An accurate approach for diagnosis of attention deficit hyperactivity disorder (ADHD) is presented in this paper. The presented technique efficiently classifies three subtypes of ADHD (ADHD-C, ADHD-H, ADHD-I) and typically developing control (TDC) by using only structural magnetic resonance imaging (MRI). The research examines structural MRI of the hippocampus from the ADHD-200 database. Each available MRI has been processed by a region-of-interest (ROI) to build a set of features for further analysis. The presented ADHD diagnostic approach unifies feature selection and classification techniques. The feature selection technique based on the proposed binary-coded genetic algorithm searches for an optimal subset of features extracted from the hippocampus. The classification technique uses a chosen optimal subset of features for accurate classification of three subtypes of ADHD and TDC. In this study, the famous Extreme Learning Machine is used as a classification technique. Experimental results clearly indicate that the presented BCGA-ELM (binary-coded genetic algorithm coupled with Extreme Learning Machine) efficiently classifies TDC and three subtypes of ADHD and outperforms existing techniques.