| Reg. No. | | | | | | | | | | |
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# Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

## VI SEMESTER B.TECH (AUTOMOBILE ENGINEERING)

## END SEMESTER EXAMINATIONS, MAY 2016

## SUBJECT: MECHATRONICS & MICROPROCESSORS [AAE 354]

**REVISED CREDIT SYSTEM**

Time: 3 Hours MAX. MARKS: 50

**Instructions to Candidates:**

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

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| 1A. | What are the requirements of a control system? | (02) |
| 1B. | List the elements of closed loop control system and state the advantages of closed loop control system. | (03) |
| 1C. | What is sequential control? Explain its types with suitable examples. | (05) |
| 2A. | Write a code for adding two numbers in 8085 microprocessor | (02) |
| 2B. | Which motor has the disability of initial starting? How is it rectified? | (03) |
| 2C. | Explain the construction and working of LVDT with a neat diagram. | (05) |
| 3A. | How is a microprocessor different from microcontroller? Give a brief note on this. | (02) |
| 3B. | Differentiate the following transducer with example<br>1. Active & Passive<br>2. Primary & secondary<br>3. Analog & Digital | (03) |
| 3C. | Explain the construction and working of eddy current sensor | (05) |
| 4A. | What is bouncing of switches? How can this issue be resolved? | (02) |
| 4B. | A lap-wound six pole DC motor has 280 conductors. The armature current is 30A and flux per pole is 0.5Wb. Determine the torque when the speed of the motor is 1200rpm. | (03) |
| 4C. | Which motor has electronic commutation? Explain the construction and working of that particular motor. | (05) |

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| 5A. | Give a brief note of aliasing and quantization error. | (02) |
| 5B. | What are interrupts and give its types in 8085 microprocessor? | (03) |
| 5C. | Give an account on pin configurations of an intel 8095 processor. | (05) |
| 6A. | What is the principle on which bimetallic strip works? | (02) |
| 6B. | What is seebeck effect? Explain the working of a sensor which works on this principle. | (03) |
| 6C. | Design a FLASH ADC which has the ability to give a 3 bit digital output. | (05) |