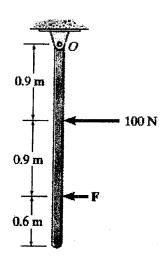系所組：機械工程學系數位機電碩士班乙組

日期節次：100 年 3 月 20 日第 2 節 11：00-12：30

科目：動力學

1. A 2.5-kg block is given an initial velocity of 3 m/s up a 45° smooth slope. Determine the time for it to travel up the slope before it stops. (30%)

2. A disk having a radius of 0.15 m rotates with an initial angular velocity of 2 rad/s and has a constant angular acceleration of 1 rad/s². Determine the magnitudes of the velocity and acceleration of a point on the rim of the disk when $t = 2$ s. (35%)

3. At the instant shown, two forces act on the 15-kg slender rod which is pinned at O. Determine the magnitude of force **F** and the initial angular acceleration of the rod so that the horizontal reaction which the *pin exerts on the rod* is 25 N directed to the right. (35%)

第 1 頁共 1 頁