CS150A Quiz09

I'd like some properties for my functional dependencies please.

1) Select all the FD's that follow from Armstrong's Axioms

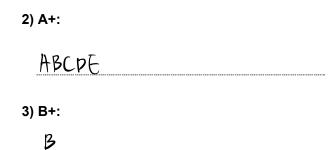
Hint: there's at least one $(2^{-7})^{2}$
Check all that apply. (25) (W)
if $X \to Y$ and $Z \to W$, then $XZ \to YW$
$if X \to Y$ and $WY \to Z$, then $WX \to Z$
if $XZ \rightarrow Y$, then $X \rightarrow Y$
$\iint If \ X \to YZ, \text{ then } X \to Y$
if $X \to Y$ and $X \to Z$, then $X \to YZ$

FD Example

We have a relation R(A, B, C, D, E). We are told that the set of functional dependencies is

$$\mathsf{F} \ = \ \{\mathsf{E} \to \mathsf{BD}, \, \mathsf{A} \to \mathsf{BC}, \, \mathsf{C} \to \underbrace{\mathsf{DE},}_{} \mathsf{D} \to \mathsf{C}\}.$$

Find the attribute closures for each of the attributes. If the attribute closure for X was WXZ, you would fill in "WXZ" without quotes in the answer box.



4) C+:
CDEB
5) D+:
ÞC.
6) E+: FBDC
7) Select the attribute set(s) that are keys for relation R
Hint: there's at least one Check all that apply.
□ E
A A D
□ BCE
ABCDE
8) The attribute closure of (BC)+ is equivalent to the attribute closure of (BD)+. By equivalent we mean the intersection is equivalent to the union of both closure sets. Mark only one oval. True False
9) Is relation R already in Boyce-Codd Normal Form (BCNF)? Mark only one oval.
Yes A superley No
Normalization
BCNF stands for Boyce-Codd Normal Form. For this question, assume the decomposition is performed using the algorithm described in lecture.
10) Decomposing a relation into BCNF does not always guarantee a lossless decomposition. Mark only one oval.
True False

11) Decomposing a relation into BCNF will decomposition. Mark only one oval. True False	always guarantee a dependency preserving
12) Relation R(A, B, C, D, E) is decomposed set of functional dependencies F = {BC → A Note: the decomposition might not follow the Mark only one oval. Yes No	A, C \rightarrow D}. Is this decomposition lossless?