. (3) : For transitive : $(1, 2)$ and $(2, 3) \in R \Rightarrow (1, 3) \in R$

For reflexive : $(1, 1), (2, 2), (3, 3) \in R$

Now, for $(2, 1), (3, 2), (3, 1)$;

$(3, 1)$ cannot be taken for not symmetric relation.

Case-I : $(2, 1)$ taken and $(3, 2)$ not taken

Case-II : $(3, 2)$ taken and $(2, 1)$ not taken

Case-III : $(2, 1)$ and $(3, 2)$ are not taken

Therefore, 3 relations are possible.