1. (40 points) Let $M$ be the TM in Example 8.2.2 on page 261 (the machine for $a^i b^j c^k$). Show the computation sequence for the strings $abc$ and $aabc$.

2. (60 points) Construct TMs that accept the following languages. Write the high-level algorithm executed by the machine and label the sections.

(a) The set of strings over $\{a, b, c\}$ that begin with ‘$a$’, contain exactly two ‘$b$’s, and end with ‘cc’.

(b) $\{a^i b^j c^k \mid i + j = k\}$

(c) $\{ww \mid w \in \{a, b\}^*\}$