Harmonium atom is a widely known model system in which the attraction potential has been substituted by a harmonic one. The model, which has several features in common with an ordinary atom (binds electrons, has discrete energy spectra and exhibits shell structure governed by Hund's rule), is the simplest solvable correlated model. Two-electron harmonium has been exhaustively reviewed in the literature but a few works have addressed three or more particles harmonium. The latter are of particular interest on the development of DMFT functionals, for which exists an exact two-electron solution. The approach described elsewhere (see talk by Prof. Cioslowski) for the calculation of ground-state energies of the two-electron harmonium atoms is applied in this work to obtain benchmarks for three-electron harmonium.