

Printed Pages : 3

EIC601

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2618

Roll No.

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B. Tech.

(SEM. VI) THEORY EXAMINATION 2010-11

MICROCONTROLLER

Time : 3 Hours

Total Marks : 100

Note :- (1) Attempt all questions. All questions carry equal marks.

(2) Be precise in your answer. No second answer book will be provided.

1. Attempt any two parts of the following :- (10×2=20)

(a) (i) Discuss microcomputer system. Is microcomputer as same as microcontroller ?

(ii) What are the different parameters of classifying the microcontrollers ? Explain

(b) (i) Write One instruction each using the following addressing modes :

immediate, direct, register, indirect. In accessing the stack which addressing mode is used ?

(ii) Give the size of RAM and on chip ROM in 8051, 8052 and 8031.

- (c) (i) Explain the different power saving modes of 8051.
(ii) With the help of block diagram, explain the architectural feature of 8051 microcontroller.
2. Attempt any two parts of the following :— (10×2=20)
- (a) (i) With the help of circuit explain port 1 pin configuration.
(ii) Multiply the unsigned number in register R3 by the unsigned number on port 2 and put the result in external RAM location 10h(MSB) and 11h(LSB).
- (b) (i) Write a program to set the carry flag to 1 if the number in A is even; set the carry flag to 0 if the number in A is odd.
(ii) Write a program to add two 16-bit numbers. The numbers are 2E5Fh and A3B4h. Store the sum in R7 and R6; R6 should have the lower byte.
- (c) (i) Discuss the SFR memory organization of 8051.
(ii) Write a program to place any number in internal RAM location 3Ch and increment it until the number equals 2Ah.
3. Attempt any two parts of the following :— (10×2=20)
- (a) (i) Discuss various SFR's required while programming the 8051 Timer(s)/Counter(s). Find the timer's clock frequency and its period with the following crystal frequencies : 12 MHz, 16 MHz and 11-0592 MHz.
(ii) With a frequency of 22 MHz, generate a frequency of 100 kHz on pin P2.3. Use timer 1 in mode 1.

- (b) (i) With oscillator frequency 11.0592 MHz, find the TH1 value needed to have the following baud rates :
9600, 2400 and 1200.
- (ii) How the interrupts are processed in 8051 ? Give the name of highest and lowest priority interrupt.
- (c) Explain the operation of an 8051 UART device with the help of block diagram. Also write a program which will transmit an 8-bit data via the serial port. A ninth bit is to be used as an odd parity bit.
4. Attempt any two parts of the following :— (10×2=20)
- (a) Explain the memory mapped I/O and memory address decoding.
- (b) With a schematic diagram and related program, interface a DAC to 8051.
- (c) With a schematic diagram and related program, interface a printer to 8051. Give reasonable details after stating the assumptions.
5. Attempt any two parts of the following :— (10×2=20)
- (a) Write short notes on the following features of 8096 microcontroller :
- (i) High speed input
- (ii) High speed output
- (iii) A to D Converter.
- (b) Show the ADC connection to 8255 and write the program for the showed connection.
- (c) Describe MC68HC11 microcontroller features in detail.