



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

PAPER ID : 101607

Roll No.

--	--	--	--	--	--	--	--	--	--

B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15
MICROCONTROLLER & BIOMEDICAL APPLICATIONS

Time : 3 Hours]

[Total Marks : 100

1 Attempt any four parts of the following : **5×4=20**

- (a) What is register bank in 8051 ? Explain special function register used in 8051 microcontroller.
- (b) Draw the generalized functional block diagram of a microcontroller specifying each block.
- (c) Compare 8051 family of microcontrollers.
- (d) Discuss the criteria for selecting the microcontroller device.
- (e) Enlist the salient feature of 8051 microcontroller.
- (f) Differentiate between Microcontrollers and Micro processors.

2 Attempt any four parts of the following : **5×4=20**

- (a) Explain different addressing modes supported by 8051 with the example of each.
- (b) Give the format of PSW of 8051. What is the difference between CV and OV flags of PSW ? Why is there no sign flag in 8051 ?
- (c) What is the difference between long jump (LJMP) and short jump (SJMP) ?
- (d) List the different assemble directive and explain their meaning for the assembler of 8051.
- (e) Assume that 5 BCD data items are stored in RAM locations starting of 40 H. Write a program to find the sum of all the number. The result must be in BCD.
- (f) Ten hex numbers are stored in RAM locations 50 H onwards. Write a program to find the biggest number in the set. The biggest number should finally be saved in 60H.

3 Attempt any two parts of the following : **10×2=20**

- (a) What are the basics of serial communications ? What is RS-232 explain in detail.
- (b) Write a program to generate Sin wave using DAC.
- (c) Explain the interrupts of 8051. How can they be enabled and disabled ? How priority can be assigned ?

4 Attempt any two parts of the following : **10×2=20**

- (a) Explain the function of 8255 using block diagram.
How 8051 is connected to the 8255.
- (b) ALCD is to interface with 8051 micro controller.
Draw the complete circuit diagram along with all necessary components.
- (c) Explain interfacing of DAC to micro controller 8051.

5 Attempt any two parts of the following : **10×2=20**

- (a) Draw and explain the DSP processor.
 - (b) Explain the architecture of microcontrollers in embedded biomedical applications.
 - (c) Explain the applications of microcontrollers and computers in biomedical engineering.
-