Exam.Code:0931
Sub. Code: 33687

2076

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. **(a)** What do you mean by delayed branches feature of ARM architecture?

(b) What do you mean by auto -indexing in ARM processor?

(c) What are the differences between full ascending and empty ascending addressing?

(d) Why does POP {PC} return from a subroutine?

(e) What characteristics make AMBA suitable for multicore processors? **(5x2)**

UNIT - I

II. **(a)** Explain current program status register (CPSR) of ARM Processor.

(b) 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. **(2x5)**

III. **(a)** Write ARM assembly language code that handles a breakpoint. It should save the necessary registers, call a subroutine to communicate with the host, and upon return from the host, cause the break pointed instruction to be executed. .

(b) Discuss the role of LI and L2 cache memories in ARM processor. **(2x5)**

IV. **(a)** Explain design of high speed multiplier using ARM architecture.

(b) Explain handshake signals in ARM processor. Give its significance. **(2x5)**

UNIT - II

V. **(a)** WAP to interface 2*16 LCD module with ARM 7.

(b) Explain how Thumb code is more efficient than ARM code. Give examples. **(2x5)**

P.T.O.

VI. **(a)** What are the signals used during bus transactions in AMBA architecture.

(b) Explain Thump breakpoint instructions. **(2x5)**

VII. **(a)** Explain the impact of AMBA on system performance, power consumption, and design complexity.

(b) Explain differences between ARM7/ARM8/ARM9 pipeline architecture. **(2x5)**

x-x-x