Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (AUTOMOBILE ENGINEERING)

MAKE UP EXAMINATIONS, JUNE 2016

SUBJECT: MECHATRONICS & MICROPROCESSORS [AAE 354]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** the questions.
- Missing data may be suitable assumed.

1A.	What are the key elements of a mechatronic system?	2M
1B.	What are the functions of control system and how are they classified.	3M
1C.	With the help of bourdon tube set up explain various elements of measurement system.	5M
2A.	Give the advantages of using microcontroller	2M
2B.	Which semiconductor device is commonly used for rectification? Explain half wave rectification with a neat sketch.	3M
2C.	Explain the construction and working of LVDT with a neat diagram.	5M
3A.	What are flip-flops? State its advantages	2M
3B.	Explain the main parts of optical encoder according to their functions	3M
3C.	With the help of neat picture explain the construction and working of Hall effect sensor.	5M
4A.	What is DPDT Switch? Draw the picture of DPDT Switch.	2M
4B.	A lap-wound six pole DC motor has 250 conductors. The armature current is 25A and flux per pole is 0.54Wb. Determine the speed of the motor when the torque is 300Nm.	3M

4C.	What is JFET? With the aid of neat diagram explain the working of N-Channel type JFET.	5M
5A.	What are the different types of load cells	2M
5B.	Explain the different types of buses and its salient features	3M
5C.	What are different parts of an intel 8085 processor? Explain its important parts.	5M
6A.	What is the principle on which bimetallic strip works?	2M
6B.	Give the application where compound motors can be used along with few examples	3M
6C.	Explain the construction and working of a permanent magnet stepper motor.	5M