Final
~~Midterm~~ Assessment, Summer - 2022

Md. Shafayet Hossain

B.Sc in CSE, 21st Batch
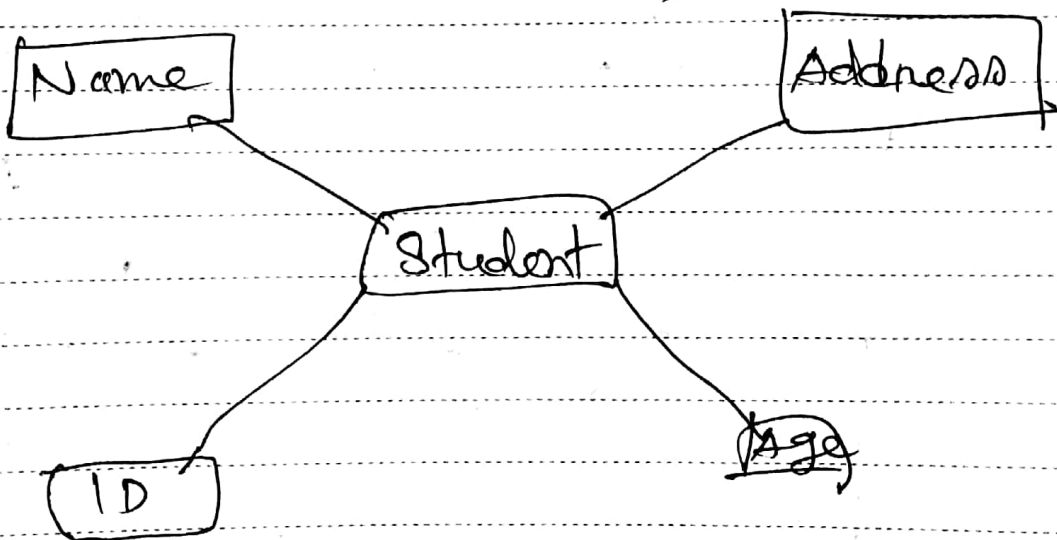
Database Management System

CSI-221, ID- 212121210071

Ans to the Q. no - 1

1(a)

ER diagram —

Suppose we design a School database. The student will be an entity with attriebutes like address, name, ID, age e.t.c. The address can be another entity with attribute like city, street name, pin code e.t.c and hence will be a relation between them.
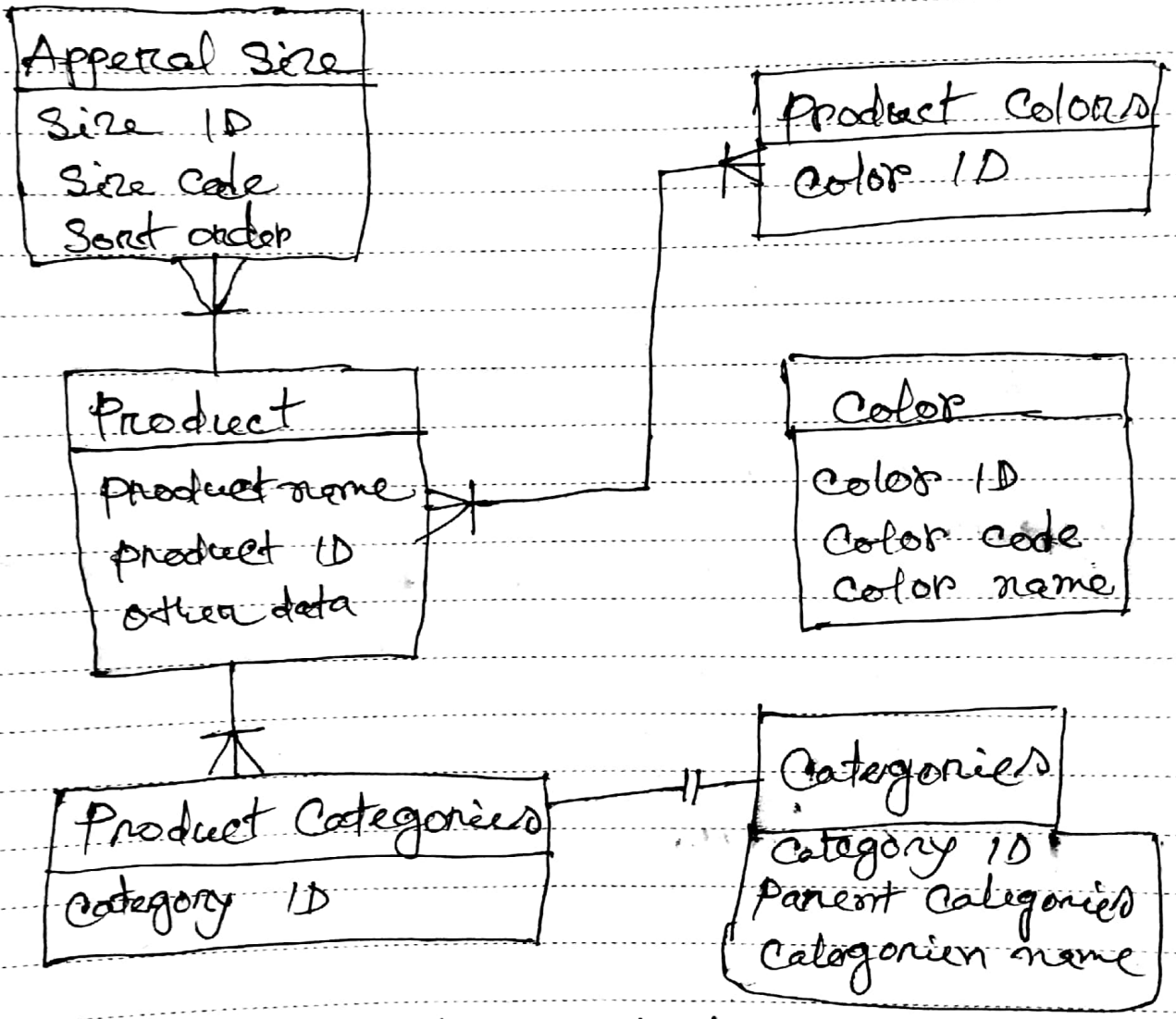
ER Digram

1 ⓑ

Database design –

Database design is collection of process faciliated the designing, development, implementation and maintenence of enterprise data management system. properly designed database are easy to maintain and improves data. consistancy and are cost effective in terms of disc storage. space. The database designer decides how the data elements conelate and what data must be stored.

"Database design process"

1 ©
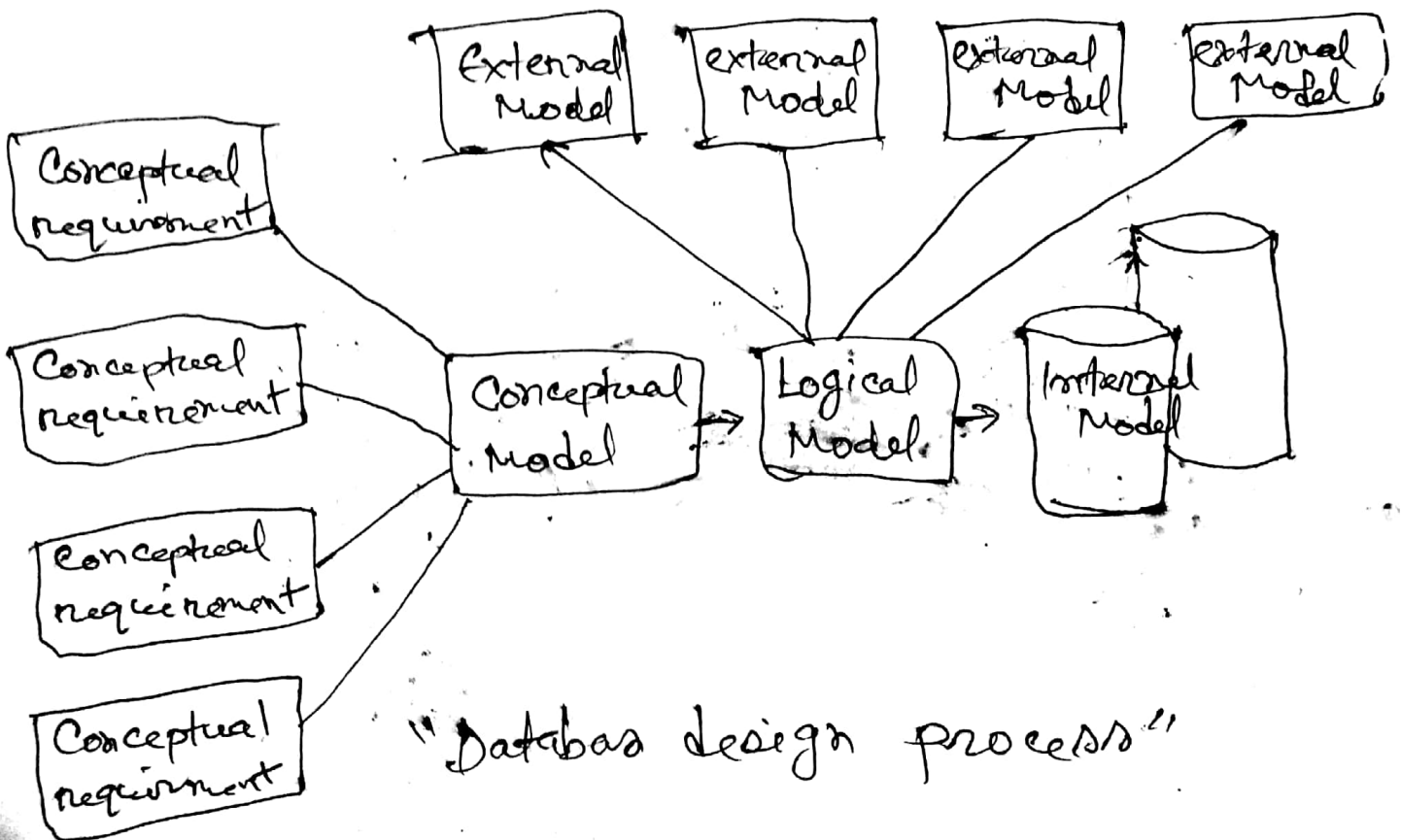
→ Entity Relationship Model :-

CR diagram is known as CRD is a diagram that displays the relationship of entity set stored in database. In other word, CR diagram help to explain the logical structure of database.

| Apperal Size |
| Size ID |
| Size Code |
| Sort order |

| Product Colors |
| Color ID |

| Product |
| Product name |
| product ID |
| other data |

| Color |
| Color ID |
| Color code |
| Color name |

| Product Categories |
| Category ID |

| Categories |
| Category ID |
| Parent Categories |
| Categories name |

→ Entity Relationship model diagram

Telukast

2@

<u>ER Model :-</u>

ER data model will suited to data modelling for use with databases because it is fairly abstract and is easy to discuss and explain. ER models are readily translated to relations. ER models also called an ER schema, are represented by ER diagrams.

→ ER Models is based on two concepts :-

* Entities - defined as tables that hold specific information data.

* Relationship - defined as the associations or interactions between entities. Here is an example of how these two concepts might be combined in an ER data model :

Fig:- ERD with entity type employee
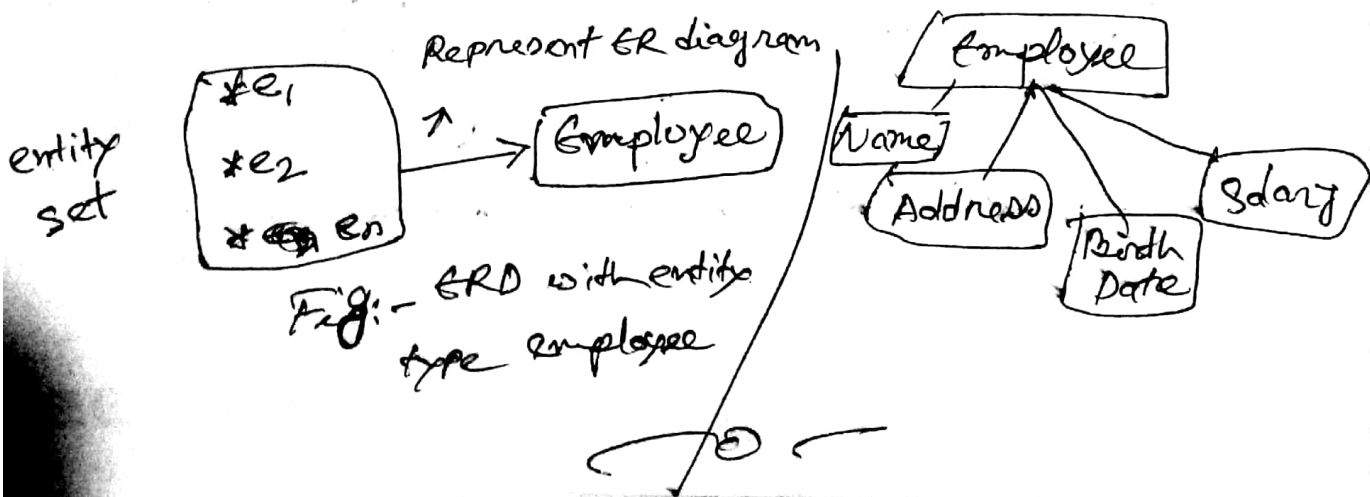
Mapping Constraints:-

A mapping constraints is a data constraints that expresses the number of entities to which another entity can be related via a relationship sets.

* It is most usefull in describing the relationship sets that involve more then two entity set.

* For binary set R on an entity set A and B. There are four possible mapping cardinalities. These are as follows —

① one to one   ② One to many
③ Many to one   ④ Many to many

① One to one :-

In this mapping an entity in E_1 is associated with at most on entity in E_2 and an entity in E_2 is associated with most one entity in E_1.
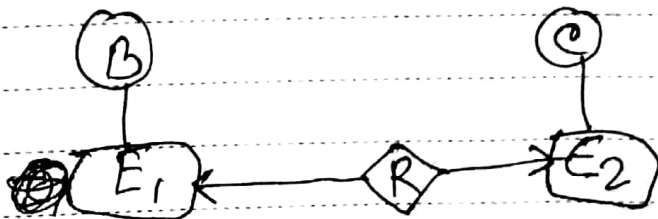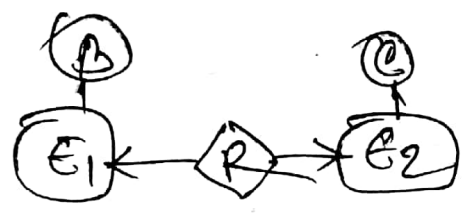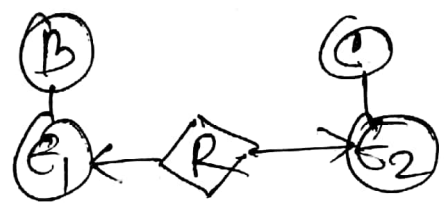

Fig:- " one to one "

② One to many :-

An entity in E_1 is associated with any number of entities in E_2 and an entity E_2 is associated with at most one entity in E_1
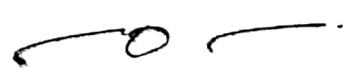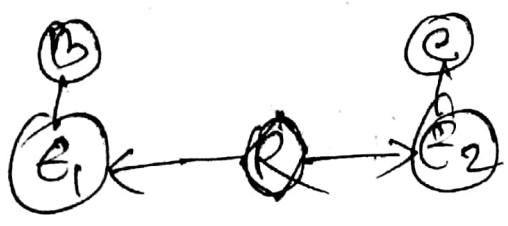

③. Many to one :-

④ Many to many :-

In many to many mapping an entity in E_1 is ass. with any number of entities in E_2, and an entity in E_2 is associated with any number of entities in E_1

Ans. to the Q. no - 3

3@

※ Normalization :-

Normalization is a database design tequi techniques that reduce data redundancy and eliminates undesirable characteristics like insertion, update and deletion. Normalization rules devides larger table into smaller tables. and links them using relationship. The purpose of normalization in SQL is to eliminate redundant (repetive) data and ensures data is stored logically. Database normalization example can be easily understood with help of a case study. Assume a video video library maintain a database of moves rented out.

| Full Name	Physical Address	Movies Rented	Solution
Janet Jones	1st street Plot - 4	clash of Titans	MS.
Robert phil	3rd street y4	Forgetting Sarah Marshall.	Mr.
Robert Phil	5th street Avenue	clash of Titans	Mr.

Fig :- Goals Normalization.

⌒ o ⌒

Telukast

ER - diagram for a University Enterprize.

ER diagram for a University Enterprise, containing the following entities and relationships:

Course_dept (relationship)

Department
- dept_name
- Building
- Budget

Intst_dept (relationship)

Stud_dept (relationship)

Instructor
- ID
- Name
- Salary

Advisor (relationship)

Student
- ID
- name
- tot_cred

Teaches (relationship)

Takes (relationship) --- **grade**

Section
- Sec_id
- Semester
- Year

Course
- Course_id
- Title
- Credits

Sec_course (relationship)

Sec_time_slot (relationship)

Time_slot
- time_slot-id
- day
- start time
- end time

Prereq (relationship)
Course_id   Prereq_id

Sec_classes (relationship)

Classroom
- building
- room_number
- capacity

Ans. to the Q.no - 4

4@ ① Composite Attributes:-

Sometime an attribute entity may be further broken into smaller attributes and all attributes can be genora-lized into a common attribute.

Student — (Address) ⟨ House no
Street
PIN

⬤ Attribute   ◇ Relationship   ▭ Entity
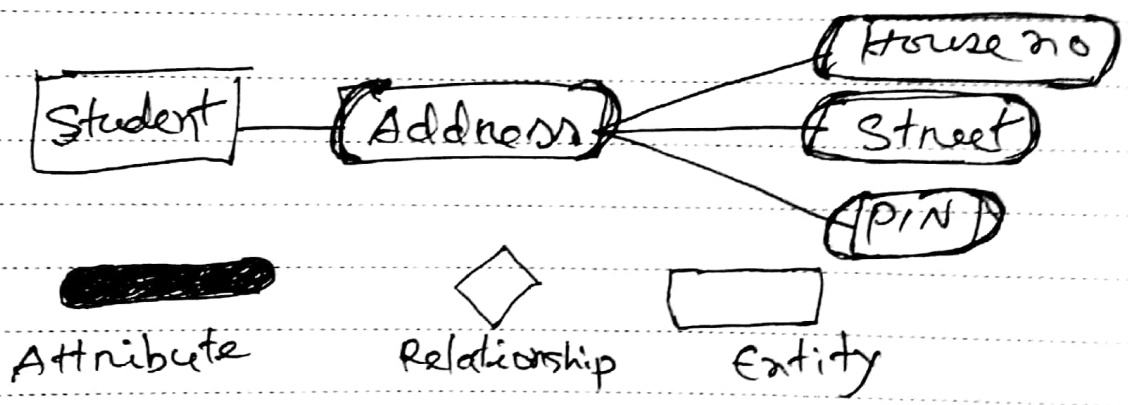
→ Key Attribute

→ Multi - value Attribute

→ Drieved - Attribute.

Telukast

④ ⓑ Answer: Schema Diagram for University Database.