WAVE PROPAGATION – PROBLEM SESSION

Problem-1

- In a lossless medium for which $\eta = 60\pi,\ \mu_r = 1$, and $\mathbf{H} = -0.1\cos(wt - z)\,\mathbf{a_x} + 0.5\sin(wt - z)\mathbf{a_y}$A/m, calculate ε_r, w and $\mathbf{E}$.

Problem-2

- A uniform plane wave propagating in a medium has:

$$\mathbf{E} = 2e^{-\alpha z} \sin(10^8 t - \beta z)\, \mathbf{a}_y \text{ V/m.}$$

- If the medium is characterized by $\varepsilon_r = 1, \mu_r = 20$ and $\sigma = 3$ mhos/m, find $\propto, \beta$ and $\mathbf{H}$.