|     |   | The test results of Teleportation mutants   |            |              |                     |
|-----|---|---|------------|--------------|---------------------|
| No. | Main Code   | Mutant Code   | Result     | Run Time(ms) | Executed test cases |
| 1   | if (b1) {Z(qBob);}  | if (b1) {X(qBob);}  | killed     | 14826        | 1                   |
| 2   | if (b2) $\{X(qBob);\}$  | if (b2) {Z(qBob);}  | killed     | 15121        | 1                   |
| 3   | $\begin{array}{c} \text{if } (b1)X(qBob); \\ \text{if } (b2)Z(qBob); \end{array}$   | $\begin{array}{c} \text{if } (b1)Z(qBob);\\ \text{if } (b2)X(qBob); \end{array}$  | killed     | 15542        | 1                   |
| 4   | H(qAlice)   | H(qBob);  | killed     | 29448        | 2                   |
| 5   | H(qMessage)   | H(qAlice);  | killed     | 14475        | 1                   |
| 6   | M(qAlice) == One  | M(qAlice) != One  | killed     | 15890        | 1                   |
| 7   | M(qMessage) == One  | M(qMessage) != One  | not killed | 161437       | 10                  |
| 8   | if (b2) {X(qBob);}  | if statement deleted  | killed     | 15577        | 1                   |
| 9   | CNOT(qMessage, qAlice)  | deleted   | killed     | 13934        | 1                   |
| 10  | CNOT(qMessage, qAlice)  | duplicate   | killed     | 16213        | 1                   |
| 11  | Z(qBob)   | duplicate   | not killed | 162513       | 10                  |
| 12  | X(qBob)   | duplicate   | killed     | 15163        | 1                   |
| 13  | CNOT(qMessage, qAlice);<br>H(qMessage);   | H(qMessage);<br>CNOT(qMessage, qAlice);   | killed     | 15547        | 1                   |
| 14  | H(qAlice);<br>CNOT(qAlice, qBob);   | CNOT(qAlice, qBob); $H(qAlice);$  | killed     | 15229        | 1                   |
| 15  | M(qMessage) == One  | M(qMessage) == Zero   | not killed | 157997       | 10                  |
| 16  | M(qAlice) == One  | M(qAlice) == Zero   | killed     | 14816        | 1                   |
| 17  | H(qMessage);  | H(qMessage); let result = $M(qMessage);$ $H(qMessage);$   | not killed | 169646       | 10                  |
| 18  | $\label{eq:classicalBits} \begin{aligned} &\text{let classicalBits} = \\ &\text{SendMessage\_Reference}(\text{qAlice, qMessage}) \end{aligned}$ | mutable classicalBits = SendMessage_Reference(qAlice, qMessage); set classicalBits = SendMessage_Reference(qAlice, qMessage); | not killed | 60139        | 3                   |
| 19  | ReconstructMessage_Reference (qBob, classicalBits);   | $Reconstruct Message\_Reference (qAlice, \ classical Bits);$  | killed     | 14080        | 1                   |
| 20  | ReconstructMessage_Reference (qBob, classicalBits);   | duplicate   | killed     | 16910        | 1                   |
|     | The mutation score was $= 75$   | The average execution time $= 54530 \text{ (ms)}$   |            |              |                     |