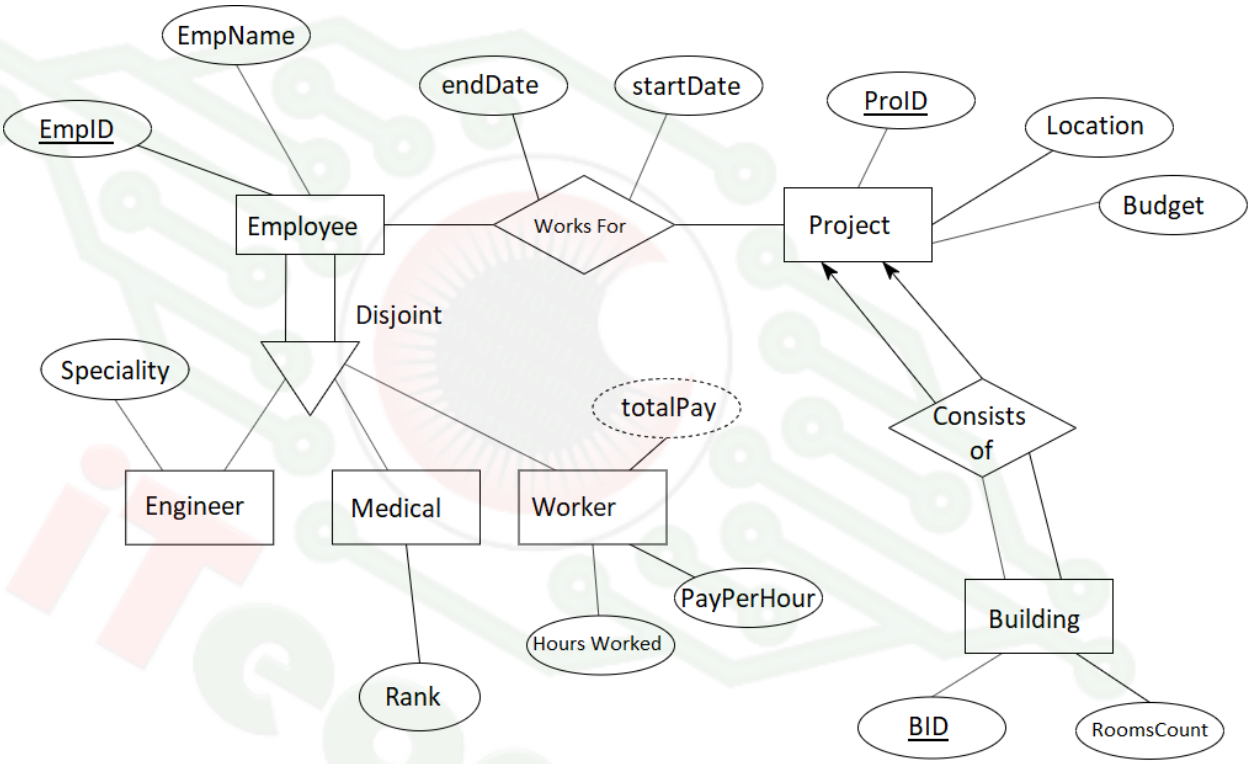
Q1:(13 points) Examine the following ERM and answer the following questions



1-(3 pts) Describe the cardinality, Degree, and Participation of each of the following relationships:

	cardinality	Degree	Participation
Works for			
Consists of			

2-(6 pts) Describe the full relational Schema resulting from this ERM.

3-(3 pts) Write the full SQL statements to ONLY create the following tables:

a. Employee
b. Building
c. Worker

Resulting from this ERM. Make sure to write the full statements including all integrity constraints (primary and foreign keys) for each table in the database.

4-(1 pts) Write SQL statement to insert the following record in the 'WorksFor' table: EmpID=101, ProID='UJ Project', startDate='1/1/2017',endDate='30/6/2017'

Q2: (8 pts) Study the following form for maintaining the record of the patient in the hospital for the daily visits. Assume the staff information does not change for the whole stay of the patient in the hospital. [Hint, consider the Patient ID as your primary key}

Patient Information				
Patient ID:	P000001			
Patient Name:	Ahmad Hamdan			
Birth Date:	1/2/1973			
Admitting Staff information				
Assign Doctor ID:	D0001		Doctor Name:	Saleem Salem
Assigned Nurse ID:	N0001		Nurse Name:	Amal Ola
Visits information				
Visit ID	Visit date	Patient temperature	Patient Blood Pressure	Notes
V0001	2/3/2009	37.5 C	140/90	Tired and needs care
V0002	2/4/2010	36.5 C	120/80	Getting better

Based on this form, build the database by starting from a plain table and normalizing the plain table into the 1^{st},2^{nd},3^{rd} normal forms. Make sure to clarify each step and clarify your decisions while normalizing the database, Show all tables in each step.

(1 pts) step 0: Plain Table with primary key .

(2 pts)Step 1: 1^{st} Normal Form: Show all tables (Hint: Remove repeating groups if exists)

(1 pts) Step 2:2nd Normal Form: Show all tables (Hint: Remove partial dependencies if exist)

(4 pts) Step 3:3rdNormal Form: Show all tables (Hint: Remove transitive dependencies if exist

Q3:(9 pts)

1)All of these are examples of data models EXCEPT

a. Network Model
b. Hierarchical Model
c. Enterprise Model
d. Relational Model
e. Object-oriented Model

2)A business rules states: “Since a dependent (e.g. wife, child) cannot exist independently of an employee, the dependent name and relationship to the employee, in conjunction with the employee name is used to identify the dependents of an employee.” , Accordingly, a dependent should be modeled as a:

a. Weak entity
b. Total entity
c. relationship type
d. weak relationship

3)All these terms can be used interchangeably except:

a. Attribute
b. Column
c. Property
d. Field
e. Tuple

4)All these terms are equivalent to an Entity except

a. Object
b. Thing
c. Concept
d. Attribute
e. Item

5)The actual contents (values) of the database are referred to as:

a. Schema
b. Physical Schema
c. View Schema
d. Logical Schema
e. None of the above

6)The phase in which the conceptual model is mapped to the DBMS is the development of the:

a. Logical model
b. physical model
c. prototype
d. internal model

7)When converting an E-R model to a relational model, the table for a binary relationship can be replaced by a foreign key provided the relationship is not:

a. one to one
b. one to many
c. many to one
d. many to many

8)A binary relationship between the 2 entity types, SALESPERSON and VEHICLE, where (a) each salesperson entity can be related to many vehicle entities (up to n), and (b) each vehicle entity is related to at most one salesperson entity may have a cardinality constraint of:_____

a. binary
b. n: 1
c. 1: n
d. m: n

9)All of the following are characteristics of relations EXCEPT:

a. there are no duplicate tuples
b. the order of rows is insignificant
c. the values of each row all come from the same domain
d. each cell of the table has only one value
e. none of the above