

大同大學 101 學年度研究所碩士班入學考試試題

考試科目：電磁學

所別：通訊工程研究所

第1/1頁

註：本次考試 不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

1. Please explain the following terms: a) eddy current, b) TEM wave, c) Gauss surface, d) wave polarization, e) skin depth. (25%)
2. The electrostatic field intensity \vec{E} is derivable as the negative gradient of a scalar electric potential V ; that is, $\vec{E} = -\nabla V$. Determine \vec{E} at the point (1,1,0) if
a) $V = V_0 e^{-x} \sin \frac{\pi y}{4}$
b) $V = E_0 R \cos \theta$ (25%)
3. Please explain the following terms: a) VSWR, b) loss tangent, c) Biot-Savart law, d) dispersive medium, e) magnetic dipole moment. (25%)
4. Prove that a right-hand circularly polarized wave and a left-hand circularly polarized wave of equal amplitude can be synthesized into a linearly polarized wave. (25%)

THE END