



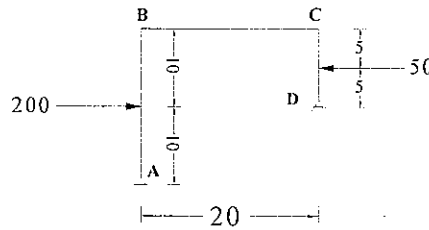
考試科目：工程力學

系所名稱：系統工程暨造船學系碩士班系統組

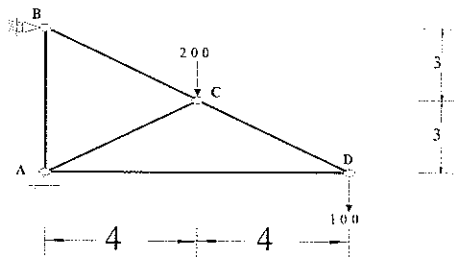
※可使用計算器

1. 答案以橫式由左至右書寫。2. 請依題號順序作答。

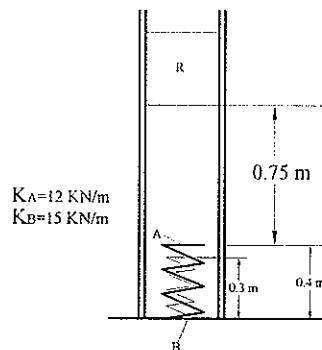
1. Explain the following terminology: *Saint Venant's principle*, *free-body diagrams*, *buckling of columns*, *harmonic motion*。英譯：材料力學，工程力學 (20%)
2. Draw shear force, bending moment diagrams for the problem. (15%)



3. Determine the member forces and vertical displacement at joint D in the truss;  $AE=1$ . (25%)



4. The ram R has a mass of 80kg and is released from rest 0.75m from the top of a spring A with a stiffness  $K_A$  and the second spring B with a stiffness  $K_B$  being nested in A. Determine the maximum deflection of spring A needed to stop the downward motion of the ram. The un-stretched length of each spring is indicated in the figure. (20%)



5. Determine the slope and vertical displacement at point C. (20%)

