1. In the expression (for an Hertzian dipole) of **E** and **H**, we have three components of fields. Compute the distance from the dipole where the three fields are equal

2. A Hertzian dipole oriented along y-direction radiates 1 kW power. Calculate **E** and pointing vector at a distance of 20 km fro the dipole in *xz* plane. Also find the direction of E field.

3. A small dipole of length 0.1λ is excited with a peak current of 10 A. Calculate the power radiated by the antenna

4. The field radiation pattern of an antenna is given by

$$F(\theta) = \frac{1}{2}\cos^4\theta, \quad 0 \le \theta \le \frac{\pi}{2}, \; 0 \le \phi \le 2\pi$$

and zero elsewhere. Find the directivity

5. Calculate the value of E_θ/H_ϕ for βr << 1 and βr >> 1]