1. D
2. You cannot insert tuple (1,1,3) because the existing tuple is already (1🡪2), and you can’t have the same input (1) produce different outputs (2,3). (0,3,3) can be inserted.
3. R(A,B,C,D,E) A🡪B, C🡪D, AC🡪E Key{A, C}

Check A🡪B *violates*

R1(A,B) R2(A,C,D,E)

Check **R1(A,B)** A🡪B Key{A} **satisfies**

Check R2(A,C,D,E) C🡪D Key{C,A,E} *violates*

R3(C,D) R4(A,C,E)

Check **R3(C,D)** C🡪D Key{C} **satisfies**

Check **R4(A,C,E)** AC🡪E Key{A,C} **satisfies**

**R1(A,B) R3(C,D) R4(A,C,E)**

1. **R(A,B,C,D,E)** D1(BDE🡪A), D2(AC🡪E), D3(B🡪C), D4(DE🡪A)
   1. Dependencies 2, 3, and 4 violate BCNF because none of them contain the superkey (Key={B,D,E}) for the relation
   2. The first dependency does because it does not contain the superkey (Key={B,E})