### 1a. Karnaugh Map

Unsimplified Boolean Function:

\[ F = \]

### 1b. Karnaugh Map (with Don't Care)

Simplified Boolean Function:

\[ F = \]

### 2. Encoder

### 3. Incrementer

### 4. Draw circuits (4.1 and 4.4) on next page, text answers here.

4.2 Result =

4.5 (Brief!)

### 4.3 Sign bit of A-B gives correct result for A<B

Example:

\[
\begin{align*}
A &=  \\
B &= 
\end{align*}
\]

Sign bit of A-B gives incorrect result for A<B

Example:

\[
\begin{align*}
A &=  \\
B &= 
\end{align*}
\]

Reason:
4.1 Condition Flags, Less-Than Flag, 4.4 Equals Flag. Label outputs clearly