Task 3

a) {A, D} attribute closure is
$X^+ = \{A, B, C, D, E, F\} \Rightarrow$ {A, D} is a candidate key.

candidate keys: 1. {A, B}
2. {A, D}

Task 4

b) FD3 violates BCNF:
decompose R into R_1 and R_2:
R_1 (C, D) to satisfy FD3, $\{C\} \rightarrow \{D\}$
R_2 (A, B, C, E) for the remaining attributes.

FD1 and FD2 cannot be directly applied to R_2, because D is not a part of R_2.

No BCNF violation in R_2

So the final decomposition:

- R_1 (C, D) with FD: $\{C\} \rightarrow \{D\}$, C is candidate key.

- R_2 (A, B, C, E), with the applicable FDs we see no BCNF violation, therefore there was no need for further decomposition.