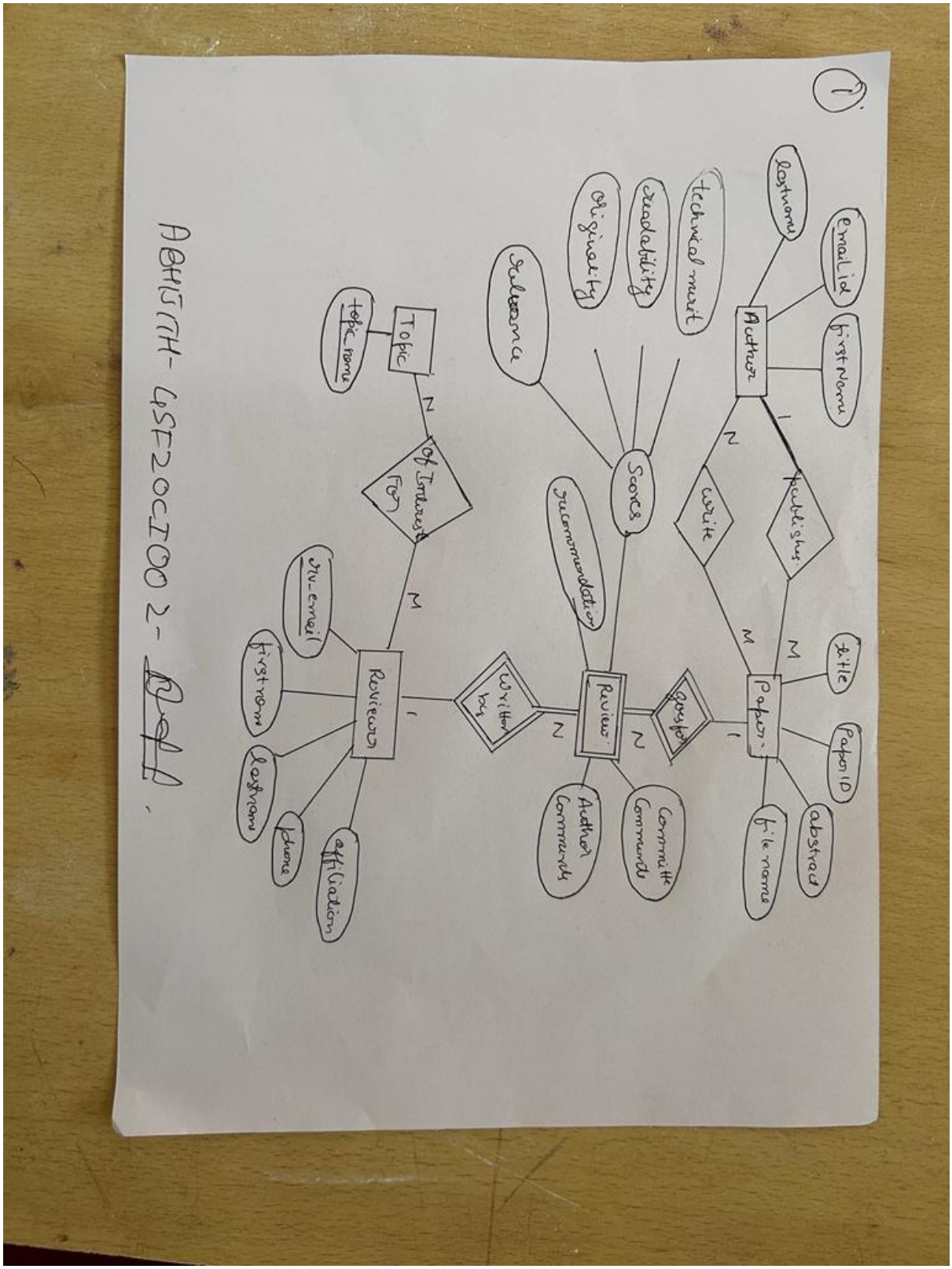
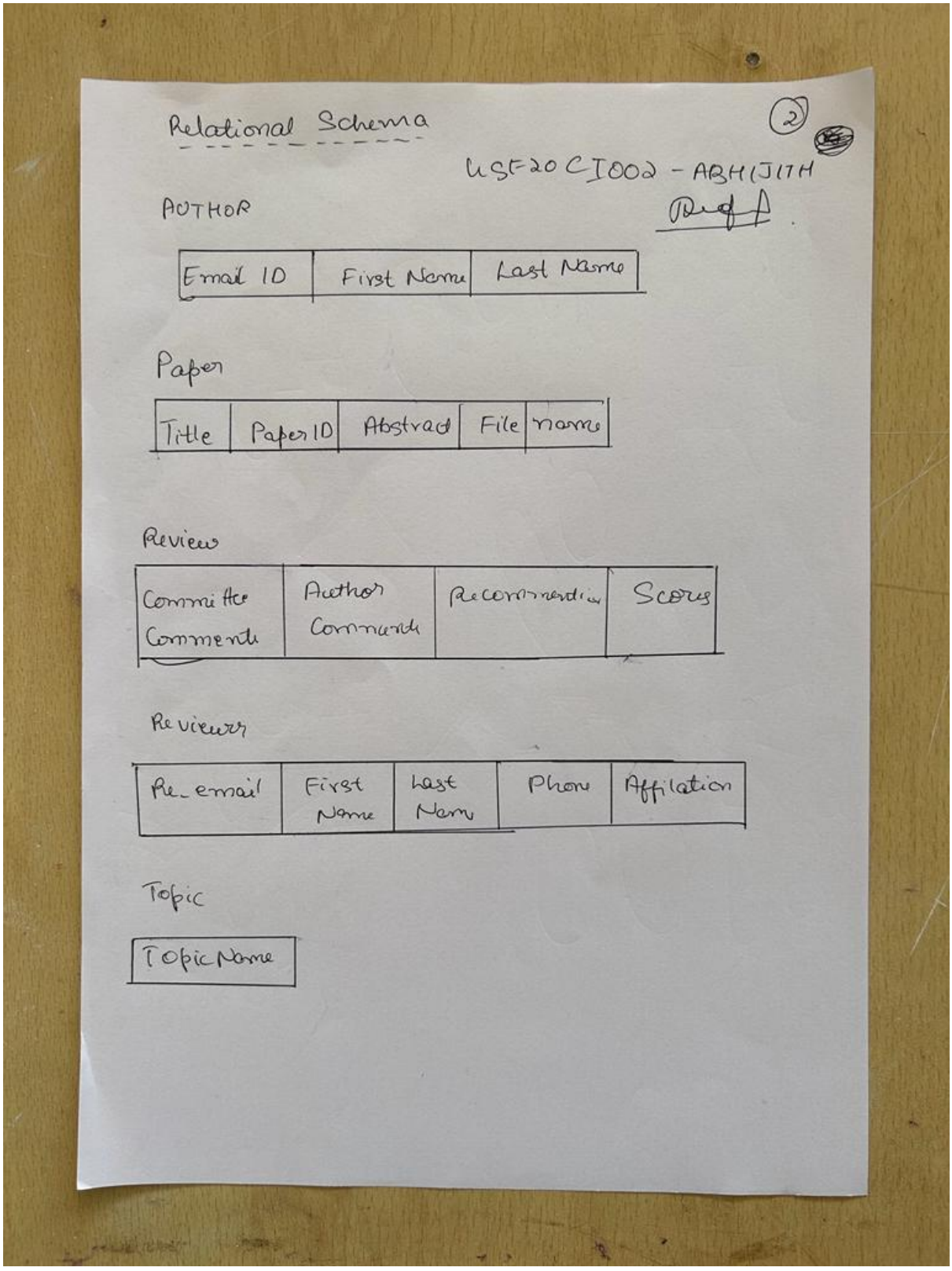
1. Design an ER schema for the CONFERENCE_REVIEW database



2. Map the abive ER schema into relational schema



Relational Schema

(2)

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AUTHOR

Email ID	First Name	Last Name

Paper

Title	Paper ID	Abstract	File name

Review

Committee Comments	Author Comments	Recommendation	Score

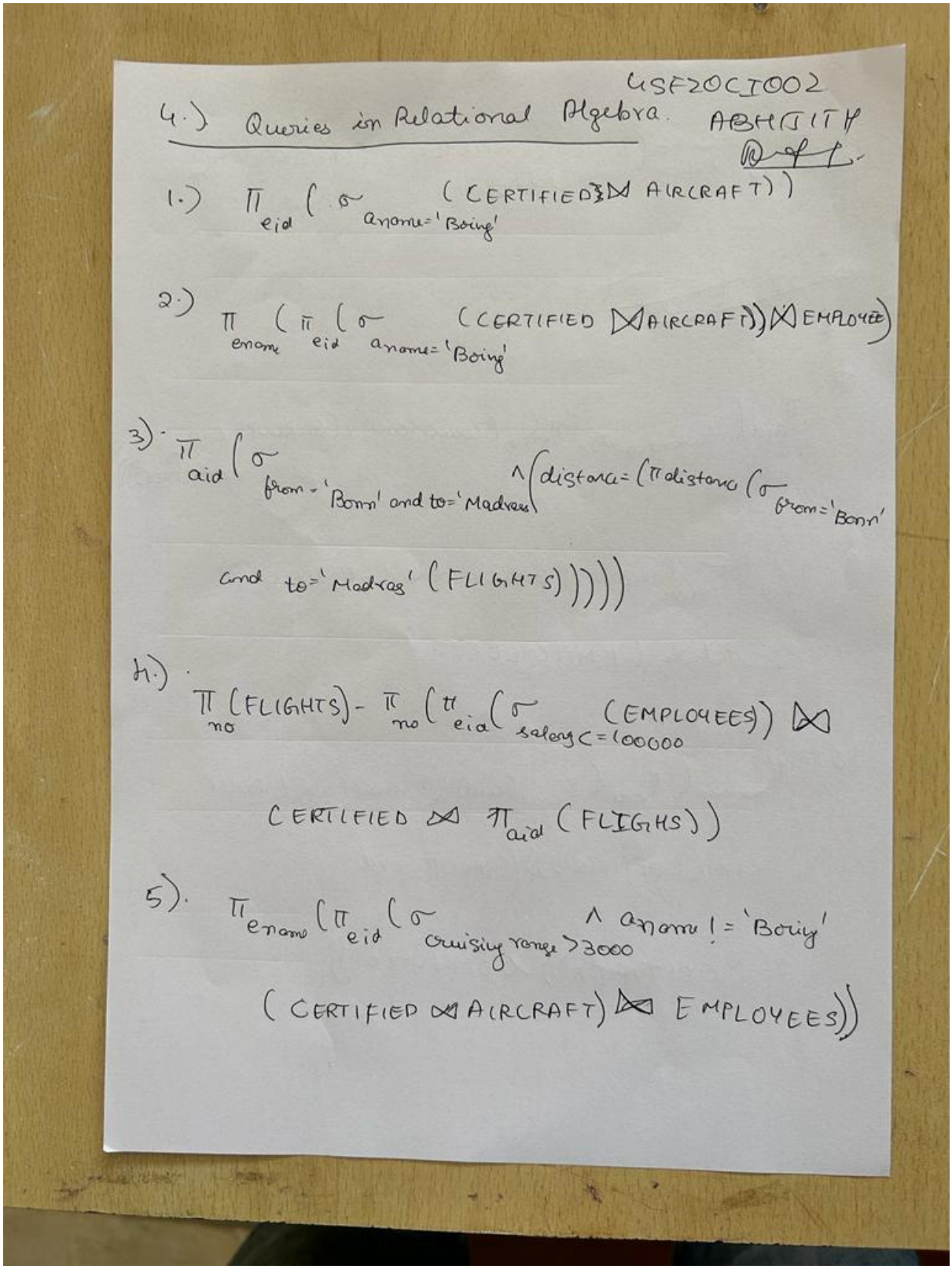
Reviewer

Re_email	First Name	Last Name	Phone	Affiliation

Topic

Topic Name

4.



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4.) Queries in Relational Algebra.

1.) $\Pi_{eid}(\sigma_{aname='Boing'}(CERTIFIED \bowtie AIRCRAFT))$

2.) $\Pi_{ename}(\Pi_{eid}(\sigma_{aname='Boing'}(CERTIFIED \bowtie AIRCRAFT)) \bowtie EMPLOYEE)$

3.) $\Pi_{aid}(\sigma_{from='Bonn' \text{ and } to='Madras'} \wedge (distance = (\Pi_{distance}(\sigma_{from='Bonn' \text{ and } to='Madras'}(FLIGHTS)))))$

4.) $\Pi_{no}(FLIGHTS) - \Pi_{no}(\Pi_{eid}(\sigma_{salary<=100000}(EMPLOYEES)) \bowtie CERTIFIED \bowtie \Pi_{aid}(FLIGHTS))$

5.) $\Pi_{ename}(\Pi_{eid}(\sigma_{cruising\ range>3000 \wedge aname != 'Boing'}(CERTIFIED \bowtie AIRCRAFT) \bowtie EMPLOYEES))$

6. $\pi_{eid}(\sigma_{salary=(\pi_{max(salary)}(EMPLOYEES))}(EMPLOYEES))$.

~~7. $\pi_{eid}(\sigma_{salary=}$~~

7. $\pi_{eid}(\sigma_{count(aid)=\pi_{max}(count(aid))}(GROUP\ EID\ (CERTIFIED)))$

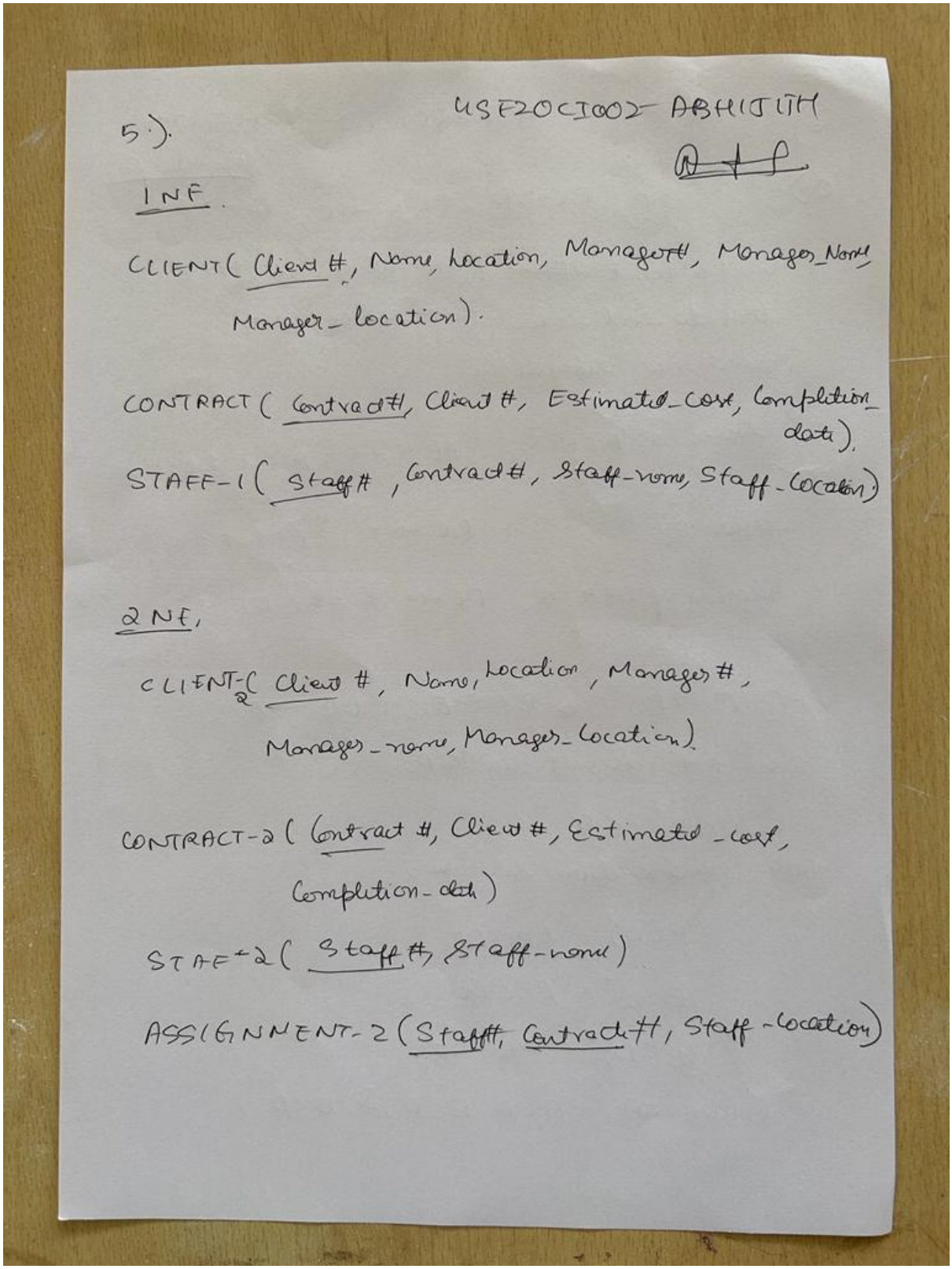
8. $\pi_{eid}(\sigma_{count(aid)=3}(GROUP\ eid\ (CERTIFIED)))$

9. $\Sigma salary\ (EMPLOYEES)$

10. $\pi_{ename}(\pi_{eid}(\sigma_{count(aid)=(\pi count(aid)\ GROUP\ eid\ (CERTIFIED))}(GROUP\ eid\ (CERTIFIED)) \bowtie EMPLOYEES))$

z

5.)



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1NF.

CLIENT(Client #, Name, location, Manager#, Manager_Name, Manager_location).

CONTRACT(Contract#, Client #, Estimated_cost, Completion_date).

STAFF-1(Staff #, Contract#, Staff-name, Staff_location)

2NF.

CLIENT-2(Client #, Name, location, Manager #, Manager_name, Manager_location).

CONTRACT-2(Contract #, Client #, Estimated_cost, Completion_dth)

STAFF-2(Staff #, Staff-name)

ASSIGNMENT-2(Staff#, Contract#, Staff-location)

6.)

6) KSF20CI002- ABHIJITH

a). $A \to B$, $BC \to D$, $E \to C$, $D \to A$

We start ~~fraction~~ from set of all the attributes and reduce them using given functional dependency.

Closure of AEH ie $AEH^+ = \{A\ B\ C\ D\ E\ H\}$

Closure of BEH ie $BEH^+ = \{A\ B\ C\ D\ E\ H\}$

Closure of DEH ie $DEH^+ = \{A\ B\ C\ D\ E\ H\}$

b). ① $A \to B$, $BC \to E$, $ED \to A$

Since RHS doesn't have CD,

$(CD)^+ = CD$

Now combination will be,

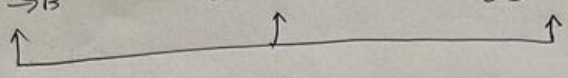
$(ACD)^+ = ABCDE$

$(BCD)^+ = ABCDE$

$(ECD)^+ = ABCDE$

So keys, are, ACD, BCD, & ECD.

⑤ $A \rightarrow B$ $\quad BC \rightarrow E$ $\quad ED \rightarrow A$



All are prime attributes,

So, R(ABCDE) is 3NF

③ $\underline{A} \rightarrow B$, $\underline{BC} \rightarrow E$, $\underline{ED} \rightarrow A$

Relation not in BCNF

* Even if 1 FD violets, it will not not be in BCNF.

7.)

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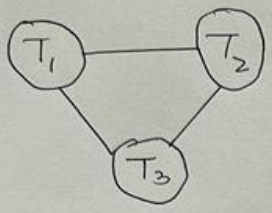
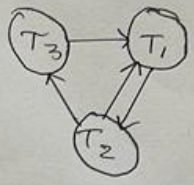
7.)

1:).

S1



S2



∴ S1 is Serializable

2:)

S1

×

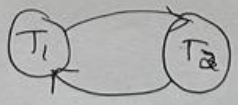
S2

✓

S3

✓

S4



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Only S1 & S2 are ~~this~~ Conflict Serializable