Reg.No.										

MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University, Manipal – 576 104

I SEM. M.Tech. INDUSTRIAL AUTOMATION AND ROBOTICS
DEGREE EXAMINATIONS DEC 2015 / JAN 2016

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) How to do convert traditional manufacturing process layout into computer integrated manufacturing process. **(02)**

1B) Discuss the mechanical design considerations of microsystems. **(03)**

1C) Define Performance Index (PI). Taking into consideration of PI, discuss steady state optimal control system with respect to one particular example. **(05)**

2A) How CAD/CAM supports rapid prototyping process. Discuss considering suitable example. **(03)**

2B) Differentiate different types of production systems based on their characteristics. Mention an example for each type of production systems. **(05)**

2C) What do you understand by the concept advanced manufacturing planning **(02)**

3A) Generate a datasheets containing vehicle registration numbers and their subject manufacturer details. Correlate it to another datasheet of parts supplier details. Write a SQL query to identify which part has been fitted into which company's vehicle. Let the query identify maximum number of component suppliers to each vehicle. **(06)**

3B) Taking an example of any service provider, discuss why database management is required. **(04)**

4A) Define the term "Digital Manufacturing". Select any one type of industry; discuss possible areas which need automation with respect to changing business requirements. **(06)**

4B) When you prefer variant CAPP over generative CAPP? Discuss with a suitable examples. **(04)**

5A) Discuss the role of web based manufacturing in improving company efficiency. **(02)**

5B) Discuss different types of database models taking suitable examples. **(04)**

5C) Discuss concurrent engineering elements in detail considering suitable example. **(04)**

6A) Based on transmission, classify networking technologies. What are different components of LAN discuss with their objectives. **(04)**

6B) Define the following terms: **(04)**

i) MAP ii) CAE iii) FMS iv) CAPP

6C) Discuss the advantages of computer technologies in manufacturing **(02)**