G 6018

M.E. DEGREE EXAMINATION, MAY/JUNE 2007.

First Semester

Applied Electronics

AN 1604 — ADVANCED MICROPROCESSOR AND MICRO CONTROLLER

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

(Regulation 2005)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What are the contents of a register file? Give its advantages.

2.   What is the need for pipelining?

3.   State the functions of Cache memory.

4.   Distinguish between Exception and Interrupts.

5.   What is ARM?

6.   Name the registers encountered in ARM architecture.

7.   What is the usage of flags?

8.   What are the operating modes present in Motorola 68HC11?

9.   What are the features of I²C bus?

10. How does PIC differ from other microcontrollers?

11. (a) Explain the means of handling pipeline hazards in a microprocessor architecture highlighting its advantages and disadvantages. Give suitable examples.

Or

(b) Write short notes on :

(i) Virtual Memory and paging. (6)

(ii) Segmentation. (4)

(iii) Instruction level parallelism. (6)

12. (a) Highlight the features of Super Scalar Architecture bringing out its advantages and disadvantages.

Or

(b) Write short notes on :

(i) Interrupt processing. (6)

(ii) Branch prediction in RISC. (5)

(iii) Virtual 8086 model. (5)

13. (a) Discuss the various instructions of ARM architecture with examples. (16)

Or

(b) Highlight the features of ARM architecture with the other architectures. (16)

14. (a) Write short notes on :

(i) Real time clock. (5)

(ii) A/D converter. (7)

(iii) Interrupt system. (4)

Or

(b) Discuss the various design options of a serial communication interface of 68HC11.

15. (a) Explain about architecture of PIC microcontroller. (16)

Or

(b) Discuss the operations of UART and I²C bus. (8 + 8)