1. All productions are useless because each variable is nongenerating. The language the grammar generates is $\emptyset$.

2. $C$ is not generating, so removing all productions containing $C$ yields
   \[
   S \rightarrow a | aA | B \\
   A \rightarrow aB | \varepsilon \\
   B \rightarrow Aa \\
   D \rightarrow ddd
   \]
   $D$, $c$ and $d$ are not reachable, so the final grammar is
   \[
   S \rightarrow a | aA | B \\
   A \rightarrow aB | \varepsilon \\
   B \rightarrow Aa
   \]

3. Removing useless productions yields
   \[
   S \rightarrow aA \\
   A \rightarrow aaA | \varepsilon
   \]
   To remove $\varepsilon$-productions, we first compute Nullable=$\{A\}$, and then we derive
   \[
   S \rightarrow aA | a \\
   A \rightarrow aaA | aa
   \]
   There are no unit productions, so we are done.

4. The unit pairs are $(S,S), (S,B), (S,A), (B,B), (B,A), (A,A), (A,B)$. The new equivalent grammar without unit productions is
   \[
   S \rightarrow aA | ab | a | bc \\
   B \rightarrow ab | a | bc \\
   A \rightarrow a | bc | ab
   \]
   and, removing useless symbols,
   \[
   S \rightarrow aA | ab | a | bc \\
   A \rightarrow a | bc | ab
   \]