

1129  
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. Use of scientific calculator is allowed.

x-x-x

I. Attempt the following:-

- a) Discuss the characteristic of embedded system.
- b) What is Current Program Status Register (CPSR) format? Give its significance.
- c) Classify the Privileged Mode in ARM processor.
- d) Define binary encoding for multiply instruction.
- e) What are the operating modes of ARM? (5x2)

UNIT - I

- II. a) Describe ARM register set? Also specify the flags in ARM-7 processor?  
b) List the various data transfer instruction supported for serial and parallel communication in ARM processor?  
c) Implement the statement  $x = (a+b)-c$ , using ARM instructions. (3,4,3)
- III. While writing the assembly language source code, which care has to be taken? Explain the special function of ARM processor. (10)
- IV. ARM processors has many invisible registers involved in executing an instruction, the values of these registers before and after the instruction is executed are not significant why? Explain in detail (10)

UNIT - II

- V. To expand an array of signed half-words into an array of words, write a code. (10)
- VI. Write a subprogram which copies a string of bytes from one memory location to another. The start of the source string will be passed in r1, the length (in bytes) in r2 and the start of the destination string in r3 (10)

P.T.O.

(2)

- VII. a) What do you mean by short, medium and long range branch thumb instructions. Give significance of each instruction.
- b) Explain ARM7TDMI organization along with its different types, of cycles. .
- c) Draw and explain ARM 9 architecture. How it is different from ARM7 architecture. (3,3,4)

x-x-x