P 7030

M.E. DEGREE EXAMINATION, MAY/JUNE 2006.

Second Semester

Applied Electronics

AX 143 — EMBEDDED SYSTEMS

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

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the characteristics of ROM.

2. What is bus handshaking?

3. Which registers in A to D convertor are used to select the reference voltage?

4. Give the formula for high speed and low speed band rate.

5. List the various addressing mode for motorola MC 68 H 11.

6. Give the priority of interrupts in 6811.

7. Distinguish cross-assembler and cross compiler.

8. What is the use of flash?

9. Define an event.

10. What is a scheduler?

PART B — (5 × 16 = 80 marks)

15.

11. (i) How does the content of registers are saved and restored during Interrupts? Explain. (8)

(ii) Explain Interrupt Service Routine in Shared-Data Problem. (8)

12. (a) (i) Draw and explain the Harvard architecture of PIC microcontroller. (8)

(ii) Explain the register file structure and addressing modes. (8)

Or

(b) (i) Describe the timing diagram of PIC operation during the reception of characters using uART at 9600 band. (8)

(ii) Using mA × 518 explain how DAC outputs can be easily added to PIC. Draw suitable sketches. (8)

13. (a) (i) Discuss the Parallel Port Interfaces existing in Motorola family of embedded system. (8)

(ii) With necessary sketch explain the functions of the various pins in RS 485. (8)

Or

(b) (i) Draw suitable sketches and explain the frequency measurement using 6811. (8)

(ii) Explain memory interfacing in Motorola System. (8)

14. (a) (i) Explain the C-Code for Round Robin architecture with interrupt for Cordless-Barcode Scanner. (8)

(ii) What are the limitations of testing on the host? Explain how it can be overcome with an instruction set simulator. (4 + 4)

Or

(b) (i) Explain the C code for function - Queue - scheduling architecture. (8)

(ii) Explain using C code how the test scaffold is executed in testing the machine. (8)

15. (a) (i) What are the advantages and disadvantages while going for RTO's tasks? (8)

(ii) Discuss the rules for Interrupt Routines in an RTO's environment only. (8)

Or

(b) (i) Explain the memory management in RTOs. (8)

(ii) Write short notes on message queues and timer functions. (4 + 4)
