

GATE-2023 EC Q.25

EE23BTECH11214 - Harsha Vardhan Kumar

Question: In the context of signals and systems, determine the phase cross-over frequency of the open-loop transfer function

$$G(s) = \frac{k \cdot s \cdot (1 + sT_1) \cdot (1 + sT_2)}{s}$$

with positive constants k, T_1, T_2 are positive constants. The phase crossover frequency, in rad/s, is [EC, GATE-2023]

- (a) $\frac{1}{\sqrt{T_1 T_2}}$
- (b) $\frac{1}{T_1 T_2}$
- (c) $\frac{1}{T_1 \sqrt{T_2}}$
- (d) $\frac{1}{\sqrt{T_2 T_1}}$