HA 3.1 The field $\vec{E}$ of a uniformly charged shell. [50 points]

Consider a charge q uniformly distributed on the surface of a hollow sphere (shell) Σ of radius R. Calculate $\vec{E}$ at any point inside and outside Σ by means of only symmetry arguments and Gauss' theorem. Show calculation in full. Provide as many arguments and comments as possible.