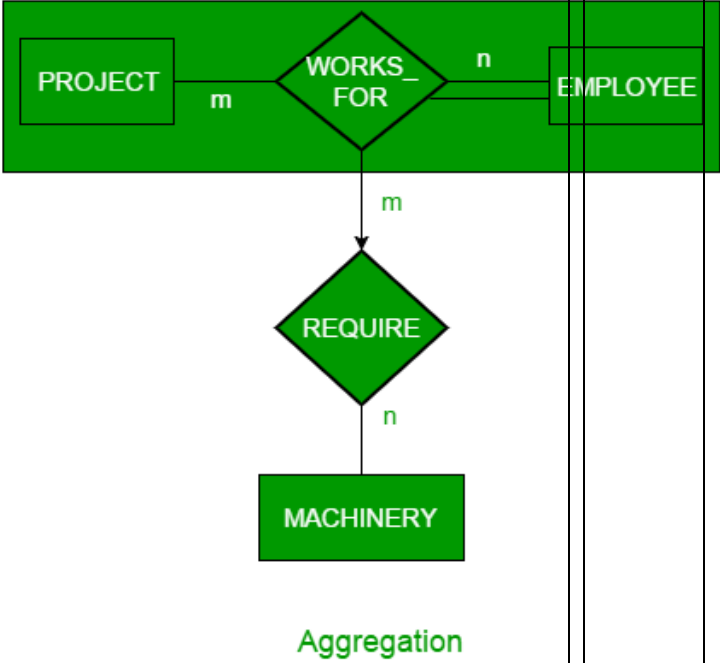


Semester: January 2023 – May 2023		
Maximum Marks:30	Examination: In-Semester Examination Duration :1 Hr 15Min	
Programme code: 01	Class: SY	Semester: IV(SVU 2020)
Programme: B. Tech. (Computer Engineering)		
Name of the Constituent College: K. J. Somaiya College of Engineering		Name of the department: COMP
Course Code: 116U01C403	Name of the Course: Relational Data Base Management Systems	

Question No.		Max. Marks
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Q1	Solve any TWO out of THREE	10																
	a) Write role of a database administrator for e-commerce website.																	
	Following points to be elaborated with reference to e-commerce site																	
	<ul style="list-style-type: none">• Database design• Performance issues• Database accessibility• Capacity issues• Data replication• Table Maintenance																	
	b) Draw and explain basic symbols used in Extended Entity Relationship Diagram																	
	<table><tr><td>EER-</td><td>Symbol</td></tr><tr><td>Entity</td><td>Rectangle</td></tr><tr><td>Attribute</td><td>Oval</td></tr><tr><td>Weak Entity</td><td>Double rectangle</td></tr><tr><td>Relationship</td><td>Diamond</td></tr><tr><td>Weak Relationship</td><td>Double Diaiond</td></tr><tr><td>Generation</td><td>Union , Disjoint, Overlap (bottom to top arrow</td></tr><tr><td>Specialization</td><td>Union , Disjoint, Overlap (top to bottom arrow)</td></tr></table>		EER-	Symbol	Entity	Rectangle	Attribute	Oval	Weak Entity	Double rectangle	Relationship	Diamond	Weak Relationship	Double Diaiond	Generation	Union , Disjoint, Overlap (bottom to top arrow	Specialization	Union , Disjoint, Overlap (top to bottom arrow)
	EER-		Symbol															
	Entity		Rectangle															
	Attribute		Oval															
	Weak Entity		Double rectangle															
Relationship	Diamond																	
Weak Relationship	Double Diaiond																	
Generation	Union , Disjoint, Overlap (bottom to top arrow																	
Specialization	Union , Disjoint, Overlap (top to bottom arrow)																	

	Aggregation	 <p style="text-align: center; color: green;">Aggregation</p>	
	Composite attribute	Multiple attributes	
	Multivalued	Double oval	
	<p>b) Explain any two integrity constraints. Elaborate</p> <p>NOT NULL constraints. ... Unique constraints. ... Primary key constraints. ... (Table) Check constraints. ... Foreign key (referential) constraints. ... Informational constraints.</p>		
Q2	<p>Consider the employee database:</p> <p><i>Employee</i>(<i>Employee_name</i>, <u><i>Employee_id</i></u>, <i>street</i>, <i>city</i>) <i>Works</i>(<u><i>Work_id</i></u>, <i>employee_name</i>, <i>company_name</i>, <i>salary</i>) <i>Company</i>(<u><i>Company_id</i></u>, <u><i>company_name</i></u>, <i>city</i>) <i>Manages</i>(<u><i>manager_id</i></u>, <u><i>employee_name</i></u>)</p> <p>The primary keys are underlined</p> <p>Give an expression in SQL for each of the following queries (Any FIVE out of SEVEN)</p> <p>i) Find the name and cities of the residents of ALL employees who work for the First Bank corporation</p>		10

```
select e.employee name, city from employee e, works w
where e.employee_name = w.employee_name and w.company name = 'First
Bank Corp
```

- ii) Find the names, street address, cities of residents of ALL employees of First Bank Corporation who earn more than 10000.

```
select * from employee where employee name in (select employee name from
works where company name = 'First Bank Corporation' and salary > 10000)
```

- iii) Find all employees in the database who earn more than each employee of Small Bank Corporation.

```
select employee name from works where salary > all (select salary from works
where company name = 'Small Bank Corporation')
```

- iv) Assume that the companies may be located in several cities. Find ALL companies located in every city in which Small Bank Corporation is located.

```
select T.company name from company T where (select R.city from company R
where R.company name = T.company name) contains (select S.city from company
S where S.company name = 'Small Bank Corporation')
```

OR

```
select S.company name from company S where not exists ((select city from
company where company name = 'Small Bank Corporation') except (select city
from company T where S.company name = T.company name))
```

- v) Find those companies whose employees earn a higher salary ,on average, than the average salary at First Bank Corporation

```
select company name from works group by company name having avg (salary) >
(select avg (salary) from works where company name = 'First Bank Corporation')
```

- vi) Find the companies that has the most employees

```
select company name from works group by company name having count (distinct
employee name) >= all (select count (distinct employee name) from works group
by company name)
```

- vii) Find ALL employees in the database who don't work for First Bank Corporation

```
select employee name from works where company name != 'First Bank
Corporation'
```

Q 3	For the ER diagram shown on the other side of the page; Create various relations representing appropriate relationships among them. Assume suitable data types and constraints (ANY FIVE relations).	10

employee

Employee_Name(varchar)	Employee_id(int)	Address (varchar)	DOb(date)	Project_id (int)
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Project

<u>Project_id(int)</u>	Project_name(varchar)	Project_stage(int)	Drug_id (int)	Grant_id (int)	Equip_id (int)	
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Supervisor

Supervisor_name(varchar)	<u>Sup_Id(int)</u>	Sup_Add (varchar)	Sup_dob(date)	Project_id (int)		
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Drug

<u>Drug_id (int)</u>	Drig_name (varchar)	Company (varchar)			
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Grant

<u>Grant_id (int)</u>	Credit (numeric)	Total_Exp(numeric)	Amount(numeric)	Origin (varchar)	Proj_id (jnt)
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Equipment

<u>Eqp_id (int)</u>	Eqp_name (varchar)	Supplier(varchar)	Qty (int)	Cost (numeric)	Total_cost (numeric)		
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Drug_subject

<u>Sub_id (int)</u>	<u>Proj_id (numeric)</u>	Primnaery_effect (varchar)	Secondary_effecrt (varchar)	sex varchar)	Result (varchar)	Sub_n
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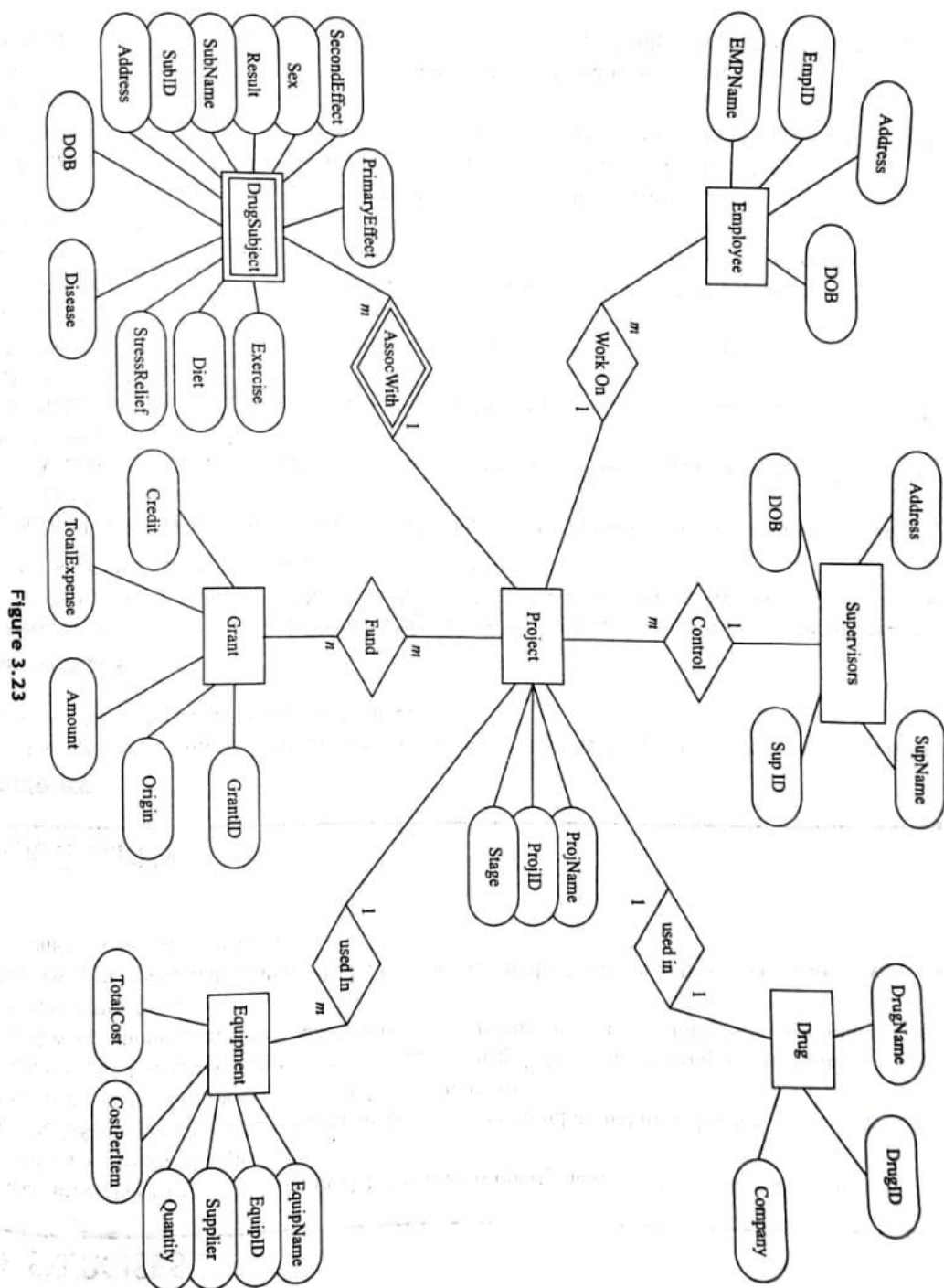


Figure 3.23