Due: Friday October 30

Let $P$ be the following program.
1) $J(1,2,7)$
2) $S(1)$
3) $S(2)$
4) $S(2)$
5) $J(1,3,5)$
6) $J(1,1,,1)$
7) $T(2,1)$
8) HALT

Let $Q$ be the following program.
1) $S(1)$
2) HALT

Let $h(x, y, z)$ be the partial function computed by $P$ and $g(x)$ be the function computed by $Q$.

1) Let $f(x, y)$ be defined by

\[
\begin{align*}
  f(x, 0) &= g(x) \\
  f(x, n + 1) &= h(x, n, f(x, n))
\end{align*}
\]

Follow the proof of Theorem 6.15 to construct a program to compute $f$.

2) Follow the proof of Theorem 6.16 to construct the primitive recursive functions $g_1, g_2, g_3$ and $j$ describing the computation of $P$. 