

國立虎尾科技大學 機械與機電工程研究所

98 學年度第 2 學期 博士班資格考 【機構設計】

1. Determine the degrees of freedom of the mechanism shown in figure P-1. (30%)

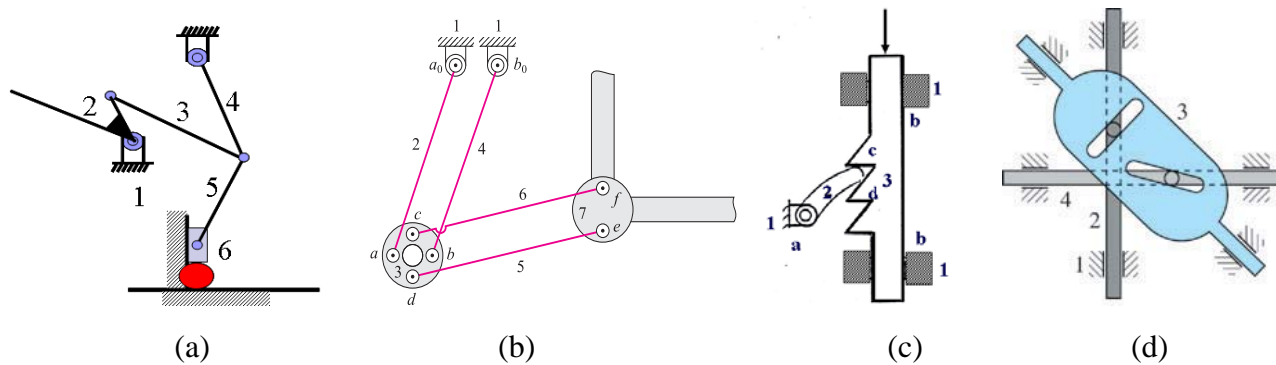


Figure P-1

2. Synthesize a four-bar linkage to generate the three rigid-body position shown in figure P-2. (Note:  $A_1B_1=5\text{cm}$ ,  $B_2A_3=2\text{cm}$ ) (40%)

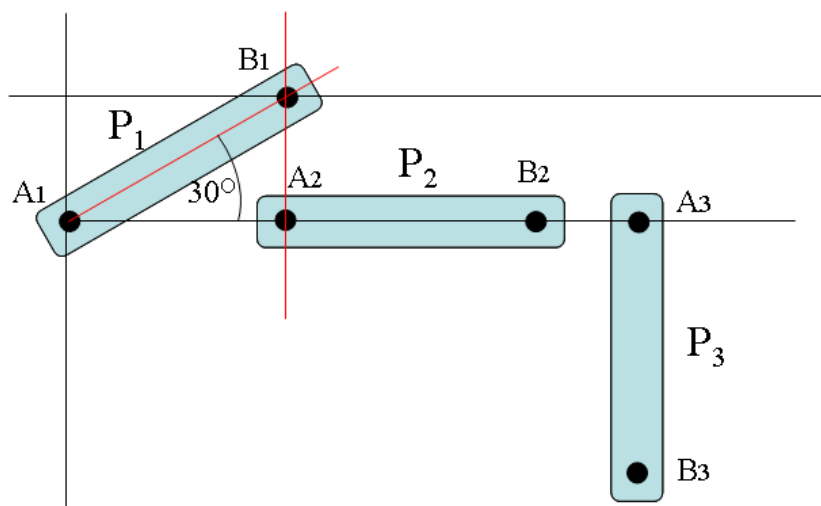


Figure P-2

3. For a mechanism shown in figure P-3, (a) find all instant centers, (b) use vector loop method, if  $r_2=20\text{cm}$ ,  $a_0b_0=40\text{cm}$ ,  $r_4=8\text{cm}$ , and  $\theta_2 = 120^\circ$ ,  $\omega_2 = 10\text{rad/s}$ , find  $\omega_4$ . (30%)

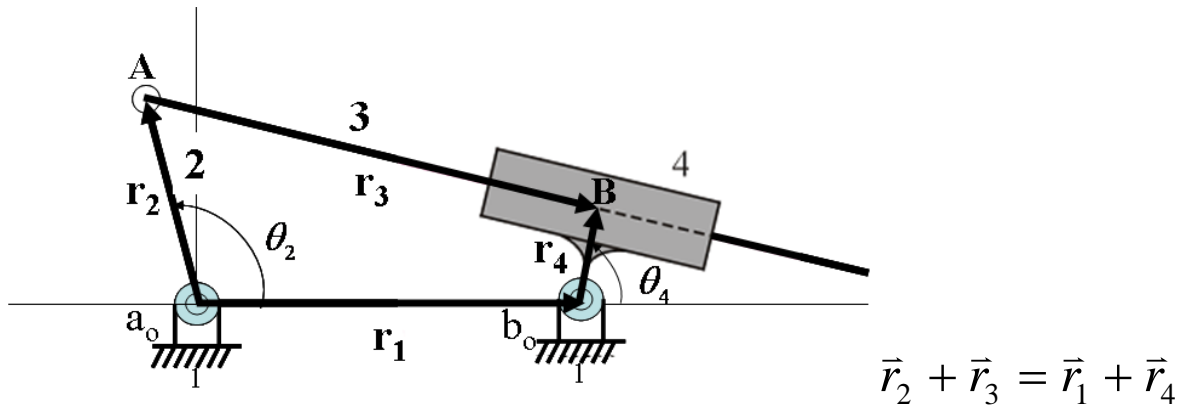


Figure P-3