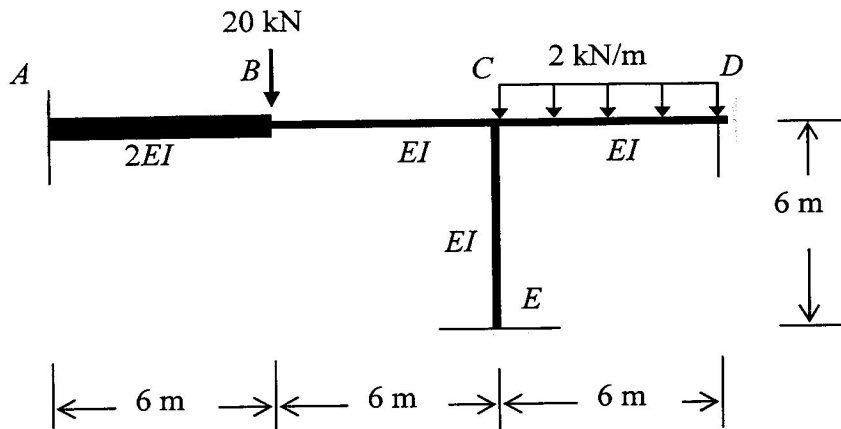
系所班別：土木工程學系 組別：土木系甲組一般生-在職生 第 1 頁, 共 2 頁

【可使用計算機】\*作答前請先核對試題、答案卷(試卷)與准考證之所組別與考科是否相符!!

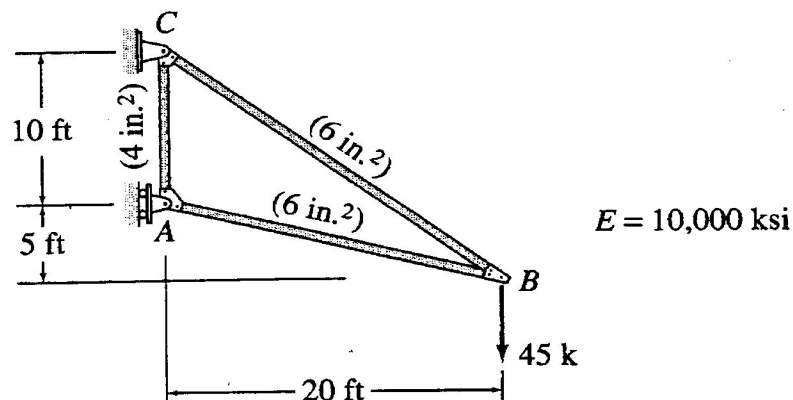
1. (1) Please construct the influence lines by the **Müller-Breslau method** in the following continuous beam; (a) influence line for  $R_C$ ; (b) influence line for shear at B; (c) influence line for negative moment at C; (d) influence line for positive moment at D; (e) influence line for reaction  $R_F$ .  
 (2) If the beam carries a uniformly distributed live load of 10 kN/m. Assuming that the load can be located over all or portion of any span, compute the maximum values of positive moment ( $M_{D+}$ ) that can develop at midspan (point D) of member CE ( $EI$  is constant). (25%)



2. Analyze the frame in the following figure using **slope-deflection method**. Note that supports A, D, and E are fixed-ends. Compute all end moments and draw the moment curves. Given  $EI = 10000 \text{ kN-m}^2$ . (25%)



3. Use **Castigliano's second theorem** to determine the horizontal and vertical components of the deflection at joint B of the truss shown in the figure. (25%)



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4. Determine the reactions and draw the shear and bending moment diagrams for the beam shown in the figure by using the **moment distribution method**. (25%)

