

## DBMS – SOLUTIONS TO ASSIGNMENT 1

1. Permutation of attributes will lead to a different type of relation, thereby violating union operation to be performed.
2. (i) Not necessarily invalid because if  $(R1 - R2)$  is valid then it may satisfy the attribute requirements for performing the division.  
(ii) Always invalid because for performing the theta join attributes are required to be disjoint.
3. The set difference is monotonic with respect to  $R1$  because its growth implies the growth of output relation. However, this is not true for the growth of  $R2$ .
4. No, because the set difference cannot be represented with the given operations.
5. (i) A set of attributes directly connected to an attribute (composite).  
(ii) A single entity is connected to a single relation through a double line (e.g., one person is married to only one person).