1. Example: Consider the NPDA with $Q = \{q_0, q_1, q_2\}, \Sigma = \{a, b\}, \Gamma = \{a, b, z\}, F = \{q_2\}$, with intitial state $q_0$ and

(a) $\delta(q_0, a, a) = \{(q_0, aa)\}$,
(b) $\delta(q_0, b, a) = \{(q_0, ba)\}$,
(c) $\delta(q_0, a, b) = \{(q_0, ab)\}$,
(d) $\delta(q_0, b, b) = \{(q_0, bb)\}$,
(e) $\delta(q_0, a, z) = \{(q_0, az)\}$,
(f) $\delta(q_0, b, z) = \{(q_0, bz)\}$,
(g) $\delta(q_0, \lambda, a) = \{(q_1, a)\}$
(h) $\delta(q_0, \lambda, b) = \{(q_1, b)\}$,
(i) $\delta(q_1, a, a) = \{(q_1, \lambda)\}$,
(j) $\delta(q_1, b, b) = \{(q_1, \lambda)\}$,
(k) $\delta(q_1, \lambda, z) = \{(q_2, z)\}$.

The language accepted by the NPDA is $\{ww^R \mid w \in \{a, b\}^+\}$.

Show that this PDA accepts the string $bbabbabb$. (List the instantaneous descriptions and corresponding transitions).

2. Construct and NPDA that accepts the language generated by the grammar $S \rightarrow aB \mid c, B \rightarrow bC, C \rightarrow bS$ with start symbol $S$.Briefly explain your steps.