2021
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. I which is compulsory and selecting two questions from each Unit. Use of scientific calculator is allowed.

x-x-x

I. Attempt the following:-

a) What are the principal features of ARM architecture?

b) Binary encoding for multiply instruction

c) Classify Stack addressing in ARM

d) Define Count leading zeros Architecture.

e) Explain the process for Status register to general register transfer. (5x2)

UNIT – I

II. a) Explain the concept of super-pipelining in ARM processor. Also differentiate super-pipelining from super scalar.

b) How many execute cycles are there after the branch target calculation and before the instruction at the branch target is ready to execute? What does the processor use these execute cycles for? (2x5)

III. ARM instructions fall into which three categories? Why user code cannot gain supervisor privileges without appropriate checks being carried out to ensure that the code is not attempting illegal operations. (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. How can we change the PSR contents through instructions in ARM? Explain various PSR instructions in ARM (10)

VI. To expand an array of signed half-words into an array of words, write a code. (10)

VII. a) What are the signals used during bus transactions in AMBA architecture.
b) Explain ARM7TDMI core interface signals and its different types of cycles. (2x5)

x-x-x