Q & A for Dipole problem (thanks to Nahid for the questions):

When it is said dipole moment has orientation (θ', ϕ'), if I am correct, it means my dipole will be p=qd δ (cosθ' - cosθ) $\delta(\phi' - \phi)$?
and in this case the potential will be

$$\phi(\mathbf{R}) = \frac{1}{4\pi\varepsilon_0}\frac{q\mathbf{d}\cdot\hat{\mathbf{R}}}{R^2} + O\left(\frac{d^2}{R^2}\right) \approx \frac{1}{4\pi\varepsilon_0}\frac{\mathbf{p}\cdot\hat{\mathbf{R}}}{R^2}$$

and **R** here is $\mathbf{x}-\mathbf{x}_p$ and then I can expand it and so on?

Yes, you seem to have the right answer. Remember that you want the limit where d->0 and q->infinity in such a way that the product remains p=qd, a constant. If you obtained your result this way, then the higher order terms will vanish because of higher powers of d but being still only first order in q.

[I assume you derived your result and did not just write it down from some equation in Jackson.]