

國立成功大學

114學年度碩士班招生考試試題

編 號：80

系 所：土木工程學系

科 目：結構學

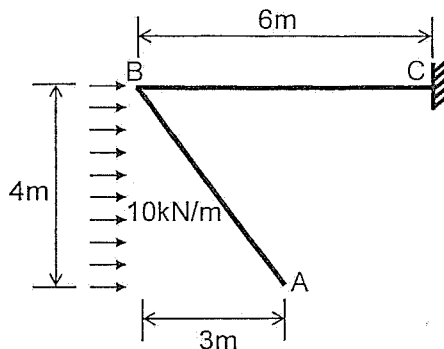
日 期：0210

節 次：第 2 節

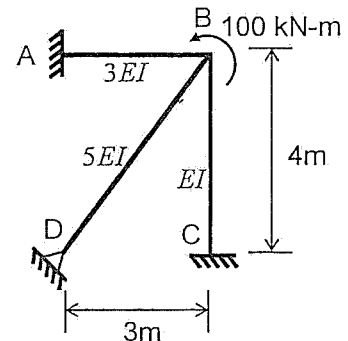
注 意：1. 可使用計算機
2. 請於答案卷(卡)作答，於
試題上作答，不予計分。

1. Draw shear and bending moment diagrams for the following structures. Draw the bending moment on the compression side and mark the peak values. (EI : flexural rigidity)

(a) (10%)

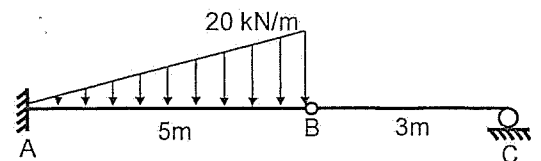
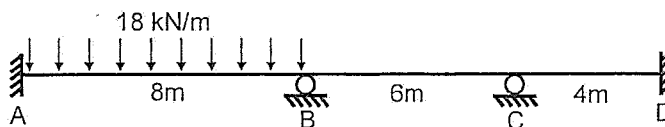


(b) (10%)

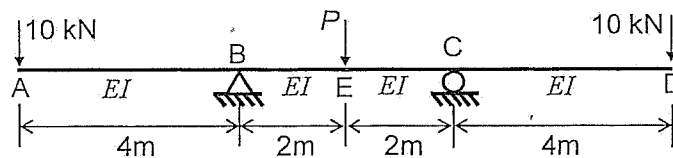


(c) $E = 200 \text{ GPa}$, $I = 120 \times 10^6 \text{ mm}^4$,
settlement at C: 30mm (10%)

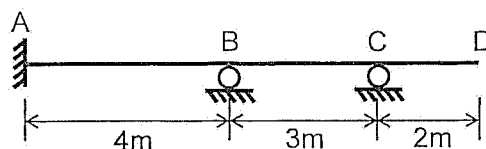
(d) (10%)



2. Use Conjugate Beam method to determine the value of P so that the deflection at point E equals to 0. (20%)



3. Determine the ranges of the 5 kN/m uniformly distributed load acting downward that maximize the reaction at point A. Calculate the maximum reaction at point A. (Note: The uniformly distributed load can be discontinuous.) (20%)



4. Determine the stiffness k of the vertical spring supporting the internal hinge at point B, so that the maximum deflection within beam AC is less than 5mm. ($E = 200 \text{ GPa}$, $I = 4 \times 10^6 \text{ mm}^4$) (20%)

