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Seat No.	
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[4957]-1040

S.E. (Electrical) (II Sem.) EXAMINATION, 2016
FUNDAMENTALS OF MICROPROCESSOR
AND MIROCONTROLLER
(2012 COURSE)

Time : Two Hours

Maximum Marks : 50

- N.B. :—**
- (i) Answer any *one* question from Q. No. 1 *or* Q. No. 2, Q. No. 3 *or* Q. No. 4, Q. No. 5, Q. No. 6, Q. No. 7 *or* Q. No. 8
 - (ii) Neat diagrams must be drawn wherever necessary.
 - (iii) Figures to the right indicate full marks.
 - (iv) All questions carry equal marks.
 - (v) Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.
 - (vi) Assume suitable data, if necessary.

- 1.**
- (a) What is “Addressing Mode”? Explain the various addressing modes of 8085 Microprocessor. [6]
 - (b) Write a program to find 2’s complement of a number stored at a location D000H. Store the result at a location D200H. [6]

Or

- 2.**
- (a) Explain the steps a CPU takes in response to the following instructions : [6]
 - (i) PUSH PSW
 - (ii) POP B
 - (b) Write a short note on interrupt structure of 8085. [6]

P.T.O.

3. (a) DAC 0800 is interfaced with 8085 through port A of 8255, the address of port A of 8255 is 80H. The output of DAC is connected to the CRO through I to V converter circuit. Write a program to generate SAWTOOTH waveform on CRO. [6]
- (b) Draw the internal RAM organization of 8051. [6]

Or

4. (a) Explain functions of the following pins of ADV 0809 : [6]
- (i) SOC
 - (ii) EOC
 - (iii) ALE
 - (iv) ADD A, ADD B, ADD C
 - (v) OUTPUT ENABLE
- (b) Draw the TCON and TMOD registers and explain the functions of each bit in both the registers. [6]
5. (a) Write an assembly language program to clear the bit addressable memory (20H – 2F H). [6]
- (b) Write a program to transfer a letter 'T' serially 10 times at a baud rate of 4800. Use serial port in Mode 1. Assume crystal frequency as 12 MHz. [7]

Or

6. (a) Write a program to square the contents of R5, place the result in R0 & R1. Store the Most significant byte of the result in R1. [6]
- (b) Write a short note on interrupt structure of 8051. [7]

7. (a) A stepper motor is interfaced with 8051 through a driver card. The motor is controlled through most significant 4 bits of port 1. The step angle of the motor is 1.8 degrees. Write a program to run the motor in anticlockwise direction continuously. Assume the four step sequence to be stored from a location 40 H to 43 H in internal data memory. [8]
- (b) With a neat diagram explain the power factor measurement using 8085. [5]

Or

8. (a) With a neat diagram and flow chart explain temperature measurement using 8051 microcontroller. [8]
- (b) With a neat diagram explain the flow measurement using 8085. [5]