U.S.N | | | | | | | | | | |

P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, M.Tech - Computer Engineering (MCEN)

Semester End Examination; May/June - 2018

ARM Based Processor

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. Explain how instruction set is designed with example? 10

b. Briefly explain pipelining. Discuss its Hazards and efficiency. 10

2 a. Discuss the features of RISC machines that are used and rejected in ARM processor. 10

b. Explain the following features of ARM programmer's model :
i) CPSR ii) memory system iii) ARM instruction set 10

UNIT - II

3 a. Write an ARM assembly language program to print r_1 content in hexadecimal. 8

b. Explain the shift and rotate instructions of ARM with example. 12

4 a. With a neat diagram explain 5-stage pipeline organization. 10

b. Explain ARM high speed multiplier organization with a diagram. 10

UNIT - III

5 a. Explain the following instructions :
i) SWP ii) BL iii) SWI iv) TST 10

b. Explain co-processor data operations and data transfers with Binary encoding. 10

6 a. Explain the ARM floating point architecture. 14

b. Explain the standard ARM C program address space model. 6

UNIT - IV

7 a. Explain Thumb instruction decomposer organization and Thumb ARM instruction mapping. 14

b. Explain the Thumb branch instructions with Binary coding and example (any three). 6

8 a. Explain in detail Advanced Microcontroller Bus Architecture (AMBA). 16

b. Explain any two Debug approaches of ARM. 4

UNIT - V

9 a. With a neat diagram, explain direct mapped cache organization. 10

b. Explain the organization of ARM7 TDMI and ARM-8. 10

10 a. Explain Two-Way set Associative cache with a neat diagram. 10

b. Explain any Ten CPIS MMU Registers. 10

* * * *