Code No.: (R22EC501PC)   R22   H.T.No. [ ][ ][8][R][ ][ ][ ][ ]

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B. TECH–I–Semester End Examinations (Regular) - December- 2024
MICROPROCESSORS & MICROCONTROLLERS
(ECE)

[Time: 3 Hours]   [Max. Marks: 60]

Note: This question paper contains two parts A and B.
     Part A is compulsory which carries 10 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.

PART-A   (10 Marks)

1. a) What is the purpose of physical memory organization in the 8086?   [1M]
   b) Define the term 'interrupt structure' in the context of the 8086.   [1M]
   c) Mention the instruction set categories of the 8051 microcontroller.   [1M]
   d) Explain the importance of counters in 8051 real-time control.   [1M]
   e) What is the significance of external RAM in microcontroller interfacing? [1M]
   f) How is the I2C bus interface implemented in 8051?   [1M]
   g) Explain how branch instructions are executed in ARM processors.   [1M]
   h) What is the role of interrupts/exceptions in ARM architecture?   [1M]
   i) Differentiate between Cortex and OMAP processors.   [1M]
   j) Highlight the applications of Thumb instructions in ARM processors.   [1M]

PART-B   (50 Marks)

2. Discuss the register organization of the 8086 microprocessor.   [10M]

OR

3. Write a simple program in 8086 assembly language for string manipulation. [10M]

4. Explain the memory organization and I/O ports of the 8051 microcontroller. [10M]

OR

5. Describe how external interrupts (IE and IP) are programmed in the 8051.   [10M]

6. Explain the interfacing of an external ADC with the 8051 microcontroller. [10M]

OR

7. Discuss the USB communication interface with reference to the 8051 microcontroller. [10M]

8. Describe the CPSR and its role in the ARM processor architecture.   [10M]

OR

9. Explain the operating modes used in ARM.   [10M]

10. Elaborately discuss on the architecture of the OMAP processor.   [10M]

OR

11. Discuss the real-time applications of Cortex processors.   [10M]

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