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I 1361

H 1362

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2006.

Sixth Semester

Information Technology

IF 363 — EMBEDDED ARCHITECTURE

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a timing diagram? Give an example.

2. What is a watchdog timer?

3. Define Baud rate.

4. What are the fundamental differences between a microprocessor and a micro controller?

5. What are the advantages and disadvantages of Parallel I/O and serial I/O?

6. What is meant by addressing mode? List the addressing modes of MC68H11?

7. List the features of integrated development environment.

8. What is meant by queue–scheduling? What are the objectives of scheduling?

9. What is a semaphore?

10. List the functions of memory management in real time operating systems.

PART B — (5 × 16 = 80 marks)

11. (i) Describe the functions of a DMA in embedded systems with a neat diagram. (6)

(ii) What is an interrupt? What are the different types of interrupt? Explain. (6)

(iii) What is interrupt latency? Explain. (4)

12. (a) (i) Explain interrupts driven data transmission and reception in detail. (8)

(ii) Describe the functions of UART in detail. (8)

Or

(b) (i) Describe the architecture of a typical micro controller with a neat diagram. (8)

(ii) Explain various bus structures used in embedded systems. (8)

13. (a) (i) Describe the functions of a typical parallel I/O interface with a neat diagram. (10)

(ii) Explain high speed I/O interfacing in detail. (6)

Or

(b) (i) Describe the architecture of MC68H11 with a neat block diagram. Also explain the addressing modes of MC68H11. (10)

(ii) What are the features of interrupt? Describe interrupt vector and priority interrupt in detail. (6)

14. (a) (i) Describe the debugging strategies used in embedded systems in detail. (8)

(ii) Explain the features of assemblers, compilers and cross compilers used in embedded systems. (8)

Or

(b) (i) Explain scheduling architecture and algorithm in detail. (8)

(ii) What are simulators? What are the advantages and disadvantages of simulators? (8)

15. (a) (i) Explain interrupt routines in an RTOS environment. (6)

(ii) What is a real time operation system? Describe the functions of real time operating systems in detail. (10)

Or

(b) Explain the following in detail :

(i) Task and task states. (4)

(ii) Message queue. (4)

(iii) Timer function. (4)

(iv) Real time task scheduling. (4)
