

Reg. No.



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (MECHATRONICS ENGINEERING)

MAKE-UP EXAMINATIONS, JAN 2019

SUBJECT: DATABASE MANAGEMENT SYSTEMS [MTE 4011]

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** questions.
- ❖ Data not provided may be suitably assumed

1A.	Describe in detail the process of designing a database.	4
1B.	Design an ER diagram for a Flight booking system.	6
2A.	<p>What would be the output of the following query?</p> <pre>select distinct A.name from instructor as A, instructor as B where A.salary > B.salary and B.dept name = 'Mechatronics';</pre> <p>Suggest an alternate way of writing the query using the '> some' clause.</p>	5
2B.	<p>Observe the database structure shown in Figure 2B and write SQL queries for the following:</p> <ol style="list-style-type: none"> List all the suppliers in alphabetical order. List the number of customers in each country. Only include countries with 10 or more customers. List the customers in Sweden. Get details of the customer named 'Thomas Cook'. List all the products with names that start with 'Ca'. 	5
3A.	Elaborate on the ACID properties of transactions with suitable examples.	3
3B.	For the set of transactions shown in Figure 3B, find the most frequent item set with a minimum support of 3 using the FP Growth algorithm.	7
4A.	Explain about the types of attributes which are found in an ER diagram. Use suitable examples to support your answer.	4
4B.	Define Support and Confidence in relation to Association rules mining. For the database with transactions shown in Figure 4B, find the Confidence($\{5\} \Rightarrow \{8\}$)	6
5A.	Convert the two tables (Book details and Employee details) shown in Figure 5 A into Third normal form	5
5B.	Create the Decision tree for the data shown in Figure 5B.	5

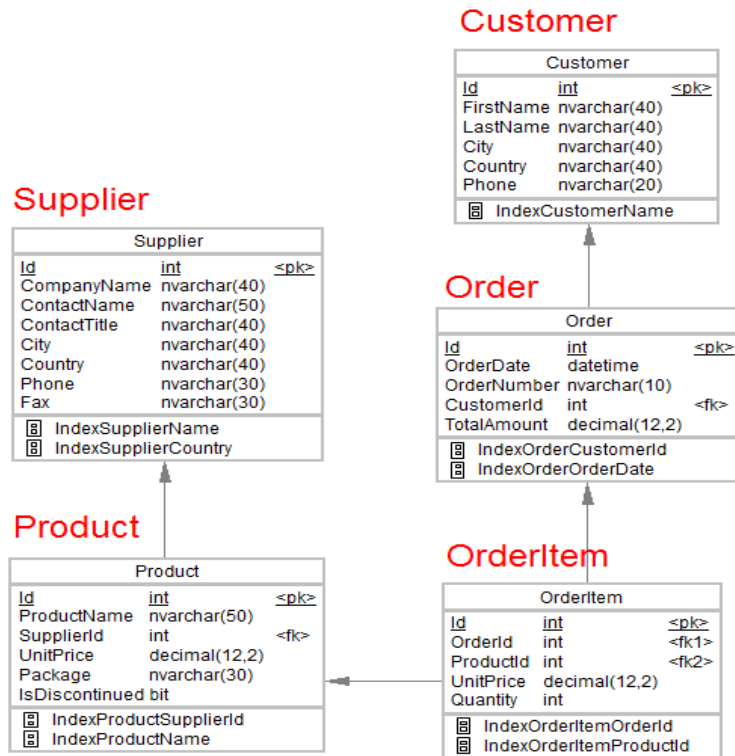


Figure for Q 2B

Transactions	Item sets
1	Fries, Apples, Coconuts, Dates, Guavas, Mangoes, Pineapples
2	Apples, Bananas, Coconuts, Fries, Lychees, Mangoes, Oranges
3	Bananas, Fries, Hotdogs, Oranges
4	Bananas, Kitkats, Coconuts, Pineapples
5	Apples, Fries, Coconuts, Lychees, Pineapples, Mangoes, Nuts

Figure 3B

Customer number	Items purchased
1	3, 5, 8
2	2, 6, 8
3	1, 4, 7, 10
4	3, 8, 10
5	2, 5, 8
6	1, 5, 6
7	4, 5, 6, 8
8	2, 3, 4
9	1, 5, 7, 8
10	3, 8, 9, 10

Figure 4B

Table Book Details

Book ID	Genre ID	Genre Type	Price
1	1	Religious	900
2	2	Origami	250
3	1	Religious	500
4	3	Computer Science	1000
5	2	Origami	300

Table Employee Details

Emp_id	Emp_name	Emp_zip	Emp_state	Emp_city	Emp_district
1	Matthew	100 001	UP	Agra	Dayal Bagh
2	Mark	200 002	TN	Chennai	M-City
3	Luke	300 003	AP	Hyderabad	Lal Bagh
4	John	100 001	UP	Agra	Dayal Bagh
5	Philip	400 004	MP	Gwalior	Ratan

Figure 5 A

Outlook	Temperature	Humidity	Windy	Class
Sunny	Hot	High	False	N
Sunny	Hot	High	True	N
Overcast	Hot	High	False	P
Rain	Mild	High	False	P
Rain	Cool	Normal	False	P
Rain	Cool	Normal	True	N
Overcast	Cool	Normal	True	P
Sunny	Mild	High	False	N

Figure 5 B