$$(n) = \frac{1}{2\pi} \int H(e^{j\omega}) \cdot e^{j\omega n} d\omega$$

$$= \frac{1}{2\pi} \left[ \int_{-\pi}^{\omega} e^{j\omega n} d\omega + \int_{-\pi}^{\omega} e^{j\omega n} d\omega \right]$$

$$= \frac{1}{2\pi} \left[ \int_{-\pi}^{\omega} e^{j\omega n} d\omega + \int_{-\pi}^{\omega} e^{j\omega n} d\omega \right]$$

$$= \frac{1}{a\pi} \left[ \frac{e^{j\omega n}}{jn} \right]^{-\omega_c} + \frac{e^{j\omega n}}{jn} \left[ \frac{1}{a\pi} \right]^{-\omega_c}$$

$$=\frac{1}{a\pi} \begin{bmatrix} e^{i\omega n} & -\omega c \\ jn & -j\omega c \end{bmatrix} + \underbrace{e^{i\omega n}}_{jn} \begin{bmatrix} -i\omega c \\ jn & -j\omega c \end{bmatrix} + \underbrace{e^{i\omega n}}_{jn} \begin{bmatrix} -i\omega c \\ jn & -i\omega c \end{bmatrix}$$

$$=\frac{1}{2\pi} \begin{bmatrix} e^{i\omega n} & -i\omega c \\ -j\omega c & -j\omega c \end{bmatrix} + \underbrace{e^{i\omega n}}_{jn} \begin{bmatrix} -i\omega c \\ -j\omega c & -j\omega c \end{bmatrix}$$

$$=\frac{1}{2\pi} \begin{bmatrix} e^{i\omega n} & -i\omega c \\ -j\omega c & -j\omega c \end{bmatrix} + \underbrace{e^{i\omega n}}_{jn} \begin{bmatrix} -i\omega c \\ -j\omega c & -j\omega c \end{bmatrix}$$

$$= \frac{1}{2\pi} \left[ \frac{j_n}{e^{j_n}} - \frac{j_n}{e^{j_n}} - \frac{j_n}{e^{j_n}} \right]$$

$$= \frac{1}{2\pi} \left[ \frac{e^{-e}}{j_n} - \frac{e^{-e}}{j_n} \right]$$

$$=\frac{1}{2\pi}\left[\begin{array}{cc} 2\sin\pi n & -2\sin\omega e^n \\ n & n \end{array}\right]$$

Sin ATT = 0, for any n. tor u to gin won h(n) For n = 0 wSin (wen) h(n) = hen) for n to. h (n) =