A	B	C	D	E
a	2	3	4	5
2	a	3	4	5
2	2	3	6	5
a	2	3	6	6

a) $A \rightarrow BC$

b) $DE \rightarrow C$

c) $C \rightarrow DE$

d) $BC \rightarrow A$

X	Y	Z
1	4	2
1	5	3
1	6	3
3	2	2

a) $XY \rightarrow Z$ && $Z \rightarrow Y$

b) $YZ \rightarrow X$ && $Y \rightarrow Z$

c) $YZ \rightarrow X$ && $X \rightarrow Z$

d) $XZ \rightarrow Y$ && $Y \rightarrow Z$

A	B	C
1	2	4
3	5	4
3	7	2
1	4	2

a) $A \rightarrow B$ && $BC \rightarrow A$

b) $C \rightarrow B$ && $CA \rightarrow B$

c) $B \rightarrow C$ && $AB \rightarrow C$

d) $A \rightarrow C$ && $BC \rightarrow A$

$(A'+B')'$

R (A B C)

$A \rightarrow B$

$B \rightarrow C$

Q.) Find Closure Set of A^+ ,B^+ and C^+

Ans:-

$A^+ = \{ ABC \}$

$B^+ = \{ BC \}$

$C^+ = \{C \}$

R (A B C D E F G)

A $\rightarrow$ B

BC $\rightarrow$ DE

AEG $\rightarrow$ G

$(AC)^+ =$

R (A B C D E)

A $\rightarrow$ BC

CD $\rightarrow$ E

B $\rightarrow$ D

E $\rightarrow$ A

$(B)^+ =$

R (A B C D E F)

AB $\rightarrow$ C

BC $\rightarrow$ AD

D $\rightarrow$ E

CF $\rightarrow$ B

$(AB)^+ =$

R (A B C D E F G H)

A $\rightarrow$ BC

CD $\rightarrow$ E

E $\rightarrow$ C

D $\rightarrow$ AEH

ABH $\rightarrow$ BD

DH $\rightarrow$ BC

BCD $\rightarrow$ H?

$(A' + B')'$

1

R (A B C D E F G)

A → B

BC → DE

AEG → G

$(AC)^+ =$

$(AC)^+ =$ AC

ABC

ABCDE

2

R (A B C D E)

A → BC

CD → E

B → D

E → A

$(B)^+ =$

$(B)^+ =$ B

BD

3

R (A B C D E F)

AB → C

BC → AD

D → E

CF → B

$(AB)^+ =$

$(AB)^+ =$ AB

ABC

ABCD

ABCDE

4

R (A B C D E F G H)

A → BC

CD → E

E → C

D → AEH

ABH → BD

DH → BC

BCD → H?

First We will find BCD Closure.

$(BCD)^+ =$ BCD

BCDE

ABCDEH $(A' + B')'$

$\therefore$ BCD → H

1

R (A B C D E F G)

A → B

BC → DE

AEG → G

$(AC)^+ =$

$(AC)^+ =$ AC

ABC

ABCDE

2

R (A B C D E)

A → BC

CD → E

B → D

E → A

$(B)^+ =$

$(B)^+ =$ B

BD

3

R (A B C D E F)

AB → C

BC → AD

D → E

CF → B

$(AB)^+ =$

$(AB)^+ =$ AB

ABC

ABCD

ABCDE

4

R (A B C D E F G H)

A → BC

CD → E

E → C

D → AEH

ABH → BD

DH → BC

BCD → H?

First We will find
BCD Closure.

$(BCD)^+ =$ BCD

BCDE

ABCDEH $(A' + B')'$

BCD → H

Equivalence on Set of Functional Dependencies

R (A B C D E F G)

F: $A \rightarrow B$
$AC \rightarrow D$
$E \rightarrow AD$
$E \rightarrow H$

G: $A \rightarrow CD$
$E \rightarrow AH$

(a) $F \subseteq G$
(b) $G \subseteq F$
(c) $F = G$
(d) $F \neq G$

$(A' + B')'$