



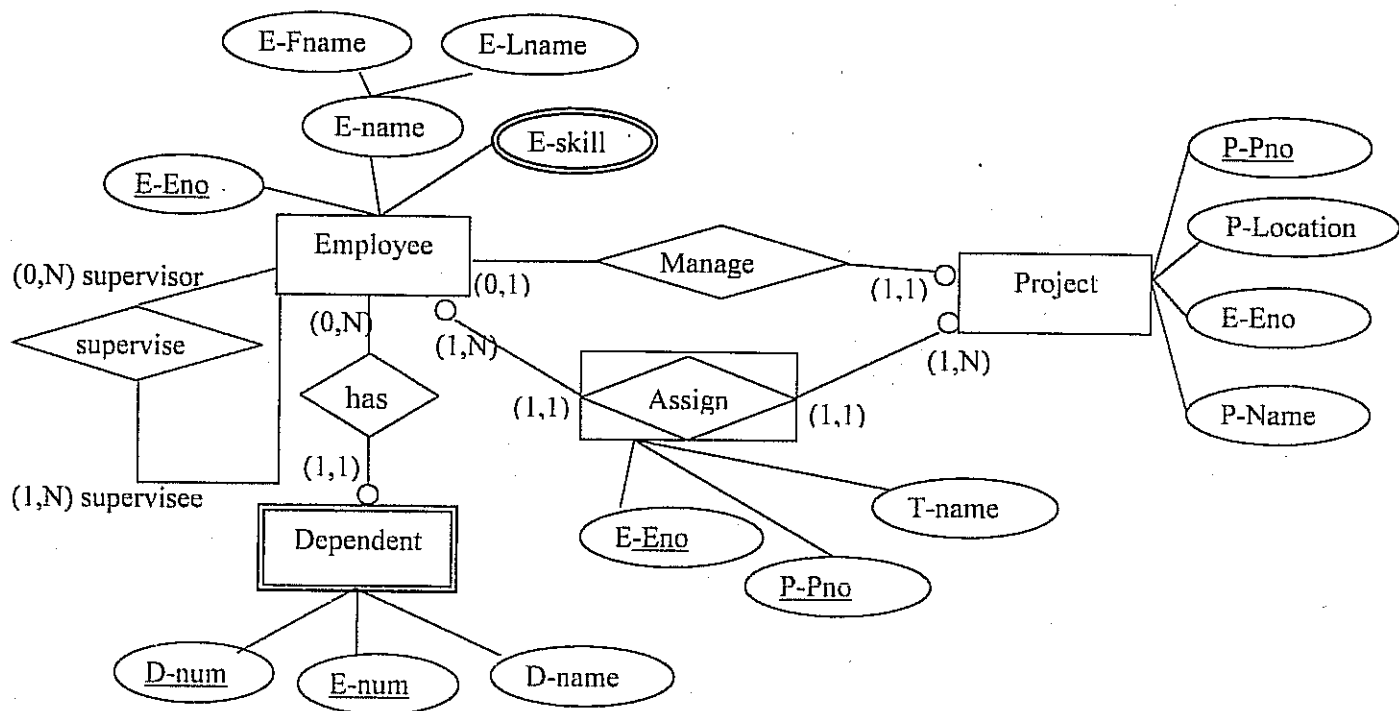
Date: 27/04/2011

Time: 4.00pm – 5.30pm

Answer All Questions

QUESTION 1

ABC Company



- 1.1) Give one example for weak entity, multivalued attribute, unary relationship, binary relationship and composite attribute using the ER diagram (ERD) above.
- 1.2) Give the two methods used to remove multivalued attributes in an ER Diagram.
- 1.3) Write all the relations for the above ERD in the following format.
 Relation(pk attribute(s), other attributes, ...).
- 1.4) Write appropriate SQL statements to create each of the tables you have given in 1.3.
 (Note that you have to properly define the primary keys, foreign keys, update and delete rules in SQL statements).
- 1.5) Redraw the above ER diagram including the additional information given below. State any assumptions you make.
 - a. Company is divided into departments. Each department has a unique id, name, a location and an employee who is working as a manager. The start date of the manager's time period needs to be tracked as well as total employees in the department.
 - b. A Department controls many projects.
 - c. An employee can order any stationary item from the department store where the order ids, stationary type, amount and order date needs to be tracked.

QUESTION 2

- 2.1) Why relations should be normalized?
- 2.2) State the rules that are necessary to have a relation in the following normal forms.
1. 1st Normal Form (1NF)
 2. 2nd Normal Form (2NF)
 3. 3rd Normal Form (3NF)
- 2.3) Consider the following data set. Obtain necessary 1NF, 2NF, 3NF relations stating appropriate justifications. You may use appropriate relation names.

Work Roster					
Date	Dec 10,2010				
EmpNo	EmpName	Hours worked	Emp class	Wage rate	Units produced
103	Kamal	7.5	1	450.00	325
101	Palitha	8	2	800.00	350
102	Kumara	6	1	450.00	415
Date	Dec 11,2010				
EmpNo	EmpName	Hours worked	Emp class	Wage rate	Units produced
101	Palitha	4.5	2	800.00	315
102	Kumara	8	1	450.00	300
104	Saliya	10	2	800.00	300

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