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**R16** 

Code No: 135BF

# JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B. Tech III Year I Semester Examinations, May/June - 2019 MICROPROCESSORS AND MICROCONTROLLERS (Common to EEE, EIE)

Time: 3 hours Max. Marks: 75

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 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

**(25 Marks)** 

1.a) Explain the use of *Direction flag* and *Trap flag* in 8086 microprocessor. [2] What are addressing modes? Explain immediate addressing mode of 8086 b) microprocessor with two examples. How many timers and counters are available in 8051 microcontroller? What are their c) sizes? [2] d) List the various interrupts supported by the 8051 microcontroller. [3] What is EEPROM? e) [2] What are the advantages of serial data transfer scheme? f) [3] What are the main features of ARM processors? [2] g) List and explain condition code fags in program status register of the ARM processors. h) [3] What is the size of Thumb instruction set of ARM processor? i) [2] What are the advancements of Thumb-2 instruction set over Thumb instruction set? <u>i</u>) [3]

#### PART - B

**(50 Marks)** 

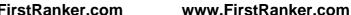
2. With a neat diagram, discuss the internal architecture of 8086 microprocessor. Also discuss their merits and applications. [10]

#### OR

- 3.a) Discuss different instruction formats supported by the 8086 microprocessor.
  - b) Write an assembly language program in 8086 to arrange the given 8-bit numbers in ascending order. [5+5]
- 4.a) Explain the I/O ports of 8051 microcontroller.
  - b) What are various addressing modes supported by 8051? Discuss with example instructions. [4+6]

#### OR

- 5.a) Explain in detail the memory organization of 8051 microcontroller.
  - b) Explain any four arithmetic instructions of 8051 microcontroller with examples. [6+4]





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6.a)	Write a short note on board communication interfaces.	
b)	Discuss the interfacing of external RAM with 8051 microcontroller.	[4+6]
	OR	
7.a)	What is the need for A-to-D controllers? Explain the interfacing of A-to-With 8051 microcontroller.	D controllers
b)	What is UART? Discuss its working.	[7+3]

8. What is the size of ARM registers? Explain in detail the register set of ARM processor. [10]

OR

- 9.a) What are interrupts? List different interrupts supported by the ARM processor.
  - b) Explain the Thumb instructions of ARM processor. [5+5]
- Discuss the main features of CORTEX Processor. 10.a)
  - b) What is a superscalar processor? Explain.

[5+5]

List the main features of OMAP processor. With a neat diagram, explain the 11. architecture of OMAP processor. [10]

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