**APPENDIX B**

**:**

**Table B1 Used symbols in our quantum algorithms with precise descriptions**

|  |  |  |
| --- | --- | --- |
|  | **:** | *Quantum state of superposition, with the qubits to exploring qubits-dimensional Hilbert Space as amplitudes with all column vectors* |
|  | **:** | *Superposition based quantum memory with addresses, each of word size , access by n-qubits address , w-qubits data register* |
|  | **:** | *index remain in superposition of text indices of size qubits or (filtered)* |
|  | **:** | *index data corresponds to entangled address of pattern size qubits* |
|  | **:** | *Pattern data register to store length pattern of size qubits in separate manner* |
| ***, ,*** | **:** | *Qutrit switches which remains in superposition , and transform to states as or* |
|  | **:** | *Ancillary qubit initialize to*  *used in phase inversion to mark amplitude by picking phase factor* |
|  | **:** | *Single qubit whose value is returned to function as the outcome of Boolean oracle of exact search* |
|  | **:** | *This keeps the state of quantum register as with same instance by using the explored qubits* |
|  | **:** | *It initializes the quantum register with zero values as per specified qubits within the register* |
|  | **:** | *An auxiliary register of text size with additional ancillary qubit used for approximate text filtering* |
|  | **:** | *Location array to classically store the filtered text indices as per the measured outcome of filtering* |
|  | **:** | *A location register of size qubits to access filtered text indices stored in array* |
|  | **:** | *A unitary transformation to load data of size as for all entangled address* |
|  | **:** | *A unitary operator to transform qutrit from to or state, is reverse of it.* |
|  | **:** | *A unitary to explore and trace the path as followed by qutrit switches, and copies the data at by performing round trip of bus qubits, corresponding to each address*  *in superposition* |
|  | **:** | *A unitary operation used for exact match between pattern and text substring at each index* |
|  | **:** | *A unitary operator that yields to the phase inversion of the marked solution index by using ancilla qubit* |
|  | **:** | *A unitary operator for amplitude purification, that inverts probability amplitude around mean value* |
|  | **:** | *A unitary transformation that gets n-qubits actual index by i.e. the memory content of then store that address for its further access through i.e. address register* |