臺灣綜合大學系統

107 學年度 學士班

轉學生聯合招生考試

試　　題

類組：D09

科目名稱：應用力學

科目代碼：D0991

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※本項考試依簡章規定各考科均「不可以」使用計算機　　　本科試題共計　一　頁

1. A slender rod of length L is attached to collars that can slide freely along the guides shown. Knowing that the rod is in equilibrium, derive an expression for the angle θ in terms of the angle β. (25%)

2. For the frame and loading shown, determine the components of all forces acting on member *ABE*. (25%)

3. Block *A* supports a pipe column and rests as shown on wedge *B*. The coefficient of static friction at all surfaces of contact is 0.25. Determine (*a*) the angle θ for which sliding is impending. (*b*) the corresponding force exerted on the block by the vertical wall. (Hint: $\tan 14.04° = 0.25$, $\sin 14.04° = 0.2426$, $\cos 14.04° = 0.9701$) (25%)

4. Two bars *AB* and *BC* are attached to a single spring of constant k that is unstretched when the bars are vertical. Determine the range of values of P for which the equilibrium of the system is stable in the position shown. (25%)
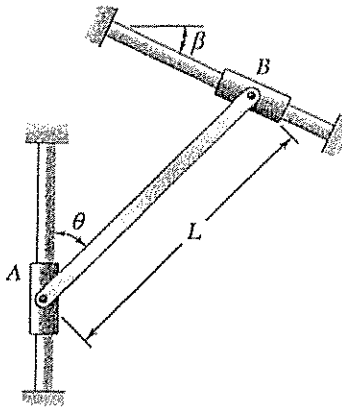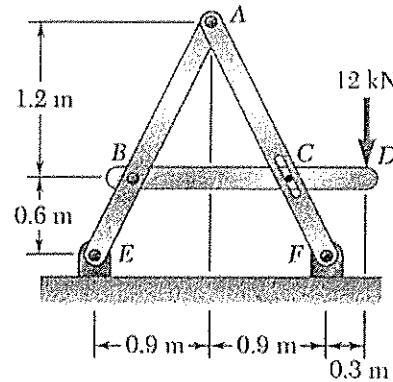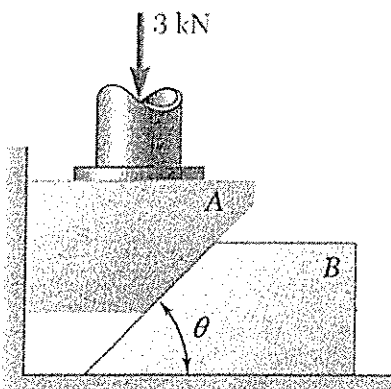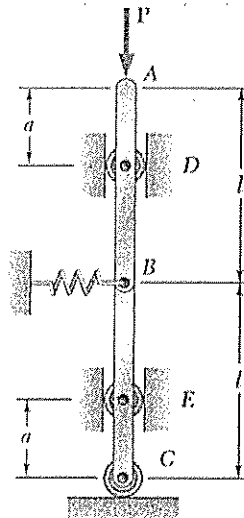

Fig. 1

Fig. 2

Fig. 3

Fig. 4