**What is the minimum duty factor for a stable walking of a multi-legged robot? Why? Explain your answer.**

The duty factor required for dynamic stability changes based on the speed of the robot. However, theoretically, the minimum duty factor to still guarantee stable motion of a robot is the smallest nonzero value. For static stability, a robot with two legs needs a minimum duty factor of 0.5 to maintain one leg on the ground at any time. A radially symmetric three-legged robot would have a hard time walking, so I will neglect that one in this discussion. A four or more-legged robot would have a decreasing duty factor, as there are multiple combinations of 3+ legs on the ground at any time, so the time in which each leg is supporting the robot decreases as the number of legs increases.