Over the past decade, two assessment techniques that have grown in popularity in science education are Concept Mapping (*CM*) [21] and Bloom’s Taxonomy (*BT*) [9]. Concept mapping acts as one of the most powerful graphical tools for the knowledge acquisition [10,11]. Mapping processing shows what learners see as important concepts and how they relate these concepts. Valery et al. in [2] describes how to employ the concept mapping technology in engineering education in the field of electronics to help learners to see what they have acquired from lessons. However, they do not consider the cognitive knowledge level of students. The research works [4,12,18] studied the problem of difficulty in evaluation by using semantic network ontology and do not provide understandable estimation for students. *BT* is to organize higher forms of thinking in education [15]. The major idea of the taxonomy is that the student’s knowledge could be organized in a hierarchy from simple to more complex levels. The knowledge is classified as levels, which are understood to be sequential. To reach a higher level, the previous level must be mastered. The authors in [1] using *BT* levels to estimate a learner’s concept states by using analysis methods without considering relationships between concepts at multiple cognitive bloom level, or “lucky guess” and “careless mistake” dependency, as well as fairly considered academic concepts in a dimension. “Lucky guess” is a case that a student doesn’t know an answer, but he/she can guess it correctly while “careless mistake” is a case that a student know an answer, but he/she answer it incorrectly. From this point of view, we utilize the two techniques to simplify and present an assessment method based on the qualitative-centric concept by using cognitive ability levels. The cognitive ability levels are based on *BT* [2,3].