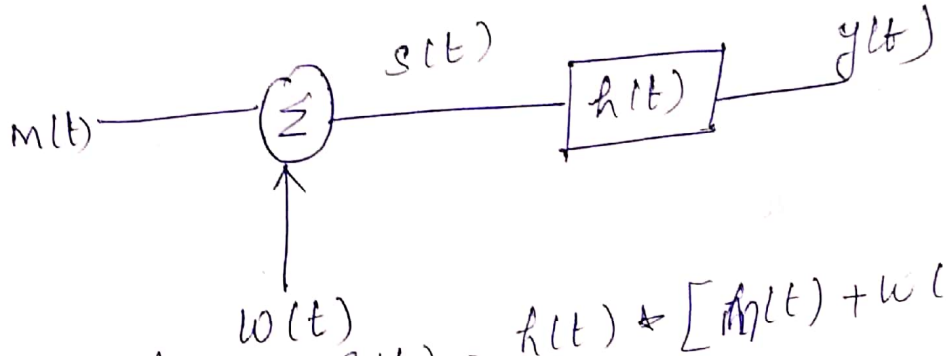
Assignment 2 - B2

Given data $m(t) =$

$w(t) =$

$h(t) =$

(2.*)



$$y(t) = h(t) * s(t) = h(t) * [m(t) + w(t)]$$

$$Y(s) = H(s)[m(s) + W(s)]$$

$$Y(s) = H(s) M(s) + H(s) W(s) \quad \text{— (1)}$$

(2.1) Find $W(s) \rightarrow \mathcal{L}[w(t)]$

$H(s) \rightarrow \mathcal{L}[h(t)]$

$Y(s) \rightarrow$ From eq (1)

(2.2) $w(t) \rightarrow [h(t)] \rightarrow v(t)$

$$v(t) = w(t) * h(t) = W(s) \cdot H(s) \quad \text{— (2)}$$

(2.3) Equalim (1) − (2)

$$Y(s) - V(s) = H(s) M(s)$$

$$M(s) = \frac{Y(s) - V(s)}{H(s)}$$

Inverse laplace transform of $M(s) \rightarrow M(t)$

(2.4) $s(t) = W(t) * m(t)$ — [h(t)] — $y(t)$

$$y(t) = W(t) * m(t) * h(t)$$

$$Y(s) = W(s) \cdot M(s) \cdot H(s)$$