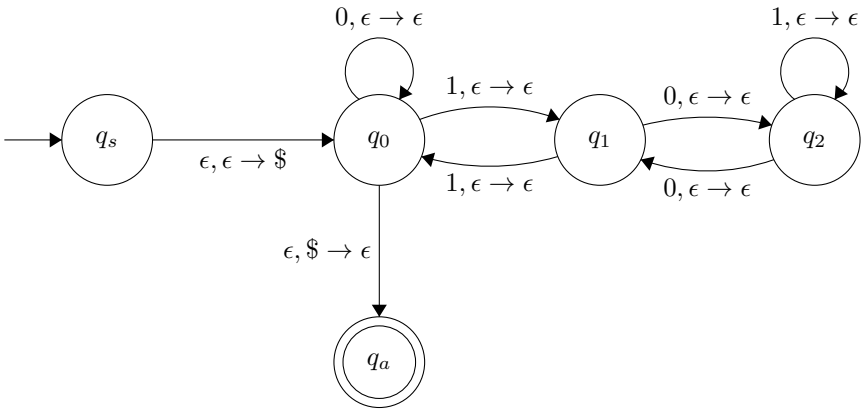
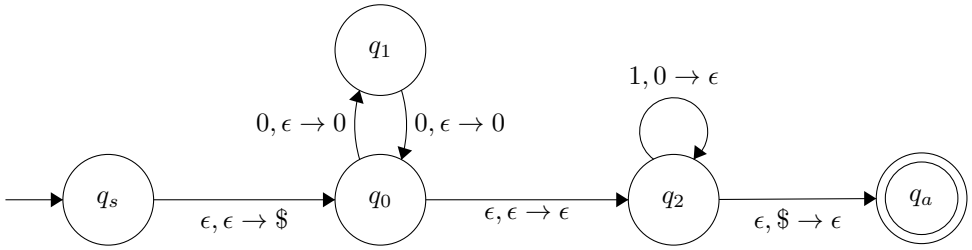
Problem 1

Total: 20 points (10 points each)
Draw the state diagram of PDAs recognizing the following languages.

1. $A = \{w \mid w \text{ is a binary number that can be divided by 3}\}$
   Solution:



2. $B = \{0^{2n}1^{2n} \mid n \geq 0\}$
   Solution:



Problem 2

Total: 10 points
Convert the following CFG into an equivalent PDA.

$$S \to ASB \mid 010$$
$$A \to 0B1B \mid 0$$
$$B \to 1 \mid \epsilon$$

Solution: