<u>Abstract</u>

The knowledge of mathematical inequalities has a highly valued and persuade in the modren studies of mathematics. It has a vital rule and it gives us new ways of modren inventions. In this thesis, we find two identities involving quantum derivatives, quantum integrals and some parameters. Using the newly proved identities, we prove generalized inequality of Simpson's and Newton's type for quantum differentiable convex functions involving two and three parameters, respectively. Moreover, we investigate the special cases of our main results and obtain some new and existing Simpson's type inequalities, Newton's type inequalities, mid-point type inequalities and trapezoidal type inequalities. We also prove Jensen-Mercer type inequalities in time scale and Hermite-Hadamard type inequality on discrete calculus. We also prove fractional Hermite-Hadamard-Jensen-Mercer type inequality on discrete calculus. We also give the concept of hamonically convex dominated function with example and Hermite-Hadamarad type inequalities for such type of functions and, an application involving two functionals and means is also given. Moreover we define the quantum version of Hermite-Hadamarad type inequalities for convex dominated function. Application involving two functionals and means are also given.