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

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester, B.E. - Electronics and Communication Engineering

Semester End Examination; Dec - 2017/Jan - 2018

Advanced Microcontroller

Time: 3 hrs *Max. Marks: 100*

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

UNIT - I

1 a.	Draw the memory map of F 2013. Give a brief description of different regions in the map.	10
b.	With suitable examples, explain the various addressing modes of MSP 430.	10
2 a.	What are the different sources of clock in MSP 430? Explain in detail.	10
b.	Explain the functions associated with the following instructions in MSP 430; i) Set Z ii) R/q dst iii) incd.W dst iv) dadd.W src, dst v) inv.W dst	5
c.	Explain the different shift and rotate instructions available in MSP 430 instruction set.	5

UNIT - II

3 a.	What are the different ways in which the space for storing local variables is allocated in MSP 430? Explain in detail.	10
b.	What are the operations that are performed between the cause of a maskable interrupt and stack of its ISR? Explain.	10
4 a.	List and explain the pin configuration of ports P1 and P2 of F 2013.	10
b.	With necessary circuits, explain the standard connection of an LED to Pin P1.0 in active high and active low configuration. Also explain how the current flows in this circuit?	10

UNIT - III

5 a.	Explain how ARM instruction set is suitable for embedded application?	10
b.	Mention the characteristics of memory to meet the design constraints and explain them briefly.	10
6 a.	Explain the configuration of a generic PSR in ARM.	5
b.	What are the features of Thums mode? Explain.	5
c.	Explain the structure of vector table and stack operation in ARM.	10

UNIT - IV

7 a.	Write a small code fragment that uses both ARM and thumb versions of BX instructions. Rewrite the code replacing BX with BLX.	10
b.	Discuss single-register, load-Store and multiple-register load-store instructions in ARM.	10
8 a.	What are the various factors that must be considered for efficient use of C data types?	10
b.	What are the issues we may encounter when porting C Code to ARM? Explain.	10

Contd....2

UNIT - V

9 a.	With a neat diagram, explain a non nested interrupt handler.	10
b.	Discuss the firmware executions flow.	10
10 a.	Draw the SLOS directory layout and explain.	6
b.	Explain the various steps involved in initializing SLOS.	7
c.	Draw the memory model of SLOS and explain.	7

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