Q1a

No, it is impossible that a null value for A but a non-null value for D.

Let s natural left outer join t be relations u(B,C,D).

When r natural left outer join u, note that r(A,B), so they will nature join based on B. So no matter what happens, A will never be null in the new table.

Q1b

CREATE TRIGGER MakerAvailable

AFTER DELETE ON Product

FOR EACH ROW

DELECT FROM Manufacturer

WHERE maker IN (SELECT maker FROM Manufacturer

EXCEPT

SELECT maker FROM Product);

Q1c

Delete cascade means that when a delete happens, it will ripple changes to all referring row, which means that after deleting, the foreign key from other table points to the deleted row will also be deleted.

When 4th row (4,5) in relation manager is deleted, then the 5th row (5,7) is deleted, then the 7th row (7,7) is deleted.

Q1d

1. X->Y
2. X->Z
3. X->XZ (Augmentation, 2)
4. XZ->YZ (Augmentation, 1)
5. X->YZ (Transitivity, 3 and 4)