

1. gate question

**GATE 2023 - EC - 48** Let an input  $x[n]$  having discrete-time Fourier transform  $X(e^{j\Omega}) = 1 - e^{-j\Omega} + 2e^{-3j\Omega}$  be passed through an LTI system. The frequency response of the LTI system is  $H(e^{j\Omega}) = 1 - \frac{1}{2}e^{-2j\Omega}$ . The output  $y[n]$  of the system is