Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐

K 6196

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Elective

Embedded System Technologies

ES 1675 — ADVANCED MICROPROCESSOR AND MICROCONTROLLER DESIGN

(Common to M.E. – Power Electronics and Drives)

(Regulation 2005)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Pipelining.

2. What is Cache?

3. List few flags of pentium processor.

4. What is super scalar architecture?

5. Write any two ARM based instructions.

6. Define multi tasking.

7. List four salient features of MC 68 HC 11.

8. List four bit manipulation instructions of MC 68 HC 11.

9. Name two popular PIC microcontrollers.

10. Explain the PIC instruction bcf PORTB, O.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare RISC versus CISC.   (8)

    (ii) Describe instruction level parallelism.   (8)

Or

(b) (i) Explain virtual memory and paging. (10)

(ii) Discuss what is segmentation and give its salient features? (6)

12. (a) (i) Discuss the instructions and registers which are special to PENTIUM only. (10)

(ii) Write about branch prediction logic of PENTIUM. (6)

Or

(b) Write about memory management and I/O system in PENTIUM. (8 + 8)

13. (a) Discuss in detail the ARM architecture and ARM CPU cores. (10 + 6)

Or

(b) Elaborate in detail the instruction set of ARM giving at least one example for each group. (16)

14. (a) (i) Discuss in detail the addressing modes of MC 68 HC 11 with one example instruction for each mode. (12)

(ii) Write a MC 68 HC 11 program to clear locations from $ C150 to $ C170. (4)

Or

(b) (i) Write about any THREE of the following in MC 68 HCII

(1) Output compare channels.

(2) Input capture channels.

(3) Pulse accumulator

(4) SCI

(5) SPI (3 × 4 = 12)

(ii) Write a MC 68 HC 11 program to search for element ($FE) in locations $ C150 to $ C175. If the element is found it has be saved in $ C180. (4)

15. (a) (i) Describe instruction set of PIC micro controller giving one example for each group of instruction. (10)

(ii) Write about pulse width modulated outputs of PIC micro controller. (6)

Or

(b)	Write about any FOUR of the following of PIC microcontroller.

(4 × 4 = 16)

(i)	I/O port expansion.

(ii)	Macros.

(iii)	VART

(iv)	A/D converter.

(v)	Parallel slave port.

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