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Section : PC-OLD

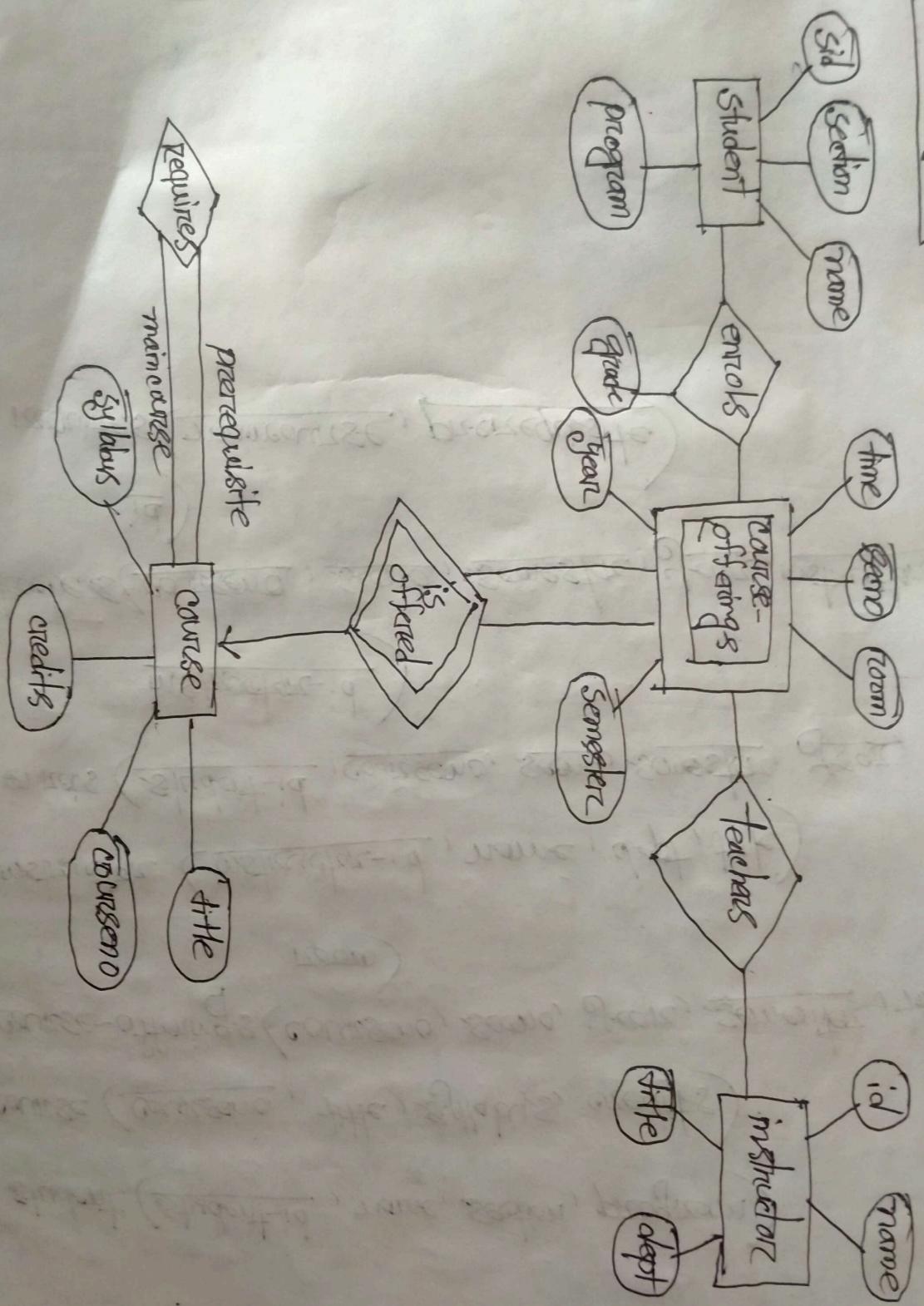
Course-Code : CSE311

Final Assessment

Answer To The Question No 1

- a) I had to make a project for University Resi Registrars office maintains data about the following entities:
 - * course, including member, title, credits, syllabus and prerequisites.
 - * course offerings, including course number, year, semester, section number, instructor, timings and classroom.
 - * students, including student-id, name, and program.
 - * section, including
 - * Instructors, including identification number, name, department and title.

b) E-R Diagram:



a)

student (student-id, name, section, program)

course (courseno, title, syllabus, credits)

course-offerings (courseno, secano, year, semester, time, room)

instructor (instructor-id, name, dept, title)

enrols (student-id, courseno, secano, semester, year,
instructor-id)

teachers (courseno, secano; semester, year, instructor-id)

requires (maincourse, prerequisite)

d)

Table name: Students

Sid	name	Programme	Section
172-97	Anik chandra	BSc in CSE	PC-B
172-98	SH Himeh	BSc in CSE	PC-B
151-206	Radeem Hassan	BSc in CSE	PC-OLD
172-14	Istiaq Ahmed	BSc in EEE	PC-A
172-15	Tamir kabirz	BSC in LLB	PC-C
161-15	Soikat Hasan	BSC in SWE	PC-A
182-72	Ashik Bappy	BSC in SWE	PC-B
191-19	Tabassum Tanha	BSc in EEE	PC-C
171-89	Omar Ali	BSc in CSE	PC-B
192-20	Rokib Hasan	BSC in SWE	PC-A

- i) SELECT * from Students
- ii) SELECT name from Students where Sid = ANY
~~(SELECT sid from enrols where stud sid = 1)~~
- iii) SELECT * from Students where programme IN
~~(CSE, EEE (BSc in CSE, BSc in EEE, BSc in SWE))~~

- i) SELECT name from Students Limit 5
- v) SELECT name from ~~all~~ Students UNION
SELECT title from course.
- vi) SELECT * from Students INTERSECT
SELECT * from course.
- vii) SELECT * from Students MINUS
SELECT * from course
- viii) SELECT name from Students where EXISTS
(SELECT sid from encols where sid = j)

Answer To The Q.N.2

A) Stored Procedures are a pieces of the code in writing \oplus in PL/SQL to do some specific task. Stored Procedures can be invoked explicitly by the user. On the other hand trigger is a stored procedure that runs automatically when various events happen.

Now, difference between stored procedures and trigger are:

Trigger	Stored Procedures
It can execute automatically based on events	It can be invoked explicitly by the user
It can not take input as parameter	It can take input as a parameter
We can't use transaction statements inside a trigger.	We can use transaction statements.
Trigger can not return values	Stored procedures can return values

B) A transaction in a database system must maintain Atomicity, Consistency, Isolation and Durability. It is an action or series of actions that are being performed by a single user or application program which reads or updates the contents of the database. For example:

If a transaction starts updating 100 rows but the system fails after 20 updates, then the database rolls back the changes to these 20 rows.

c) Authentication is the process of verifying who a user is while authorization is the process of verifying what they have access to comparing these processes to a ~~real world~~

Authentication	Authorization
Verifies credentials	Gives or denies permissions
Through password, biometrics, one-time pins or apps	Through settings maintained by security teams
It is visible to the user	Not visible to the user.
It is partially changeable by the user	Not partially changeable by the user
Data move through ID token	Data move through access token.

D)

Deadlock is a condition where a program can not access a resource it because a requested system resource is held by another waiting process, which in turn is waiting for another resource held by another waiting process.

For example: The following situation will cause a deadlock between two processes: Process 1 requests resource B from process 2 resource B is locked while process 2 is running.

To minimize deadlock:

- Ensure the database design is properly normalized.
- Do not allow any user input during transactions.
- Avoid cursors.
- keep transactions as short as possible.

A deadlock resolving clause is a contractual clause or series of clauses in a shareholders agreement which determines how disagreements on key issues are to be resolved in relation to the management of the enterprise.

Answer To The Q.N. 3

A) INSERT INTO SALES (Emp-No, Emp-Name, Store-Branch, Department, Item-No, Item-Description, Sale-Price) VALUES

(1, "Anik Chandra", "Asulia", "CSE", 20, "Description", 5000),

(2, "Bappy", "Saver", "ESE", 21, "Description", 7000),

(3, "Himel", "Mirpur", "EEE", 23, "Description", 6000),

(4, "Akash", "Asulia", "SWE", 24, "Description", 8000),

(5, "Istiqaf", "Saver", "LLB", 22, "Des", 6500),

(6, "Tannir", "Uttara", "SWE", 24, "Des", 7500),

(7, "Ruble", "Mirpur", "CSE", 25, "Des", 9000).

- (8, 'Nation', 'Asia', 'BBA', 24, 'Des', 2000),
(9, 'Piday', 'Sawi', 'CSB', 25, 'Des', 5500),
(10, 'Sokat', 'Asia', 'BBA', 28, 'Des', 9000).

B)

Insertion: An insertion occurs when we are inserting inconsistent information into a table.

An insertion anomaly is the inability to add data to the database due to absence of the other data.

Deletion Anomaly: A deletion anomaly occurs when you delete a record that may contain attributes that shouldn't be deleted.

- remove all redundant data from the database
- removing undesirable insertions, updates and deletion dependencies.

Updating Anomalies: An update anomaly is a data inconsistency that results from data redundancy and a partial update.

- ⑤ Each employee in a company has a department associated with them as well as the student group they participate in.
- ⑥ A relation will be in 3NF if it is 2NF and no transitive dependency exist and a relation will be in 2NF if it is in 1NF and all non-key attribute are fully functional dependent on the primary key.

for the table mentioned above do not have anything to do for 1NF as there is not

atomic domain. But the table we have to follow second ~~normally~~ normal form then every non-prime attribute should be fully functionally dependent on prime key attribute. If $X \rightarrow A$ holds then there should not be any proper subset Y of X for which $Y \rightarrow A$ also holds true.

Emp-No	Emp-Name	Store-Branch	Dept.	Item-No	Item-Des	Sale-Price
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Sales:

Emp-No	Emp-Name	Store-Branch-ID	Dept-ID	Item-ID
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Department:

Department-ID	Department-Name
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For relation to be third normal form -

for any trivial functional dependency $X \rightarrow A$, then
either -

X is a super-key or A is prime attribute.

Sales:

Emp-No	Emp-Name	Store-Branach-ID	Dept-ID	Item-ID
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Sales:

Emp-No	Details-ID
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Details:

ID	Emp-Name	Store-Branach-ID	Dept-ID	Item-ID
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