

淡江大學九十四學年度碩士班招生考試試題 <sup>80-1</sup>

系別：機械與機電工程學系

科目：動力學

准帶項目請打「V」

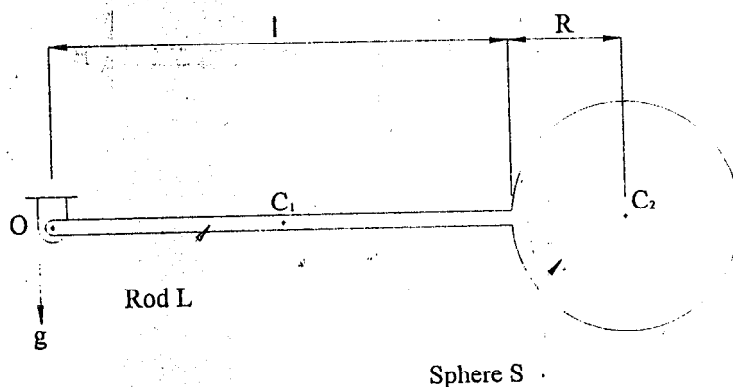


簡單型計算機

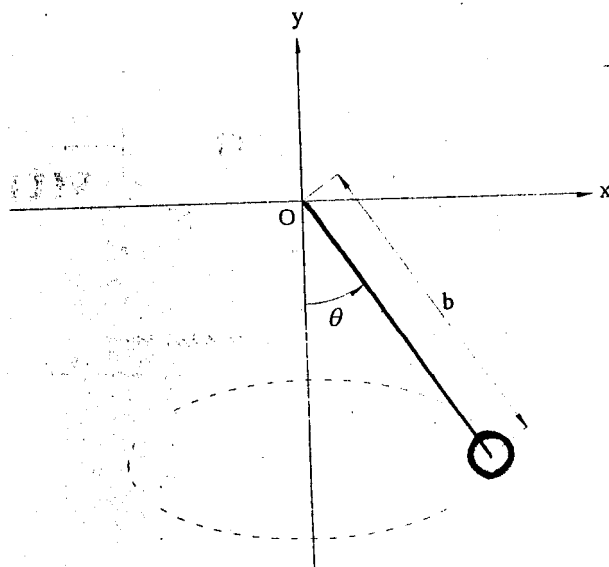
本試題共 2 頁

There are four problems in this test.  $g = 9.8 \text{ m/sec}^2$ 

- (1) A rigid body is combined from a rod  $L$  and a sphere  $S$ . It is attached to the fixed point at  $O$  by a smooth pin. Please find out the force exerted by the pin, if the system is released from rest. (25%)

Where  $l = 2 \text{ m}$ ,  $R = 0.5 \text{ m}$ , mass of  $L$  is  $3 \text{ Kg}$ , mass of  $S$  is  $2 \text{ Kg}$ ,Inertia of sphere (center) is  $\frac{2}{5} * m * r^2$ Inertia of slender bar (end point) is  $\frac{1}{3} * m * d^2$ 

- (2) A ball of mass  $m$  is made to move in a horizontal circle at a constant angular velocity  $\omega$ . If the tension in the cord is  $T$ , please find the angular velocity  $\omega$ . (25%)



◀ 注意背面尚有試題 ▶

P. 1

本試題雙面印製

淡江大學九十四學年度碩士班招生考試試題

90-2

系別：機械與機電工程學系

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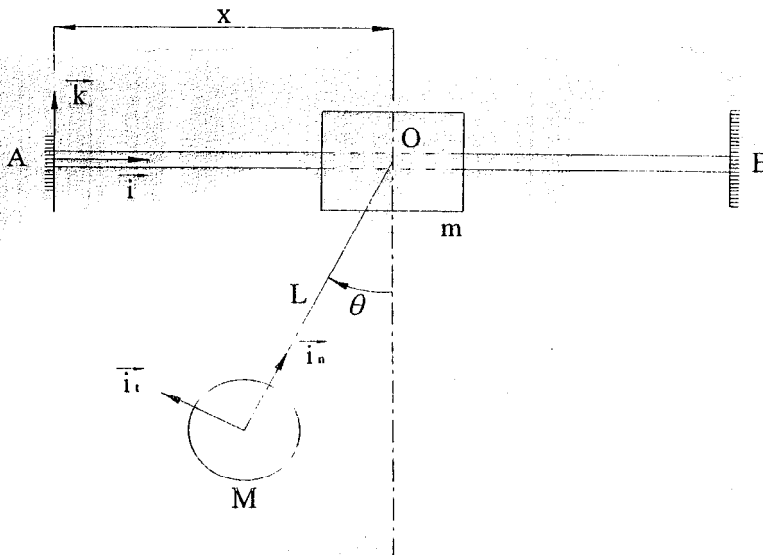
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簡單型計算機

本試題共 2 頁-2

- (3) A block  $m$  is constrained to move on a straight bar  $AB$ . A mass  $M$  is suspended from mass  $m$  and is free to move about the pivot  $O$ . What is the acceleration of mass  $M$ . (25%)



- (4) Please try your best to find the steady-state displacement  $x(t)$  from the two-spring-damper-mass system. Where  $y(t) = 0.1 \sin(120t)$ ,  $m = 0.01 \text{ Kg}$ ,  $k = 100 \text{ nt/m}$ ,  $c = 2 \text{ nt-m/sec}$ . (25%)

