Name: Nafinan Leo, Id: 20-42195-1

Set: B

1. $b_n = 0$

2. $h_k = 4\,\delta[1-1]\,e^{i\frac{2\pi n}{N}} + 3.9\,\delta[0]\,e^{0}$

$= 4\,e^{i\frac{2\pi n}{N}} + 3.9$

3. $h_k = \delta[8-8]\,e^{i\frac{16\pi n}{N}} - 2.1\,\delta[2-2]\,e^{i\frac{4\pi n}{N}}$

$= e^{i\frac{16\pi n}{N}} - 2.1\,e^{i\frac{4\pi n}{N}}$

4. $b_n = 0$.

5. $L = 1$, None

6. $A(w) = 0,\ B(w) = \frac{2}{\pi}\int_0^{\infty}[f(x)\sin(wx)]dx$

7. $f(x) = \sum_{n=1}^{\infty}\left[\int_0^1 3\sin\frac{n\pi x}{2}\,dx + \int_1^2 0\cdot\sin\left[\frac{n\pi x}{2}\right]\right]$

$= \sum_{n=1}^{\infty}\frac{2}{n\pi}\left(1-\cos\frac{n\pi}{2}\right)$

None

8. $f(x)\begin{cases} 1, & 0<x<1 \\ 3, & 1<x<2 \\ 0, & x>2 \end{cases}$

$\sqrt{\frac{2}{\pi}}\left[\frac{3}{n}\sin(2n)+\frac{1}{n}(\sin(2n)-\sin(n))\right]$

9. $\int_{-1}^{\pi} x^2 \sin x \, dx$

$=0$

10. $b_n = 0$