



Reg. No. : .....

Name : .....

**Sixth Semester B.Tech. Degree Examination, March 2015**  
**(2008 Scheme)**  
**08.601 : MICROCONTROLLER BASED SYSTEM DESIGN (TA)**  
**(Special Supplementary)**

Time : 3 Hours

Max. Marks : 100

**PART – A**

Answer **all** questions from Part **A**. **Each** question carries **four** marks.

1. State and explain the addressing mode used in each of the following instructions of 8051.
  - a) MOVA, # 25 H
  - b) MOVA, @ Ri
  - c) MOVCA, @ A + Pc
  - d) DAA.
2. Discuss the various timer modes supported by 8051.
3. What is a stack ? Explain the operation of a stack with example.
4. List the differences between CALL – RET and PUSH – POP instructions.
5. Write a program to create a delay of 20 m.sec. Assume that the oscillator frequency is 11.05 MHz.
6. List the interrupts supported by 16F877 and discuss them in brief.
7. Distinguish between vectored and non vectored interrupts.
8. List the SFRs and their functions used in serial communication.
9. Define various modes of ARM processor.
10. Define interrupt latency in ARM processor.



**(10×4= 40 Marks)**



## PART – B

Answer **any two** questions from **each** Module. **10** marks for **each** question.

## MODULE – I

11. Describe the internal architecture of 8051  $\mu\text{c}$  with a block schematic diagram.
12. Write a program to convert binary code to Gray code using 8051  $\mu\text{c}$ .
13. Design a microcontroller system using 8051 microcontroller, 4 K bytes of ROM and 8 K bytes of RAM. Interface the external memory such that the starting address of ROM is 1000 H and RAM is C000 H. **(10×2 = 20 Marks)**

## MODULE – II

14. Discuss the timers used in 8051 and explain the mode 1 programming of 8051 timer 0.
15. Write a program for counter 1 of 8051 in mode 2 to count pulses and display the state of TL1 count on  $P_2$ .
16. Write the steps for programming 8051 to transfer character bytes serially. **(10×2 = 20 Marks)**

## MODULE – III

17. Explain the architecture of ARM processor.
18. Discuss the exceptions and interrupts in ARM processor.
19. Explain the thumb instructions used in ARM processor. **(10×2 = 20 Marks)**