

B.E. (Electronics and Communication Engineering)
Seventh Semester
EC-701: Embedded System Design

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

1. Attempt the following:-

- a) Differentiate compiler and cross compiler.
- b) In condition branch instruction, what is the bit size of offset used to generate the physical address? Explain in detail.
- c) In which modules the linker in ARM processor resolves the representative references from libraries as needed by the program?
- d) To improve the performance and code density of ARM processor, how many execution cycles are preferred and why?
- e) Which features does ARM have in common with many other RISC architectures?

(5x2)

UNIT - I

- II. What are the limitations of superscalar processor? How the data dependency can be handled for multiple instructions in Superscalar processor?
(10)
- III. Examine the implementation of branch, call and return instructions in ARM instruction set. Write a program to find the product of two numbers.
(10)
- IV. Write a program to find the sum of $4X + 9Y + 4Z$, where $X = 2$, $Y = 3$ and $Z = 4$ using ARM Processor instruction set.
(10)

UNIT - II

- V. How should the ARM7TDMI address bus be retimed to interface to static RAM or ROM devices?
(10)
- VI. Write program to turn on and off a LED at an interval of one second using Thumb instructions. How do the ARM and Thumb code sizes compare?
(10)
- VII. WAP to interface 2*16 LCD module with ARM 7.
(10)

x-x-x