

STUDENT'S NAME	Sunag P	TOTAL MARKS OBTAINED
CLASS	SUBJECT	
ROLL NO.	DATE 17-6-21	

DBMS

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Part - A

i)  $R \cdot B < S \cdot B$

A	R.B	S.B	C
1	2	3	4
1	2	7	8
1	3	7	8
5	6	7	8
1	2	3	4
1	2	7	8

ii) Left outer join on R & S

R  $\bowtie$  S

A	B	C
1	3	4
1	2	1
5	6	1
1	2	1

iii) To find union and intersection we must have same attributes in both the relation but the given relations do not have same attributes hence we cannot find union & intersection.

$R(A, B)$   $S(B, C)$  hence cannot find union & intersection



iv) Natural join of R & S.  
RMS

A	B	C
1	3	4

Part-B

a) i)

create view Bbranch as select  
customer-name, depositor-account-number,  
from depositor, account where  
account-account-number = depositor-account  
-number and branch-name = "Basavangudi";

ii) create view customerdetails as select  
customer.customer-name, concat(customer-street, "  
customer-city) as address from  
customer, depositor where  
customer.customer-name = depositor.customer  
-name and customer.customer-name  
not in (select customer-name from  
borrower);

iii) insert into Bbranch values  
("Sun", "123456789", "Basavangudi");

insert into customerdetails values  
("Sun", "laggere, Bangalore");



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iv) Delete from Bbranch where  
customer-name = "Sun" ;

Delete from customerdetails where  
customer-name = "Sun" ;

2) a) b)

Rollno  $\rightarrow$  Name

Rollno  $\rightarrow$  Marks

Rollno, Name  $\rightarrow$  Marks

Rollno  $\rightarrow$  Rollno

Name  $\rightarrow$  Name

Marks  $\rightarrow$  Marks

Rollno, Marks  $\rightarrow$  Name

Rollno, Name  $\rightarrow$  Name

Rollno  $\rightarrow$  Name, Marks

Rollno  $\rightarrow$  Rollno, Name

Name  $\rightarrow$  marks

marks  $\rightarrow$  Name

2) a) c) Trivial function dependencies

1) emp-id  $\rightarrow$  emp-id ( $\because$  emp-id is subset  
of itself)

2) emp-id, emp-name  $\rightarrow$  emp-name

here emp-name is the subset of  
emp-id, emp-name

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3)  $\text{emp-name} \rightarrow \text{emp-name}$  ( $\because$   $\text{emp-name}$  is subset of itself)

4)  $\text{emp-address} \rightarrow \text{emp-address}$   
( $\because$   $\text{emp-address}$  is subset of itself)

5)  $\text{emp-mobile} \rightarrow \text{emp-mobile}$  ( $\because$   $\text{emp-mobile}$  is subset of itself)

Non-trivial

1)  $\text{emp-id} \rightarrow \text{emp-name}$   
( $\because$   $\text{emp-name}$  is not a subset of  $\text{emp-id}$ )

2)  $\text{emp-id} \rightarrow \text{emp-address}$   
( $\because$   $\text{emp-address}$  is not a subset of  $\text{emp-id}$ )

3)  $\text{emp-id, emp-name} \rightarrow \text{emp-address}$   
( $\because$   $\text{emp-address}$  is not a subset of  $(\text{emp-id, emp-name})$ )

4)  $\text{emp-id, emp-address} \rightarrow \text{emp-name}$   
(RHS is not a subset of LHS)

5)  $\text{emp-id, emp-mobile} \rightarrow \text{emp-name}$   
(RHS is not a subset of LHS)

P. Sunag



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Past - C

3) a) i) select person-name, salary from  
works

;

ii) select E1.person-name from  
Employee as E1, Employee as E2,  
Manages as M where E1.person-name  
= M.person-name and E2.person-name =  
M.manager-name and E1.street =  
E2.street and E1.city = E2.city

iii) select \* from employee  
where person-name in (select person-  
name from works where salary  
> 10000);

iv) select Employee.person-name from  
Employee, works, company where  
Employee.person-name = works.person-name  
and Employee.city = company.city and  
works.company-name = company.company-  
name ;

v) Select manager-name from Managers  
where manager-name in (select  
person-name from managers);

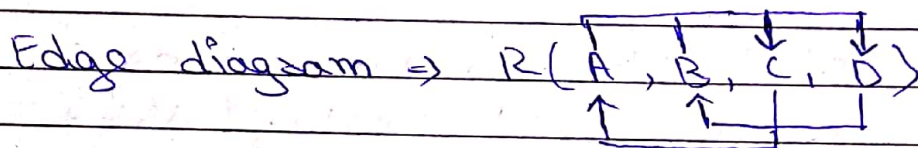
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3) ~~Agg~~  $R(A, B, C, D)$

$AB \rightarrow CD$

$D \rightarrow B$

$C \rightarrow A$



$(A)^+ = A$

$(B)^+ = B$

$(C)^+ = (C, A)$

$(D)^+ = DB$

$(AB)^+ = ABCD$

$(CD)^+ = ABCD$

Hence we have 2 candidate key  
 $AB$  &  $CD$ , any other super  
key will have  $AB$  &  $CD$  within  
it hence  $AB$  &  $CD$  are the  
only candidate keys  
i.e. any thing added to  $AB$  or  
 $CD$  result is super key but not  
candidate key



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

$AB \rightarrow C, C \rightarrow DE, E \rightarrow F, D \rightarrow A, C \rightarrow B$

$$A^+ = A$$

$$B^+ = B$$

$$C^+ = (C, DE, A, B, F)$$

$$D^+ = (A, D)$$

$$E^+ = (E, F)$$

$$F^+ = (F)$$

closure of attributes

$$(AB)^+ = (A, B, C, D, E, F)$$

$$A^+ = (A)$$

$$(ABF)^+ = (A, B, C, D, E, F)$$

$$DB^+ = (D, B, A, C, E, F)$$

$$EF^+ = (E, F)$$

$$CB^+ = (C, D, E, A, B, F)$$

$$(BC)^+ = (C, D, E, A, B, F)$$

$$DEF^+ = (D, E, F, A)$$

$$D^+ = (D, A)$$

$$F^+ = F$$

super key  $\Rightarrow (AB)^+, (ABF)^+, (DB)^+, (CB)^+, (BC)^+$  because they can uniquely identify a tuple in a table.

candidate key  $\Rightarrow (AB)^+, (DB)^+, (CB)^+, (BC)^+$  are candidate key because their proper sub-set is not part of super key for the given closure.  
C is also candidate key

JSB Gold

Paper