

系別：土木工程學系

科目：結構學

考試日期：2月28日(星期一) 第2節

本試題共 4 大題， 3 頁

[1]. Analyze the Truss Structure shown in Fig. 1.

Find out the axial forces of all members.

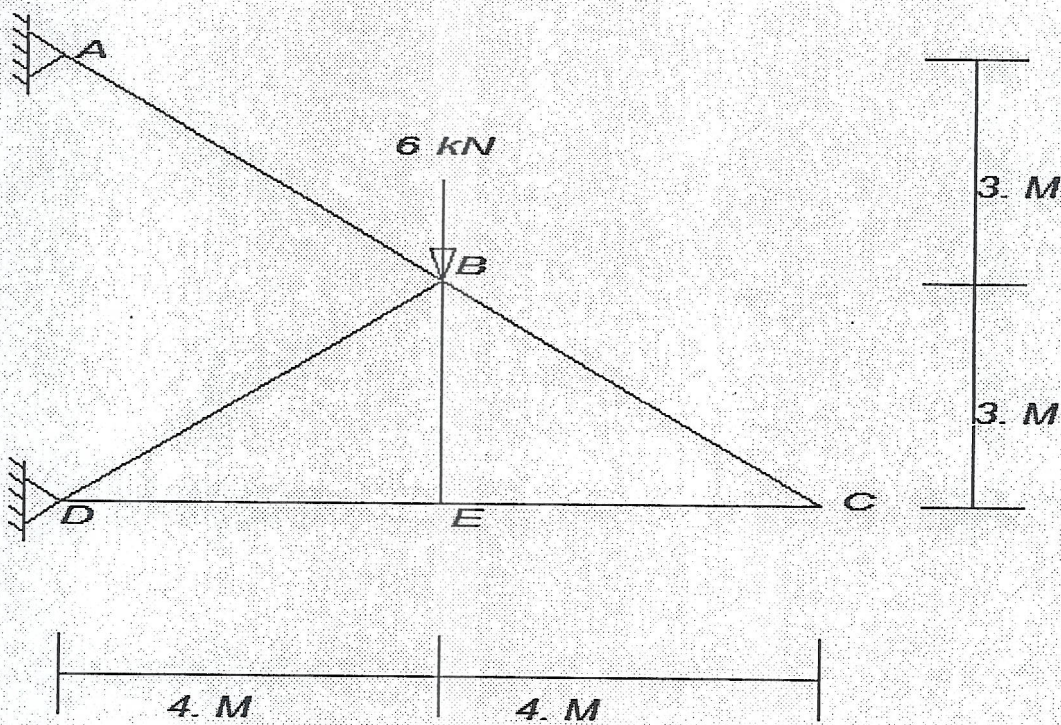


Fig. 1, Problem [1], a Truss Structure, 20 %

本試題雙面印刷

背面尚有試題

[2]. Use unit load method to calculate the deflection at joint C.

Given : $E = \text{constant}$, I (beam ABC) = constant

Member BD is a two force bar, its cross section area = $10 \cdot I / (L \cdot L)$

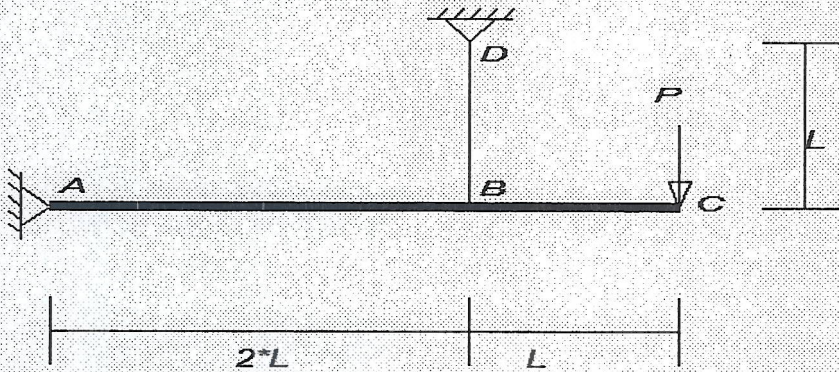


Fig. 2, Problem [2] 20 %

[3]. Use Slope Deflection method to solve the structure shown below.

Given : $E = \text{constant}$, I and length of bars shown below.

Joint A is a hinge support and Joint D is a roller support.

Find the slope and deflection of joint B. Draw the bending moment diagram.

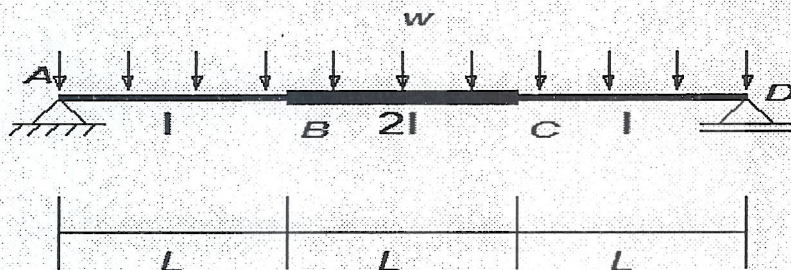


Fig. 3, Problem [3], a continuous beam, 30 %

[4]. Use Matrix Displacement method to solve the structure shown below.

Both E and I are constant. NOTE : Joint C is a internal hinge.

Find the slope and horizontal displacement at joint B.

Draw the bending moment diagram.

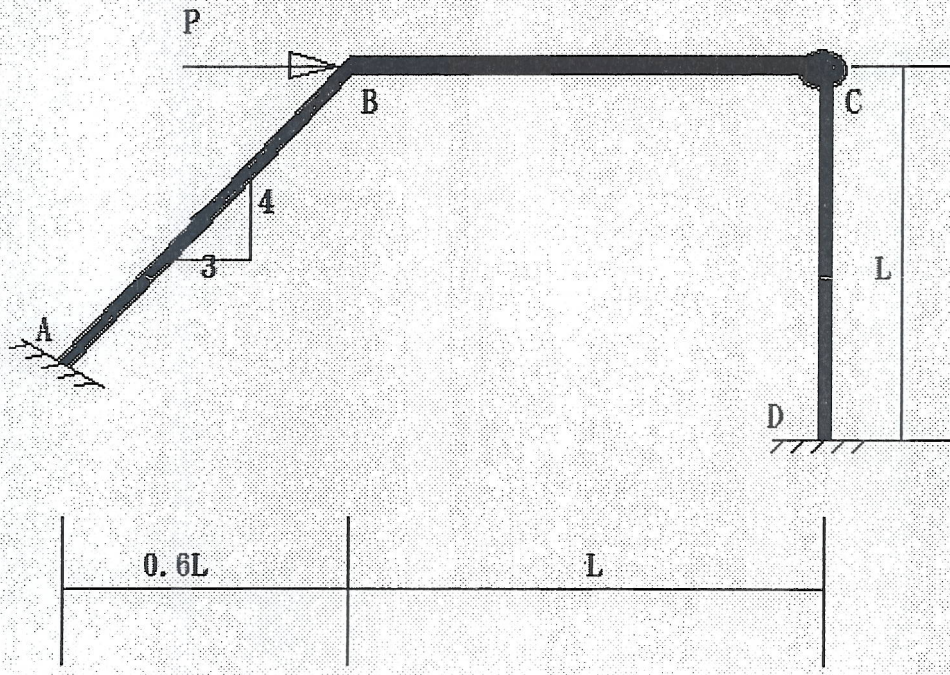


Fig. 4, Problem [4], a frame structure, 30 %