Homework of chapter 5

Date: Name: Student ID:

1 A pulley and two loads are connected by inextensible cords as shown. Load *A* has a constant acceleration of 300 mm/s^2 and an initial velocity of 240 mm/s, both directed upward. Determine (*a*) the number of revolutions executed by the pulley in 3 s, (*b*) the velocity and position of load *B* after 3 s, (*c*) the acceleration of point *D* on the rim of the pulley at *t*=0.

2 Arm AB has a constant angular velocity of 16 rad/s counterclockwise. At the instant when $\theta = 90^\circ$,determine the acceleration (a) of collar D, (b) of the midpoint G of bar BD.

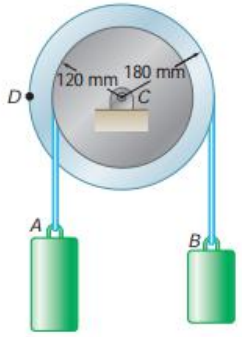

Fig.1

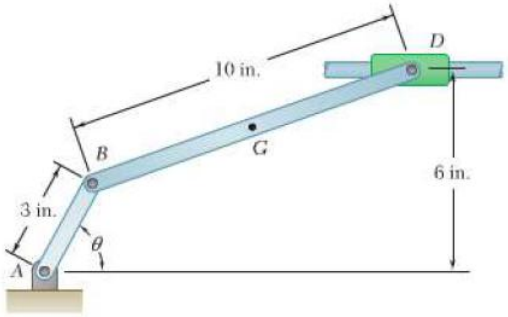

Fig.2

3 The 200mm radius disks rolls without sliding on the surface shown. Knowing that the distance BG is 160mm and that at the instant shown the disk has an angular velocity of 8rad/s counterclockwise and an angular acceleration of 2 rad/s² clockwise, determine the acceleration of A.

4 Knowing that at the instant shown the rod attached at A has an angular velocity of 5rad/s counterclockwise and an angular acceleration of 2rad/s^2 clockwise,determine the angular velocity and the angular acceleration of the rod attached at B.

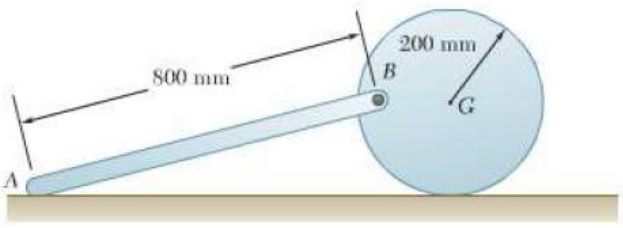

Fig.3

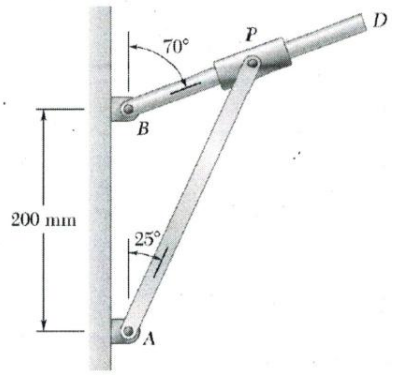

Fig.4