USN ☐☐☐☐☐☐☐☐☐☐

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Embedded Systems

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting at least TWO questions from each part.*

PART – A

1 a. List out the differences between RISC and CISC architecture. **(06 Marks)**
   b. Explain: i) Embedded system ii) Hard RTS iii) Watch Dog Timer, with an example for each. **(06 Marks)**
   c. With necessary block diagram, explain the embedded system development life cycle. **(08 Marks)**

2 a. What are the various addressing modes in an instruction? Explain each with an example. **(08 Marks)**
   b. Briefly explain the concept of an execution flow of an instruction in an embedded application. **(08 Marks)**
   c. What is meant by the arity of an instruction? Explain the terms one, two, three address instructions. **(04 Marks)**

3 a. Compare SRAM and DRAM. **(04 Marks)**
   b. Explain the internal diagram of DRAM and write the timing diagram for read and write operation. **(08 Marks)**
   c. With diagram explain direct mapping and associative mapping cache implementation. **(08 Marks)**

4 a. With diagram explain: i) Water Fall life cycle model ii) Spiral life cycle model. **(10 Marks)**
   b. What are Five steps to a successful Design? **(05 Marks)**
   c. Compare functional model and architectural model. **(05 Marks)**

PART – B

5 a. Explain the operating system architecture with diagram. **(08 Marks)**
   b. Explain Task Control Block (TCB) **(06 Marks)**
   c. Explain Task state diagram. **(06 Marks)**

6 a. Explain three kinds of stack **(06 Marks)**
   b. Explain different functions of embedded operating system. **(10 Marks)**
   c. Explain multithreaded operating system. **(04 Marks)**

7 a. Discuss the design of a memory map used in memory loading, with an example. **(06 Marks)**
   b. Explain Amdahl's law. **(04 Marks)**
   c. What is a co-routine? Explain. **(04 Marks)**
   d. With suitable examples, explain how the comparison of algorithms can be done. **(06 Marks)**

8 a. Explain the trade tricks to optimize the code for performance improvement. **(10 Marks)**
   b. What is time loading? Explain the primary methods used to compute the times. **(06 Marks)**
   c. Write explanatory note on Hardware accelerators. **(04 Marks)**

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