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Section - H

## Database

### Assignment 5

Q.1

(a)

$R(A, B, C, D, E, F, G, H, I)$

$FD: \{AB \rightarrow C, BD \rightarrow EF, AD \rightarrow GH, A \rightarrow I\}$

Not exists	Left	Middle	Right
	A		C
	B		E
	D		F
			G
			H
			I

$(A)^+ = AI$

$(B)^+ = B$

$(D)^+ = D$

$(AB)^+ = ABCI$

$(AD)^+ = ADGHI$

$(ABD)^+ = ABCDEFGHI$  (S.K) (C.K)

$(ABDC)^+ = ABCDEFGHI$  (S.K)

$(ABDE)^+ = ABCDEFGHI$  (S.K)

$(ABDF)^+ = ABCDEFGHI$  (S.K)

$(ABDG)^+ = ABCDEFGHI$  (S.K)

$(ABDH)^+ = ABCDEFGHI$  (S.K)

$(ABDI)^+ = ABCDEFGHI$  (S.K)

$(ABDCEFGHI)^+ = ABCDEFGHI$  (S.K)

(b)

$R(V, W, X, Y, Z)$

FD:  $\{X \rightarrow YV, Y \rightarrow Z, Z \rightarrow Y, VW \rightarrow X\}$

Not exists	Left	Middle	Right
	W	V	
		X	
		Y	
		Z	

$$(W)^+ = W$$

$$(WV)^+ = VWXYZ \quad (S.K) \quad (C.K)$$

$$(WX)^+ = VWXYZ \quad (S.K)$$

$$(WY)^+ = WYZ$$

$$(WZ)^+ = WYZ$$

$$(WVXYZ)^+ = VWXYZ \quad (S.K) \quad (C.K)$$

(c)

$R(A, B, C, D, E, F)$

FD:  $\{ABC \rightarrow D, ABD \rightarrow E, CD \rightarrow F, CDF \rightarrow B, BF \rightarrow D\}$

Not exists	Left	Middle	Right
	A	B	E
	C	D	
		F	

$(A)^+ = A$

$(C)^+ = C$

$(AC)^+ = AC$

$(ACB)^+ = ABCDEF \quad (S.K) (C.K)$

$(ACD)^+ = ABCDEF \quad (S.K)$

$(ACF)^+ = ACF$

$(ACBDF)^+ = ABCDEF \quad (S.K) (C.K)$

$(ACBDFE)^+ = ABCDEF \quad (S.K)$



(d)

$R(A, B, C)$

$FD: \{A \rightarrow B, B \rightarrow C, C \rightarrow A\}$

Not exists

Left

Middle

Right

A

B

C

$(A)^+ \quad I = ABC \quad (S.K) \quad (C.K)$

$(B)^+ \quad I = ABC \quad (S.K) \quad (C.K)$

$(C)^+ \quad I = ABC \quad (S.K) \quad (C.K)$

$(AB)^+ \quad I = \{ABC\} \quad (S.K)$

$(AC)^+ \quad I = \{ABC\} \quad (S.K)$

$(ABC)^+ \quad I = ABC \quad (S.K)$

(e)

$R(ABCDEH)$

$FD: \{A \rightarrow B, BC \rightarrow D, E \rightarrow C, D \rightarrow A\}$

Not exists

Left

Middle

Right

H

A

B

C

D

$(H)^+ \mid = H$

$(HA)^+ \mid = ABH$

$(HB)^+ \mid = HB$

$(HC)^+ \mid = HC$

$(HD)^+ \mid = AB DH$

$(HABCD)^+ \mid = ABCDH \quad (S.K) (C.K)$