Problem 1. Number 4.1.1.

Problem 2. Number 4.1.6.

Problem 3. Number 4.1.9.

Problem 4. Here is the graph $G$ from page 106:

Your assignment is to find all Hamiltonian cycles for $G$.

I have broken this up into nine cases, based on choices at $\bullet_1$ and $\bullet_2$. We drop the edges not to be used.
0.0.1. *Case I.*

![Diagram 1](image1)

0.0.2. *Case II.*

![Diagram 2](image2)
0.0.3. \textit{Case III}: \\

\begin{center}
\begin{tikzpicture}
  \foreach \x in {1,2,3,4,5,6,7,8,9,10} {
    \node[shape=circle,fill=black] (\x) at (\x*1.5,0) {}; 
  }
  \foreach \x in {1} {
    \foreach \y in {2,3,4,5,6,7,8,9} {
      \draw[thick] (\x) -- (\y); 
    }
  }
\end{tikzpicture}
\end{center}

0.0.4. \textit{Case IV}: \\

\begin{center}
\begin{tikzpicture}
  \foreach \x in {1,2,3,4,5,6,7,8,9,10} {
    \node[shape=circle,fill=black] (\x) at (\x*1.5,0) {}; 
  }
  \foreach \x in {1} {
    \foreach \y in {2,3,4,5,6,7,8,9} {
      \draw[thick] (\x) -- (\y); 
    }
  }
\end{tikzpicture}
\end{center}
0.0.5. *Case V*:

![Graph for Case V]

0.0.6. *Case VI*:

![Graph for Case VI]
0.0.7. *Case VII*: 

![Graph Image]

0.0.8. *Case VIII*: 

![Graph Image]
0.0.9. *Case IX:*