Let G = (V, E, C) be a directed acyclic multigraph that denotes the system's process flow (A multigraph is a graph that allows more than one edges to have the same endpoint)

Let V denotes a set of vertices, where $V \ni \{v_1, v_2, ..., v_n\}$

Let v_s denotes the source vertex v_t denotes the target vertex in a flow, and $s < t$

Let E denotes a set of edges, where $E \subseteq \{(v_s, v_t) \mid v_s, v_t \in V\}$ and $\forall e \in E \mid (e_{(v_s,v_t)} = e_{(v_a,v_b)}) \iff (v_s = v_a \wedge v_t = v_b)$

Let C be a set of non-negative capacity functions, i.e. $c : V \times V \to \mathbb{R}_\infty$ or $c : E \to \mathbb{R}_\infty$, where $\forall e \in E \, \exists! \, c(e_{(v_s,v_t)}) \implies f : E \to C$

Bottleneck := $\exists e \in E \mid c(e_{(v_s,v_t)}) = \min_{x \in E} f(x)$

Consider Question A's situation:

System G = (V, E, C)

$V = \{v_1, v_2, v_3, v_4, v_5\}$

$E = \{e_{(v_1,v_2)}, e_{(v_2,v_3)}, e_{(v_3,v_4)}, e_{(v_4,v_5)}\}$

$c(e) = 60/10 = 6 \; units/hr$

$C = \{c(e_{(v_1,v_2)}), c(e_{(v_2,v_3)}), c(e_{(v_3,v_4)}), c(e_{(v_4,v_5)})\} = \{6, 6, 6, 6\}$

$\because \min_{x \in E} f(x) = 6$

$\therefore \forall e \in E \mid c(e) = \min_{x \in E} f(x)$

$\therefore$ All four stations are the Question A system's bottleneck