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Reg. No. | | | | | | | | | | | |

Question Paper Code : 51765

B.E./B. Tech. DEGREE EXAMINATION, MAY/JUNE 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. Distinguish an embedded system and a general purpose system.
2. List the types of 8051 instructions based on the operations and give one example to each.
3. How can we use the EQU pseudo-op to define a symbolic name for the memory location of I/O device ?
4. Define cache miss penalty.
5. Differentiate between task and process.
6. When a program is said to be re-entrant ?
7. Write a routine to change the state of an LED.
8. Write the features of an Interrupt Service Routine.
9. Mention the design goals of embedded systems.
10. What is a specification language ? Give an example.

PART – B (5 × 16 = 80 Marks)

11. (a) (i) Explain the data path of ARM processor with a neat diagram. **(6)**

(ii) Explain the embedded system design process of a Digital Camera. **(10)**

OR

(b) (i) Draw the architecture diagram of 8051 microcontroller and explain each module. **(8)**

(ii) Write an ALP to generate a square wave of 1 KHz with a duty cycle of 40%. Use timer to generate delay. Crystal frequency used is 11.0592 MHz. **(8)**

12. (a) Explain the following :

(i) Prioritized device interrupts. **(8)**

(ii) Interrupts in ARM 7. **(8)**

OR

(b) (i) Compare the behaviour of direct-mapped and set-associative caches with an example. **(8)**

(ii) Explain ARM two stage address translation. **(8)**

13. (a) (i) Describe the various CPU metrics. **(8)**

(ii) Explain the scheduling and its policies. **(8)**

OR

(b) With appropriate diagrams, discuss about the Inter-Process Communication Mechanisms. **(16)**

14. (a) Explain multi-state system and function sequences. **(16)**

OR

(b) Explain the advantage and disadvantage of programming embedded system in C and assembly language with example. **(16)**

15. (a) Describe the design details Elevator controller. **(16)**

OR

(b) Explain the design of robot track control program. **(16)**