

$$Z[n] = 50\sqrt{P_x} [\cos(\omega_1 n) + \cos(\omega_2 n) + \cos(\omega_3 n)]$$

$$Z_2[n] = 50\sqrt{P_x} [\cos(2\omega_1 n) + \cos(2\omega_2 n) + \cos(2\omega_3 n)]$$

$$Z_2(e^{j\omega}) = \frac{1}{2} \sum_{m=0}^1 Z(e^{j(\omega - 2\pi m)/2})$$

$$= \frac{1}{2} [Z(e^{j\omega/2}) + Z(e^{j(\omega - 2\pi)/2})]$$

$$Z(e^{j\omega}) = \pi \left[ \delta(\omega + \omega_1) + \delta(\omega - \omega_1) + \delta(\omega + \omega_2) + \delta(\omega - \omega_2) \right. \\ \left. + \delta(\omega + \omega_3) + \delta(\omega - \omega_3) \right] \quad \text{1.0 (c)}$$