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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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