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B. E. (Seventh Semester) Examination,

Nov.-Dec., 2015

(Old Scheme)

(EEE, Et&T Engg. Branch)

MICROCONTROLLER & EMBEDDED SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of each question is mandatory. Attempt any two parts from (b), (c) and (d). Assume suitable data if required.

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- 1. (a) Justify that 8051 micro controller is an embedded system. 2
- (b) Draw the PLCC pin diagram of 89 C52 RD2. 7
- (c) Write a short note on AT89C51. 7

(d) Enlist the features of 8751. 7

- 2. (a) What is the largest hex value that can be moved into R_0 register? 2
- (b) Describe the procedure that is used to keep HEX data in program ROM. 7
- (c) With suitable diagram describe the on-chip ROM address range for 8051 micro controller family. 7
- (d) Assuming that a switch is connected to $P1.0$. Write a program to check the status of switch and perform the following operation. If switch = 0, send letter 'V' to $P2$ and if switch = 1, send letter 'M' to $P2$. Also draw the schematic. 7

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- 3. (a) Determine the clock frequency of timer for the following crystal frequencies. 2
12 MHz, 16 MHz, 11.0592 MHz.
- (b) Write a program to generate a square frequency of 16 kHz on pin $P1.0$ using timer 1. 7

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- (c) Explain the role of Roll-over timer flag in the interrupt programming with suitable example. 7
- (d) Write a program to generate a square wave of 0.5 Hz using 8051 micro controller at 22 MHz frequency. Use pin P 1.2 for generation. 7

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- 4. (a) Describe the baud generation process in Timer Counter 1. 2
- (b) Give the details of DB-25 connector. 7
- (c) Micro controller 8051 is generating square wave at pin P 1.0. The generated square wave is to be sent to a receiver connected in serial form. Write an assembly language for the same. 7

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- (d) Write an assembly language program to transmit two messages "NORMAL" and "HIGH" to the serial port. Assuming switch is connected to pin P 2.0, Monitor its status and set the baud rate as following :

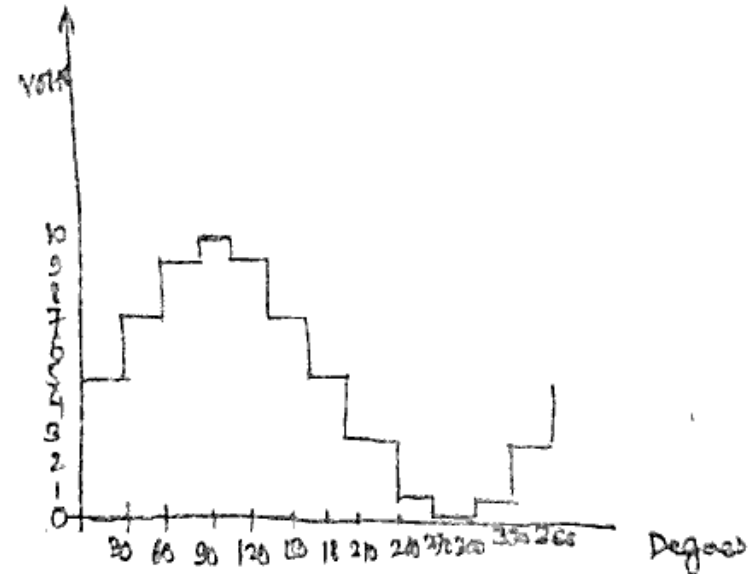
Switch = 0 ; 28800 baud

Switch = 1 ; 56 K baud

and XTAL = 11.0592 MHz for both the cases. 7

- 5. (a) Describe the use of SOC and EOC pin of ADC. 2
- (b) Describe the steps to interface ADC for getting data from the analog world and displaying it to the display unit. 7
- (c) Write an assembly language program using DAC to generate following wave form. 7

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- (d) Explain the interfacing of 64 KB ext. memory with 8051 microcontroller. 7