

**Abstract** – With the increase in computation power and communication bandwidth it has become cheaper to aggregate the computation capabilities. This new model of computation is known as cloud computing. The security of cloud computing model will determine its universal applicability. In this paper we propose a novel homomorphic encryption system which can become a building block of securing the computations performed by cloud. We introduce the notion of semi-perfect secrecy and prove that our system is secure under this setup.

**Key Words** – Cloud Computing, Encryption function, Homomorphic Encryption, Residue Number System.