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MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University, Manipal – 576 104



**I SEM. M.Tech.INDUSTRIAL AUTOMATION AND ROBOTICS
DEGREE EXAMINATIONS NOV/DEC 2015**

**SUBJECT: DIGITAL MANUFACTURING (MTE 511)
REVISED CREDIT SYSTEM**

Time: 3 Hours.

MAX.MARKS: 50

Instructions to Candidates:

- ❖ Answer **ANY FIVEFULL** questions.
- ❖ Any missing data can be assumed suitably.

- 1A)** Taking suitable examples, list out the difference between process industries and discrete industries. **(02)**
- 1B)** You have an Idea of new product. In converting into a real product where all you expect using a computer technology. Discuss with a suitable example. **(03)**
- 1C)** Discuss networking technology based on transmission and based on Scale. **(05)**
- 2A)** What are the initial design considerations in designing Microsystems? **(03)**
- 2B)** In continuous process control, discuss steady state optimal control technique by taking suitable manufacturing process example. **(05)**
- 2C)** How extended enterprises works based on collaborative engineering concept? **(02)**
- 3A)** For converting conventional manufacturing systems into computer integrated manufacturing systems what all basic devices and equipments are required? **(04)**
- 3B)** How advanced 3D simulation in digital manufacturing helping manufacturing engineers to speed up design process and reducing product launch duration . **(03)**
- 3C)** Define the following terms **(03)**
 - i) Rapid Prototyping
 - ii) Digital Manufacturing
 - iii) Flexible Manufacturing Systems

- 4A)** The SQL problem is based on the tables presented below where salespeople have orders with certain customers that are in the Customers table no.2 **(06)**

Table 1. Salesperson

ID	Name	Age	Salary
1	Abe	61	140000
2	Bob	34	44000
5	Chris	34	40000
7	Dan	41	52000
8	Ken	57	115000
11	Joe	38	38000

Table 2. Customer

ID	Name	City	Industry Type
4	Samsonic	pleasant	J
6	Panasung	oaktown	J
7	Samony	jackson	B
9	Orange	Jackson	B

Table 3. Orders

Number	order_date	cust_id	salesperson_id	Amount
10	8/2/96	4	2	2400
20	1/30/99	4	8	1800
30	7/14/95	9	1	460
40	1/29/98	7	2	540
50	2/3/98	6	7	600
60	3/2/98	6	7	720
70	5/6/98	9	7	150

Write the query to find the largest order amount for each salesperson and the associated order number, along with the customer to whom that order belongs to.

- 4B)** How digital manufacturing enhances the process of rapid prototyping **(04)**
- 5A)** Define regulatory control. Mention a suitable application. **(02)**
- 5B)** What are the basic requirements of real time process control? **(04)**
- 5C)** List out the applications of internet technologies. **(04)**
- 6A)** Discuss general structure of CAD model in MEMS technology. **(04)**
- 6B)** Write a note on RDBMS in manufacturing. **(04)**
- 6C)** What is advanced manufacturing planning? List out the activities carry out under advanced planning. **(02)**