1. Consider the following context-free grammar

$$
\begin{aligned}
E &\rightarrow E + T \mid T \\
T &\rightarrow TF \mid F \\
F &\rightarrow (E) \mid V \mid F* \mid F+ \\
V &\rightarrow 0 \mid 1
\end{aligned}
$$

Give the derivations of the following strings:

(a) 01

(b) $0 + 1 + 0$

(c) $((0)*)+$

2. Give context-free grammars for the following languages over the alphabet $\Sigma = \{0, 1\}$:

(a) $\{w \mid w$ contains at least three 1s$\}$

(b) $\{w \mid w$ has an odd number of symbols$\}$

(c) $\{w \mid w$ has an odd number of symbols and a 0 in the middle$\}$