Mohammad Elkholy   900202159

Q1) a) i) Candidate Keys: SID, Area, PID

ii) Dependencies:

SID	name	Area	Comm	PID	Qty
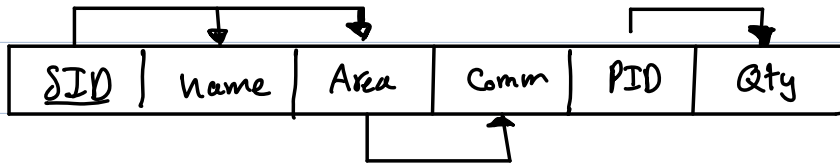
iii) 1NF: 2NF fails as Qty depends on PID which is a candidate Key. 1NF satisfied due to atomicity & presence of primary key

iv) 3NF:

SID	Name	Area

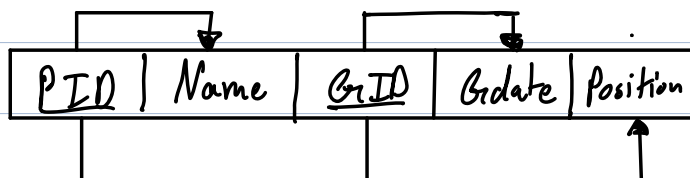| SID	PID	Qty

Area	Comm
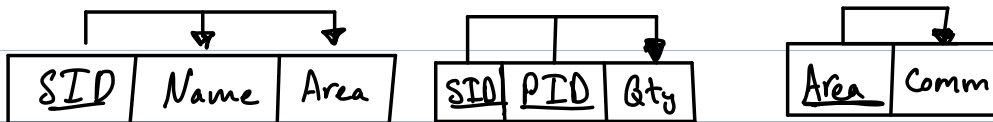
remove dependencies between non primary key attributes Also in BCNF.
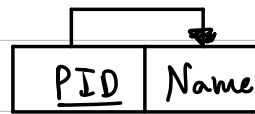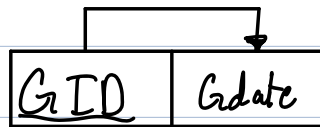
b) Atlanta (PID, name, GID, Gdate, position)
i) keys: PID, GID
ii)

PID	Name	GID	Gdate	Position

iii) 1NF, atomic & primary key (PID) exists but violates 2NF as there are dependencies on subset of PK : {PID} → {Name}   & {GID} → {GDate}

iv)

GID	Gdate

PID	Name

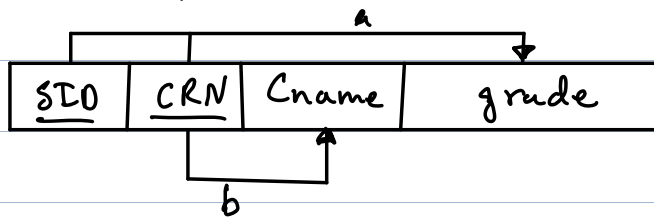| PID	GID	Position

$\Rightarrow$ Now in BCNF $\Rightarrow$ no dependencies on non-candidate keys & only depend on PKs.

c) Grade(SID, CRN, Cname, grade)

i) keys: SID, CRN

ii)

SID	CRN	Cname	grade

a, b

iii) 1NF, partial dependency b violates 2NF

iv)

CRN	CName
b

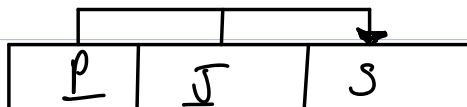| SID	CRN	Grade
a
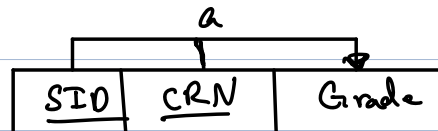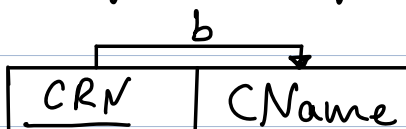
$\Rightarrow$ BCNF: every non-primary attribute depends only on PKs, no transivity

d) Exam (S, J, P), no two studes have same position

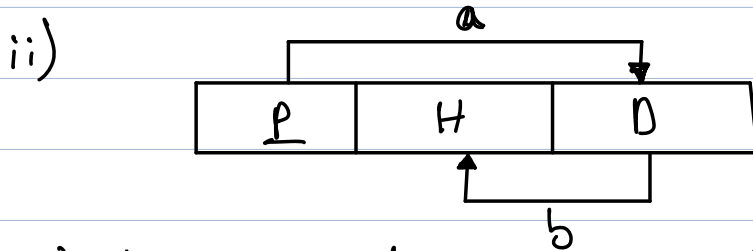i) J, P are keys

ii)

P	J	S

iii) BCNF   iv) No more normalization can be done

e) PHD (P , H , D) , each patient examined by only
one doctor , each doctor works for one hospital

i) keys: P

ii)

iii) transitive dependency in b so 2NF.

iv)

Now in BCNF as no transitive dependency
& since it is only one PK, 3NF = BCNF

Q2) a) Grant Select, Update ON Employee,
Dept_locations, Project, Department, Works_on
to A With Grant option;

b) Create View Emp As Select FName, MINIT,
LName, SSN, BDate, Address, Sex, Superssn, DNO
From Employee;

Create View Dep As Seled DName, DNumber
From Department;

Grant Select On Emp to B;
Grant Select On Dep to B;

c) Grant Select, Update On Works_on to C;

Create View CEmp As Seled FName, MINIT,
LName, SSN From Employee;

Create View CProj As Select PName, PNumber
From Project;

Grant Select On CEmp to C;
Grant Select on CProj to C;

d) Grant Select On Employee, Dependent to D;
Grant Update On Dependent to D;

e) Create View EEmp As Select * From
Employee Where DNO = 3;

Grant Select On EEmp to E;