(1) a. Let \( \Sigma = \{0, 1\} \). How many elements in the set \( \Sigma \)?
b. Provide \( \Sigma^3 \).
c. Explain what \( \Sigma^* \) represents.
d. Give regexp for all strings in \( \Sigma^* \) equal to decimal number 6.
e. Give regexp for all strings in \( \Sigma^* \) that are powers of two.
f. Give regexp for all strings in \( \Sigma^* \) that are even numbers.
g. Give regexp for all strings in \( \Sigma^* \) that are Binary Coded Decimal (BCD) numbers (include the empty string). A BCD number is a decimal number where each decimal digit is encoded using a 4-bit representation of its binary value. For example, the BCD number of 2509 is 0010010100001001

(2) You are given the following ordered list of token definitions:

\[
\begin{align*}
\text{TOKEN}_A & \quad cda^* \\
\text{TOKEN}_B & \quad c^*a^*c \\
\text{TOKEN}_C & \quad c^*b
\end{align*}
\]

Provide the tokenized output for the following input strings using the greedy longest match lexical analysis method. Provide the list of tokens and the lexeme values.

a. \textit{cdaaab}
b. \textit{cdccc}
c. \textit{ccc}
d. \textit{cdcccd}