Reg.No.					
rteg.rte.					



MANIPAL INSTITUTE OF TECHNOLOGY

Manipal University, Manipal – 576 104



VI SEM. B.Tech (MECHANICAL ENGG.) DEGREE EXAMINATIONS MAY 2016

SUBJECT: ELEMENTS OF MECHATRONICS SYSTEM (MME- 306)

REVISED CREDIT SYSTEM

Time: 3 Hours.

MAX.MARKS: 50

Instructions to Candidates:

- Answer ANY FIVE FULL questions.
- Draw neat sketches using pencil only.
- 1A) Briefly explain the 4-bit absolute encoder with grey code disc pattern. (04)Sketch and explain how velocity of water can be measured by recording 1B) the time elapsed between sound waves (03) 1C) Explain how the machine vision system is helpful for quality control in (03) manufacturing industries. 2A) with a neat sketch of explain different pin configurations used in the architecture of microprocessor 8085 A (04) 2B) Explain the role of (03) i) Program counter ii)Status register iii)Flags 2C) Draw the Ladder logic diagram involving sequencing of three cylinders (03)namely A+,B+, C+, C-, B-,A-. 3A) Write a program to evaluate $(P \times Q) + (x^2 - y)$ functions in microprocessor 8085 A (04) 3B) With a neat sketch explain the concept of microcontroller and discus (03)main features of 8051. 3C) With a neat sketch explain the working of automatic washing machine. (03)

4A)	Explain with a neat sketch working and characteristics of traic and thyristor.	(04)		
4B)	With a neat sketch explain the working and application of variable reluctance stepper motor.	(03)		
4C)	List the various data presentation systems and explain magnetic recording and replay head.	(03)		
5A)	With a neat sketch explain the working and application of various types of filters.	(04)		
5B)	Explain steps involved in analog to digital data translation.	(03)		
5C)	Sketch the pressure control valve used to avoid the fluctuation in fluid pressure and explain its working.			
6A)	Derive the expression for voltage gain for negative and positive feedback amplifiers.	(04)		
6B)	Write a short note on following			
	Piezoelectric actuator	(04)		
6C)	Draw the arrangement of a hydraulic power supply system	(02)		