

科目：工程力學 適用：土木系三

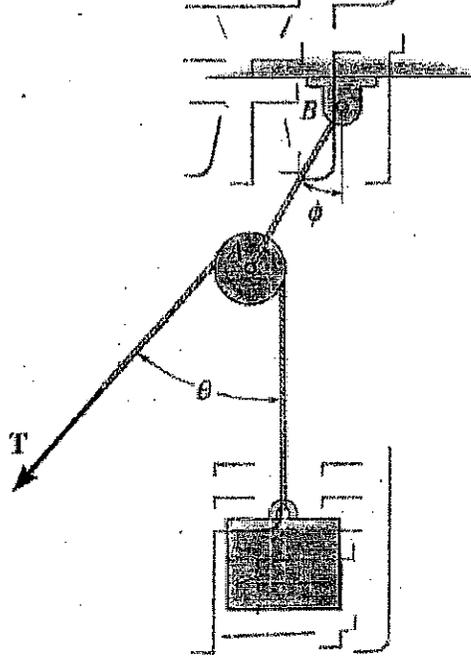
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考生注意：

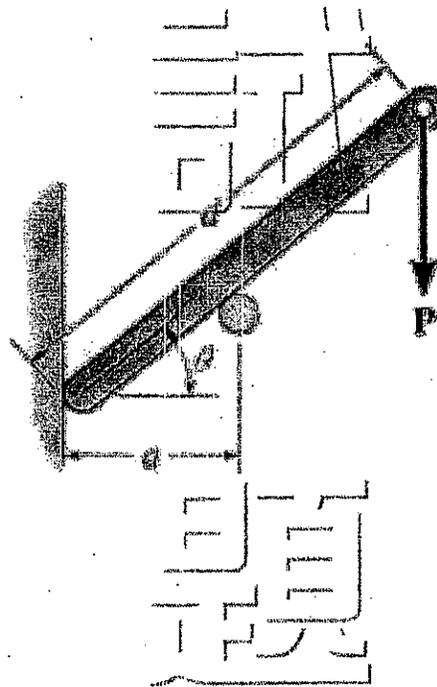
1. 依次序作答，只要標明題號，不必抄題。
2. 答案必須寫在答案卷上，否則不予計分。
3. 限用藍、黑色筆作答；試題須隨卷繳回。

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- (1) The block has a weight of  $W$  and is being hoisted at uniform velocity at a given angle  $\phi$ . Determine the angle  $\theta$  and the force in the cord  $AB$  both in terms of angle  $\phi$  for equilibrium. [25%]



- (2) Determine the distance  $d$  for placement of the load  $P$  for equilibrium of the smooth bar in the position  $\theta$  as shown where the friction between the wall and the bar is  $\mu$ . Neglect the weight of the bar. [25%]



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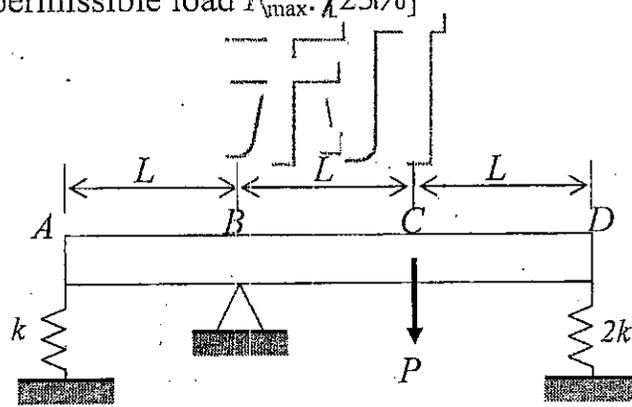
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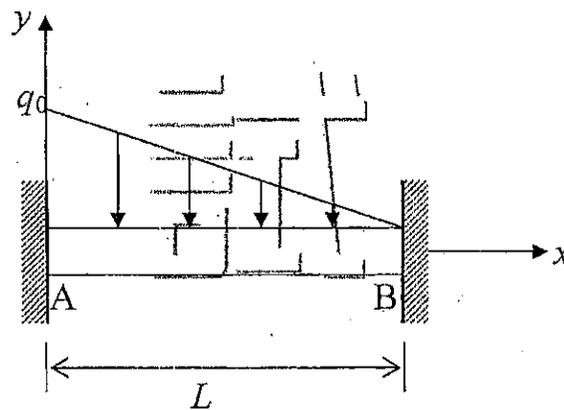
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- (3) A rigid bar  $ABCD$  is pinned at point  $B$  and supported by springs at  $A$  and  $D$ , which have stiffness  $k$  and  $2k$ , respectively. If the angle of rotation of the bar due to the action of the load is limited to  $\theta$ , determine the maximum permissible load  $P_{\max}$ . [25%]



- (4) A fixed-end beam  $AB$  of length  $L$  supports a triangularly distributed load of maximum intensity  $q_0$ . Determine
- (a) the equation of the deflection curve, [13%]
  - (b) the reactions of the beam at both ends. [12%]



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