

Question 2:

a)

Given $AB \rightarrow C, AB \rightarrow D$

One minimal key is AB

Given $AB \rightarrow C, D \rightarrow B$

$AD \rightarrow C$ (pseudo transitivity)

$AD \rightarrow B$ (augmentation)

Another minimal key is AD

Therefore, candidate keys are AB, AD

2. b)

Given $A \rightarrow B, B \rightarrow C$

$A \rightarrow C$ (transitivity)

Given $A \rightarrow B, B \rightarrow D$

$A \rightarrow D$ (transitivity)

Given $B \rightarrow C, C \rightarrow A$

$B \rightarrow A$ (transitivity)

Given $C \rightarrow A, A \rightarrow B$

$C \rightarrow B$ (transitivity)

$C \rightarrow A, A \rightarrow B, B \rightarrow D$

$C \rightarrow D$ (transitivity)

Therefore, $A \rightarrow B \rightarrow C \rightarrow D \rightarrow A$

Therefore, candidate keys are A, B, C, D