



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

PAPER ID : 131654

Roll No.

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B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15
MICROCONTROLLERS

Time : 2 Hours]

[Total Marks : 50

Note : All questions are compulsory.

1 Attempt any two parts : 5×2=10

- (a) What is the difference between Harvard architecture and Von-Neuman computer architecture ?
- (b) Discuss 8051 programming model with a block diagram?
- (c) Name the addressing modes of the following instructions :
 - (i) `MOVC A,@A+DPTR`
 - (ii) `MUL AB`
 - (iii) `MOV B, #04H`
 - (iv) `SUBB A, 45H`
 - (v) `DAA`

2 Attempt any two parts : 5×2=10

- (a) Explain the memory organization in 8051 controller.
- (b) What is stack? Explain with examples the PUSH and POP instructions.
- (c) Write an assembly program in 8051 to add two 16 bit numbers stored in external memory. After addition store the results in internal data memory.

3 Attempt any two parts : 5×2=10

- (a) Name the interrupts of 8051. How can they be enabled and disabled? How priority can be assigned?
- (b) Explain in detail about SBUF and SCON reg.
- (c) With a suitable block diagram explain the all timer mode and discuss the programming of mode 1 timer.

4 Attempt any two parts : 5×2=10

- (a) Assume that IP register has all 0s. Explain what happens if both INT0 and INT1 are activated at the same time.
- (b) Write a program to generate a triangular waveform using DAC.
- (c) Write a program to control AC :

Port 1 is connected to the temperature sensor. Microcontroller reads temperature sensor every 5 second. Port 3 pin 1 is connected to the air conditioner. Turn on A.C. if temperature is greater than 22 degree Celsius. (Turn on A.C. output port 1 and Turn off A.C. Output port 0).

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