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10EC74

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022
Embedded System Design

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Define Embedded system. Differentiate between Embedded systems and General computing systems. (08 Marks)
- b. Explain the Embedded system life cycle. (06 Marks)
- c. Define the following with example:
 - i) State diagram
 - ii) Finite state machine. (06 Marks)
- 2 a. Compare microprocessor and micro controller based embedded system. (10 Marks)
- b. Briefly discuss the addressing modes of data transfer group of instructions. Give examples. (10 Marks)
- 3 a. Explain DRAM with Read, write and refresh operations. (10 Marks)
- b. Draw the block diagram of cache system architecture. Explain the implementation of an associative mapping cache implementation. (10 Marks)
- 4 a. Explain the common life-cycle models for embedded system design. (10 Marks)
- b. Discuss coupling and types of cohesion in partitioning and decomposing a system. (10 Marks)

PART – B

- 5 a. With operating system architecture explain the functions of Kernel. (10 Marks)
- b. What is schedule, scheduling strategy, mention the categories of scheduling strategy. (05 Marks)
- c. Explain the possible task states with help of a diagram. (05 Marks)
- 6 a. Explain single thread and multiple threads. (06 Marks)
- b. Explain memory resource management. (06 Marks)
- c. Explain Task control block and its implementation as a structure. (08 Marks)
- 7 a. Explain time loading with three primary methods. (10 Marks)
- b. Write and analyze a selection sort algorithm for complexity. (10 Marks)
- 8 Write short notes on (any four):
 - a. Big-O notation
 - b. Co-routine and interrupt call
 - c. Performance metrics
 - d. Hardware accelerators. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.