

In [1]:

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import numpy as np

# Importing standard Qiskit libraries
from qiskit import QuantumCircuit, transpile, Aer, IBMQ
from qiskit.tools.jupyter import *
from qiskit.visualization import *
from ibm_quantum_widgets import *
from qiskit.providers.aer import QasmSimulator

# Loading your IBM Quantum account(s)
provider = IBMQ.load_account()
```

In [27]:

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from qiskit import *

q=QuantumRegister(6,'q')

M=ClassicalRegister(3,'c')
#f(x1,x2,x3) = (x2', x1'+x2+x3, x1+x3)
#we are trying to find the periodicity of f using simon's algorithm
Sf = QuantumCircuit(q,M)


for i in range(3):
    Sf.h(q[i])


Sf.cx(q[0],q[2])

Sf.cx(q[2],q[5])
Sf.cx(q[1],q[2])


Sf.cx(q[2],q[4])
Sf.cx(q[1],q[2])
Sf.x(q[0])
Sf.x(q[1])
Sf.cx(q[1],q[3])
Sf.cx(q[0],q[4])


for i in range(3):
    Sf.h(q[i])

    Sf.measure(q[i],M[i])


Sf.draw()


backend = Aer.get_backend('qasm_simulator')
qjob = execute(Sf, backend, shots = 1)


counts = qjob.result().get_counts()
print(counts)

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{'010': 1}
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