**Eng. Electromagnetics II SPRING 2023 Quiz 4**

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A 20 GHz linearly polarized plane wave with an electric field magnitude of Eo V/m is traveling in the negative y direction in a lossy medium with r=81, r=1 and  = 0.5 (S/m).

Write the instantaneous electric field VECTOR expressions for the incident wave given that the field is positive maximum at y= 0.001 m and t=0.

BONUS: find the instantaneous magnetic field.

USEFUL FORMULAE:

o=8.85e-12 o=4x10-7

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| **LOSSLESS MEDIUM** | **LOW-LOSS MEDIUM** | **GOOD CONDUCTOR** |
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