Code No.: EC57102PC | R20 | H.T.No. | | | 8 | R | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–M.TECH–I–Semester End Examinations (Regular) – April - 2022
MICROCONTROLLERS AND PROGRAMMABLE DIGITAL SIGNAL PROCESSORS
(VLSI SD)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.
   Part A is compulsory which carries 20 marks. Answer all questions in Part A.
   Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) What is unaligned memory access?   [2M]
   b) List the applications of ARM Cortex M3 processor.   [2M]
   c) Define Interrupt Enable and Clear Enable registers of Cortex-M3 Processor. [2M]
   d) What is the use of Vector Tables in Cortex-M3 Processor?   [2M]
   e) What is LPC 17XX family Microcontrollers?   [2M]
   f) What is the functionality of Watchdog Timer in LPC 17XX Microcontrollers? [2M]
   g) Write about MAC unit in Programmable DSPs.   [2M]
   h) What are the Specialized addressing modes in Programmable DSPs.   [2M]
   i) List the advantages of VLIW architecture.   [2M]
   j) List the on-chip peripherals of DSP TMS320C6000 processor.   [2M]

PART-B   (50 Marks)

2. Describe the evolution and main trends of the microcontrollers until the appearance of ARM   [10M]
   Cortex core microcontrollers into market. What were the main microcontroller families and what
   new features they had?

OR

3. Describe the operating modes of Cortex-M3 Processor.   [10M]

4. Briefly describe SYSTICK Timer and its usages.   [10M]

OR

5. Compare CortexM core NVIC with ARM7 interrupt handling options! What is tail-chaining, what's [10M]
   happening at this time?

6. Explain the Memory Mapping of LPC 17XX Microcontroller.   [10M]

OR

7. Describe the internal architecture of the NXP LPC17XX series. What are the typical roles for the [10M]
   M0 and M4 core? Show an example.

8. Describe the Harvard architecture of Programmable DSP Processors.   [10M]

OR

9. Explain the architectural differences between DSP processors and ARM Cortex Microprocessors. [10M]

10. Explain about logical instructions of DSP TMS320C6000 processor.   [10M]

OR

11. Briefly explain about program control unit of TMS320C6000 processor.   [10M]

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