**APPENDIX A**

$List of Abbreviations$

**Table A1 Abbreviated names used throughout the article for algorithms and other significant terms**

|  |  |  |
| --- | --- | --- |
| $$CPU, GPU \& QPU$$ | **:** | *Central processing unit, graphics processing unit, and Quantum processing unit* |
| $$CRAM \& QMEM$$ | **:** | *Classical memory or Classical-RAM, and Quantum memory or Quantum-RAM* |
| $$EnQPBEA-MPM$$ | **:** | *Enhanced* $QMEM$ *processing-based exact algorithm for multiple pattern matching*  |
| $$EnQBCEA-MPM$$ | **:** | *Enhanced quantum-based combined exact algorithm for multiple pattern matching* |
| $DNA \& RNA$ | **:** | *Deoxyribonucleic acid, and Ribonucleic acid* |
| $$QEM \& GSO$$ | **:** | *Quantum-exact match, and Grover’s search operator* |
| $$KMP \& BM$$ | **:** | *Knuth-Morris-Pratt algorithm, and Boyer-Moore algorithm*  |
| $$AC, CW \& WM$$ | **:** | *Aho-Corasick algorithm, Commentz-Walter algorithm, and Wu-Manber algorithm* |
| $$BDM \& BSOM$$ | **:** | *Backward DAWG Matching algorithm, and Backward Set Oracle Matching algorithm* |
| $$SO, SA \& BNDM$$ | **:** | *Shift-OR algorithm, Shift-AND algorithm, and Backward Non-Deterministic DAWG Matching*  |
| $$RV-Algorithm$$ | **:** | *Ramesh-Vinay algorithm based on quantum deterministic sampling method* |
| $$QEPM \& QAPM$$ | **:** | *Quantum exact pattern matching algorithm, and Quantum approximate pattern matching algorithm* |
| $$QPBE \& QBCE$$ | **:** | $QMEM$ *processing-based exact algorithm, and Quantum-based combined exact algorithm* |
| $$QEMP \& QAMP$$ | **:** | *Quantum exact multiple pattern, and Quantum approximate multiple pattern matching algorithm* |
| $$QuEST$$ | **:** | *Quantum exact simulation toolkit (used for the proposed quantum algorithm simulation)* |
| $$ANF$$ | **:** | *Algebraic normal form (used to realize* $QMEM$ *and other quantum specific operations using* $QuEST$*)* |
| $$HD$$ | **:** | *Hamming distance method (used for approximate text filtering and matching)* |
| $$QAF$$ | **:** | *Quantum approximate filtering (used for reducing the size of search space in* $EnQBCEA$ *algorithm)* |
| $$EQP \& BQP$$ | **:** | *Exact quantum polynomial time, and Bounded error quantum polynomial time* |
| $$QC \& QAE$$ | **:** | *Quantum counting (used for unknown number of solutions), and Quantum amplitude estimation* |
| $$Exact-QC $$ | **:** | *Exact quantum counting algorithm (used to obtain accurate number of search solutions)* |
| $$Approx.-QC$$ | **:** | *Approximate quantum counting algorithm (used to estimate the number of search solutions)* |
| $$SARS-CoV-2$$ | **:** | *Severe Acute Respiratory Syndrome Corona-Virus 2 (used as gene sequence database in simulation)* |
| $$QASM$$ | **:** | *Quantum assembly instructions (used to record operations executed on registers by quantum gates)* |
| $$No. of CIP$$ | **:** | *Number of correctly identified patterns (evaluated parameter in simulation)* |
| $$No. of IIP$$ | **:** | *Number of incorrectly identified patterns (evaluated parameter in simulation)* |
| $$No. of IMP$$ | **:** | *Number of incorrectly missed patterns (evaluated parameter in simulation)* |
| $$Avg. ET \& CRAM-WS$$ | **:** | *Average Execution Time of Searching, and* $CRAM$ *Workspace (evaluated parameters in simulation)* |