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

ime : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Differentiate between Harvard and Princeton architecture.
2. Show the oscillator circuit in 8051 to generate clock signal and explain.
3. Explain mode 3 operation of timer in 8051.
4. What are the differences between a stack, a queue and an array ?
5. Explain the meaning of 8051 instructions :
   i) RRA
   ii) JNC radd
   iii) RETI.
6. Show the internal 128 byte RAM details of 8051 microcontroller.
7. What are Z, C and $\overline{PD}$ bits in status register of PIC 16F877 controller ?
8. Compare RISC and superscalar Architecture.
9. Explain privileged mode of operation in ARM processors.
0. Explain the various operations performed in one clock cycle of a data processing instruction of ARM architecture. **(10×4=40 Marks)**

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PART – B

Answer **any two** questions from **each** Module.

Module – I

1. Write an ALP (8051) to concert given 3 digit unpacked BCD number into Hexadecimal number.

12. Draw the circuit diagram of Port 1 and Port 2 of 8051 and describe their operation briefly.

13. Explain the interface for connecting 8 KRAM and 8KROM with a processor using relevant memory map and decoder circuit.

Module – II

14. With the help of a schematic, explain the interfacing of an ADC with 8051. Explain all signals used in the interface.

15. Describe the serial communication facility in 8051. Explain serial data mode 0, mode 1, mode 2 and mode 3 associated with this scheme.

16. Explain :

    a) Memory organisation and

    b) Timers in PIC 16F877.

Module – III

17. Briefly explain the seven processor modes supported by ARM architecture.

18. Draw the datapath activity for a branch instruction of ARM. Explain the sequence operation completed in three cycles of branch instructions.

19. Write notes on :

    a) Debugging tools in microcontroller based systems.

    b) Logic analyser. **(6×10=60 Marks)**