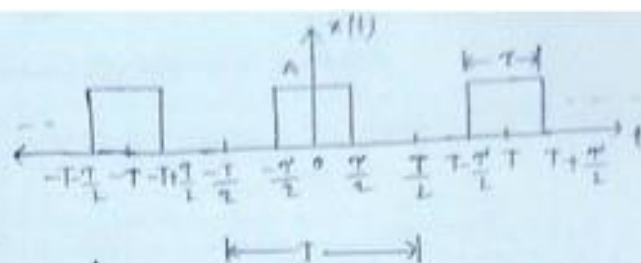


Q)

a)



$$x_0 = \frac{A}{2} \left(\frac{\pi}{T} \right)$$

$$\textcircled{B} \quad x_n = \frac{A}{n\pi} \sin \left(n\pi \frac{\pi}{T} \right)$$

$$\textcircled{a} \quad \frac{\pi}{T} = \frac{1}{2}, \quad A = 1$$

$$x_0 = \frac{A}{4} = \frac{1}{4} = 0.25$$

$$x_1 = \frac{1}{\pi} \sin \left(\pi \cdot \frac{1}{2} \right) = \frac{1}{\pi} = 0.318$$

$$x_2 = \frac{1}{2\pi} \sin \left(2\pi \cdot \frac{1}{2} \right) = 0 = 0$$

$$x_3 = \frac{1}{3\pi} \sin \left(3\pi \cdot \frac{1}{2} \right) = -\frac{1}{3\pi} = -0.106$$

$$x_4 = \frac{1}{4\pi} \sin \left(4\pi \cdot \frac{1}{2} \right) = 0 = 0$$

$$x_5 = \frac{1}{5\pi} \sin \left(5\pi \cdot \frac{1}{2} \right) = \frac{1}{5\pi} = 0.063$$

$$\textcircled{b} \quad \frac{\pi}{T} = \frac{1}{3}, \quad A = 1$$

$$x_0 = \frac{1}{2} \left(\frac{1}{3} \right) = \frac{1}{6} = 0.166$$

$$x_1 = \frac{1}{\pi} \sin \left(\frac{\pi}{3} \right) = \frac{\sqrt{3}}{2\pi} = 0.275$$

$$x_2 = \frac{1}{2\pi} \sin \left(\frac{2\pi}{3} \right) = \frac{1}{4\pi} = 0.079$$

$$x_3 = \frac{1}{3\pi} \sin \left(\frac{3\pi}{3} \right) = 0 = 0$$

$$x_4 = \frac{1}{4\pi} \sin \left(\frac{4\pi}{3} \right) = -\frac{\sqrt{3}}{8\pi} = -0.068$$

$$x_5 = \frac{1}{5\pi} \sin \left(\frac{5\pi}{3} \right) = -\frac{\sqrt{3}}{10\pi} = -0.055$$

$$\textcircled{C} \quad \frac{\pi}{T} = \frac{1}{4}, \quad A=1$$

$$x_0 = \frac{1}{1} \left(\frac{1}{4} \right) = \frac{1}{4} = 0.25$$

$$x_1 = \frac{1}{1} \sin \left(\frac{\pi}{4} \right) = \frac{1}{\sqrt{2}} = 0.707$$

$$x_2 = \frac{1}{2} \sin \left(\frac{2\pi}{4} \right) = \frac{1}{2} = 0.5$$

$$x_3 = \frac{1}{3} \sin \left(\frac{3\pi}{4} \right) = \frac{1}{3\sqrt{2}} = 0.235$$

$$x_4 = \frac{1}{4} \sin \left(\frac{4\pi}{4} \right) = 0$$

$$x_5 = \frac{1}{5} \sin \left(\frac{5\pi}{4} \right) = -\frac{1}{5\sqrt{2}} = -0.141$$

$20 \log x_n $	$\frac{\pi}{T} = \frac{1}{2}, A=1$	$\frac{\pi}{T} = \frac{1}{3}, A=1$	$\frac{\pi}{T} = \frac{1}{4}, A=1$
$20 \log x_0 $	-12.04 dB	-15.59 dB	-18.06 dB
$20 \log x_1 $	-9.95 dB	-11.21 dB	-12.95 dB
$20 \log x_2 $	-∞ dB	-22.04 dB	-15.97 dB
$20 \log x_3 $	-15.97 dB	-∞ dB	-22.49 dB
$20 \log x_4 $	-∞ dB	-23.34 dB	-∞ dB
$20 \log x_5 $	-24.01 dB	-25.19 dB	-26.93 dB

