

Code No.: EC57102PC

R20

H.T.No.

		8	R						
--	--	---	---	--	--	--	--	--	--

**CMR ENGINEERING COLLEGE: : HYDERABAD**  
**UGC AUTONOMOUS**

**I–M.Tech–I–Semester End Examinations (Regular) July- 2021**

**MICROCONTROLLERS AND PROGRAMMABLE DIGITAL SIGNAL PROCESSORS**  
**(VLSI System Design)**

[Time: 3 Hours]

[Max. Marks: 70]

1. Answer Any **FIVE** Questions. Each Question Carries 14 Marks
2. Illustrate your answers with NEAT sketches wherever necessary.

5 x 14M=70M

1. Discuss the main features of the Cortex M3 processor core: architecture, instruction set, instruction execution, major internal core blocks, operating modes. What's new comparing to the ARM7 core?
2. Demonstrate the features of the Cortex M3 based microcontrollers memory organization. What are the major address ranges?
3. Explain the Vector Tables of ARM Cortex M3 processor.
4. What is an exception in ARM? Explain about exception Exits and Tail-Chaining interrupts.
5. Define the memory mapping of LPC 17xx microcontroller.
6. Illustrate arithmetic and logical instructions of DSP TMS320C6000 processor.
7. a. What is the difference between Von-Neumann and Harvard architecture?  
b. How the shifters are useful in DSP? Explain the functionality of Barrel shifter?
8. Classify the following
  - a. SYSTICK Timer.
  - b. Serial interfaces of LPC 17xx microcontroller.