Q1.

AB→C, ABC→AD, so, ABC→D. D→E.

$\{AB\}^+ = ABCDE$

Q2. D→A NOT FOLLOWS.

First, we have D.

Then, we have DE since D→E.

E doesn't implies anything. So the only thing we have is DE.

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Q3.

a. NOT

we have ABC since AB→C

Nothing else.

b. NOT

AC does not implies anything else

c. ~~YES~~ NOT

we have ADB since D→B

we have ABCD since AB→C

ABCD does not implies anything else.

d. YES.

we have AED since AE→D

we have AEDB since D→B

we have AEDBC since AB→C

So, $\{A,E\}^+ = ABCDE$.

Q4   super key in R: AB, ABC, ABD, ABCD.

All BCNF violations: $B \to C$: {B} is not a super key.
                         $B \to D$: {B} is not a super key.

Decompose: r1(A, B)
           r2(B, C)
           r3(B, D)