Printed Pages: 4 EEC-014

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 131654	**Roll No.**

B.TECH.

Theory Examination (Semester-VI) 2015-16

MICROCONTROLLER

Time : 3 Hours ***Max. Marks : 100***

Section-A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

(a) What is the role of processor reset and system reset?

(b) Define the term RISC and CISC.

(c) Draw the PSW format of 8051 microcontroller & state various conditions of flags.

(d) Is it possible to write PSW register? In 8051, which register bank conflicts with the stack?

(e) How Embedded Microcontrollers are differing than Embedding Microprocessor?

(f) How will you assign Counter to count an external event?

(g) Compare microprocessors and microcontrollers.

(h) If you write to SBUF in serial mode 1, nothing is being transmitted. What may be the probable reason for this.

(i) What is the advantage of two or three level handling of interrupts?

(j) What is special about the auto - reload mode?

Section-B

2. Attempt any five questions from this section. (10×5=50)

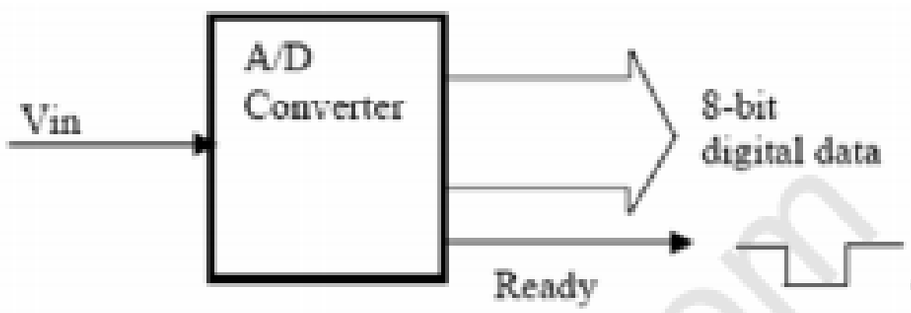
(a) Is it possible to address 8051 individual bits? What are the addresses of bit addressable locations? How is bit addressing distinguished from the byte-wise addressing by the 8051 microcontroller? Explain.

(b) Generate a square wave with an ON time of 5 ms and on OFF time of 7ms on all pins of port0. Assume an XTAL of 22MHz.

(c) Enlist Draw generalized functional block diagram of a 8051 microcontroller specifying each block.

(d) A simple 8-bit analog-to-digital converter device, as shown, is to be interfaced to an 8051 microcomputer.

The READY line goes low when conversion data is available. The READY line should be used to interrupt the 8051 microcontroller.



i. With the aid of a block diagram show how this device can be interfaced to the 8051.

ii. Write an assembly language program which will capture 250 data samples from the A/D converter and store this data in XDATA memory. The program is to be interrupt driven.

(e) Draw a simple block diagram for the transmitter section of an 8051 UART which supports 9-bit data transmission. Briefly explain the function of each block in your diagram.

(f) What does it mean when it is said that a given sensor has a linear output? Draw 8051 connection to ADC0848 and Temperature Sensor.

(g) Draw the architecture of 8096 microcontroller and compare with 8051 architecture

(h) Describe MC68HC11 microcontroller main Features with its Architecture.

Section-C

Attempt any two questions from this section. (15×2=30)

3. (i) Assume that XTAL=11.0592 MHz. What values do we need to load timer's registers if we want to have time delay of 2ms? Show the program for Timer 1 to create a pulse width of 2ms on P2.3.

   (ii) Assume that bit P2.2 is used to control the outdoor light and bit P2.5 to control the light inside a building .Show how to turn on the outside light & turn off the inside one.

4. (i) Write the following program: Create a square wave of 50% duty cycle on bit-0 of PORT-1.

   (ii) Discuss the use of PUSH and POP Instructions in sub-routines.

5. (i) Write down the different steps must be taken programming the 8051 to receive data serially.

   (ii) Draw interface schematic of an 8051 connection to external data 16 K X 8 RAM.