

USN

--	--	--	--	--	--	--	--	--	--

10EC74

Seventh Semester B.E. Degree Examination, Dec.2016/Jan.2017
Embedded System Design

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Explain a microprocessor based embedded system with diagram. (08 Marks)
b. With necessary block diagram, explain the embedded system life cycle. (08 Marks)
c. Explain the important steps in developing a embedded system. (04 Marks)
- 2 a. Analyze how errors propogate under : (i) Addition process (ii) Multiplication process. (08 Marks)
b. With the help of diagram, explain
(i) Index mode data transfer operation. (08 Marks)
(ii) Program counter relative operation. (04 Marks)
c. With timing diagram, explain (i) Writing to a register (ii) Reading from a register. (04 Marks)
- 3 a. With diagram, explain direct mapping implementation and associative mapping cache implementation. (08 Marks)
b. With diagram, explain the operation of DRAM. With timing diagram, explain read operation. (08 Marks)
c. Explain the concept of dynamic memory allocation. (04 Marks)
- 4 a. Develop hardware and software specification for designing a counter and give data control flow diagram. (08 Marks)
b. With diagram explain (i) Water fall life cycle model (ii) Spiral life cycle model. (08 Marks)
c. Compare functional model and architectural model. (04 Marks)

PART – B

- 5 a. Explain how memory is managed at,
(i) System level (ii) Process level. (08 Marks)
b. Explain operating system architecture with diagram. (08 Marks)
c. Explain multithreaded OS. (04 Marks)
- 6 a. Organize general purpose registers as,
(i) Four different contexts (ii) Overlapping contexts. (08 Marks)
b. Explain the structure of TCB with diagram. (08 Marks)
c. With diagram, explain real time stack and application stack. (04 Marks)
- 7 a. Analyze the basic flow of control construct in, (i) Constant time statements (ii) Sequence of statements (iii) For loops (iv) While loops. (08 Marks)
b. Explain the 3 methods used to compute time loading. (08 Marks)
c. What is a co-routine? Explain. (04 Marks)
- 8 a. Explain a typical memory map with diagram and explain the design of memory map with reference to memory loading. (08 Marks)
b. Explain caches and their performance. (08 Marks)
c. Write explanatory note on hardware accelerators. (04 Marks)

* * * * *