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**Question Paper Code : 97603**

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2010

First Semester

Applied Electronics

AP 9213 — ADVANCED MICROPROCESSORS AND MICROCONTROLLERS

(Common to M.E. Communication Systems and M.E. VLSI Design)

(Regulation 2009)

Time : Three hours

Maximum : 100 Marks

Answer ALL questions

PART A — ( $10 \times 2 = 20$  Marks)

1. What are the advantages of instruction pipeline techniques?
2. Define the page fault exception in memory management.
3. Define system management mode in Pentium processor.
4. List the general purpose registers of Pentium processor.
5. What is context switching?
6. What is the application of SWI instruction?
7. List some features of 68HC11 microcontrollers.
8. What is the function of condition code register (CCR) in 68HC11 microcontrollers?
9. What is the function of CCP module in PIC microcontrollers?
10. What is the function of INDF register in PIC microcontrollers?

PART B — ( $5 \times 16 = 80$  Marks)

11. (a) (i) Explain the various classes of pipeline hazards in detail. (8)  
(ii) Discuss in detail how the instruction level parallelism can be achieved in microprocessor architecture. (8)

Or

- (b) (i) Describe the memory hierarchy structure in microprocessor based Systems. (8)
- (ii) Compare Risc Vs Cisc architecture with examples. (8)
12. (a) (i) Explain in detail the different levels and advantages of branch prediction in Pentium architecture. (8)
- (ii) Discuss the integer and floating point pipeline operation in Pentium processor with examples. (8)
- Or
- (b) (i) Describe the different groups of instructions of Pentium with examples. (8)
- (ii) Discuss the exception conditions supporting in real mode in Pentium architecture. (8)
13. (a) (i) Explain in detail the different modes of operation of ARM processor. (8)
- (ii) Describe implementation of branch, Call and return instructions in ARM instruction set. (8)
- Or
- (b) (i) Discuss the different interrupt handling schemes of ARM processor with its advantages and disadvantages. (8)
- (ii) How do Push and Pop accomplished in ARM using LDM and STM instruction? (8)
14. (a) (i) Explain in detail the instruction set of 68HC11 microcontroller with examples. (8)
- (ii) Explain the concept of serial communication with a suitable application in MC68HC11. (8)
- Or
- (b) (i) List the addressing modes used in 68HC11 instruction set. Give five exemplary uses of each mode. (8)
- (ii) Explain ADC unit features in 68HC11. (8)
15. (a) (i) Explain the data communication protocol of I<sup>2</sup>C bus. (8)
- (ii) Discuss in detail the organization of program and data memory of PIC microcontrollers? (8)
- Or
- (b) (i) Discuss the core architectural features of PIC microcontrollers. (8)
- (ii) Describe the interrupt structure of PIC microcontrollers. (8)