# Maxwell, Rayleigh and Mount Everest: THE ANSWERSHEET[1]

**Oscillation of the electron cloud:**

**A.1** (0.5 pt)
**The equation for the motion for $y$**

$\ddot{y} =$

**A.2** (0.5 pt)
**The amplitude**

$y_0 =$

**A.3** (0.5 pt)
**The magnitude of the dipole moment of the air molecule**

$p(t) =$

**A.4** (0.5 pt)
**Expression for $\omega_0$**

$\omega_0 =$

**Power radiated:**

**B.1** (1 pt)
**Power radiated $s$ in terms of dipole moment**

$s =$

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**B.2** (0.2 pt)
**Power radiated $s$ in terms of $E_0$**

$s =$

**Attenuation of the Intensity $I(x)$ with distance $x$**

**C.1** (1 pt)
**The Equation for the Intensity attenuation**

$\frac{dI}{dx} =$

**C.2** (0.5 pt)
**The Equation for the intensity $I(x)$**

$I(x) =$

**C.3** $(0.3\ \mathrm{pt})$
**Estimation of attenuation length $L$**

The expression $L =$

The numerical value $L$ =

**Height $H'$ of the Mountains as seen by an observer :**

**D.1** (2 pt)

The Figure

$H' =$

Mt. Kanchenjunga $H'$ =

Mt. Everest $H'$ =

**E.1** (1 pt)

$$\frac{I_{\text{Everest}}}{I_{\text{Kanchenjunga}}} =$$

Visibility of Mt Everest

**Attenuation length $L_p$ due to aerosol pollution :**

**F.1** (1 pt)

The expression $L_p =$

The numerical value $L_p$ =

**Relative intensity and Visibility of Mt. Kanchenjunga and Mt. Everest :**

**G.1** (1 pt)
**Mt Kanchenjunga**

$\frac{I_K}{I_{\text{ref}}} =$

Visibility of Mt. Kanchenjunga

**Mt Everest**

$\frac{I_E}{I_{\text{ref}}} =$

Visibility of Mt. Everest