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29/11/16 AN

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**Question Paper Code : 60765**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Sixth Semester

Computer Science and Engineering

IT 2354/IT 64/10144 IT 605/10144 CSE 26 — EMBEDDED SYSTEMS

(Common to Information Technology)

(Regulations 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is top down design?
2. Compare Harvard and Von Neumann architectures.
3. Write the instruction to configure timer/counter 1 as a counter in mode 2 to count external pulses and indicate in which pin external pulses must be given.
4. Differentiate SRAM and DRAM memory.
5. Name some applications of multi-rate embedded computing systems.
6. What are the three basic scheduling states and define each of them.
7. What is the function of ICE?
8. What are the characteristics of multi-state system?
9. List any five embedded systems.
10. What are the benefits of platform-based design?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss the various data operations of an ARM processor. (16)

Or

- (b) Explain the architectural design of an embedded system design. (16)

12. (a) (i) Explain the cache memory system design in a processor. (8)  
(ii) Discuss the design of interrupt handling in system design. (8)

Or

- (b) (i) Describe the memory management techniques used in memory system design. (8)  
(ii) Explain the programming support for I/O devices in processor design. (8)
13. (a) Explain the interprocess communication mechanisms. (16)

Or

- (b) Explain the following with examples :
- (i) Rate-monotonic scheduling. (8)  
(ii) Earliest-deadline-first scheduling. (8)
14. (a) (i) How register allocation is done in 8051 for a program written in Embedded C? (5)  
(ii) Write an Embedded C program to monitor the status of a switch and display the status on an LED. (6)  
(iii) Explain how real time constraints are handled in an embedded system. (5)

Or

- (b) (i) Describe in detail about any three design methodologies. (8)  
(ii) Discuss the need of a debugger and an emulator in embedded software development. (8)
15. (a) Explain the water flow design of embedded system development. (16)

Or

- (b) Explain the complete design of an intruder alarm system. (16)