

Code No: 126EM

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, May - 2017

MICROPROCESSORS AND MICROCONTROLLERS

(Common to ECE, ETM)

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) Name the fourteen registers used for 8086 microprocessor? [2]
- b) Draw the flag register bits in 8086 microprocessor. [3]
- c) Write a program to find the factorial of 4 using 8086 microprocessor. [2]
- d) What is the purpose of using macro's? [3]
- e) What are the different memories used to interface 8086 microprocessor? [2]
- f) Give the serial communication standards. [3]
- g) Write about PSW used in 8051 microcontroller. [2]
- h) Write TCON special function register used in 8051 microcontroller. [3]
- i) What are different types of interrupts are used in 8051 microcontroller? [2]
- j) Draw the timer/counter control logic diagram in 8051 microcontroller. [3]

**PART - B**

(50 Marks)

- 2.a) Explain about the architecture of 8086 microprocessor with a neat sketch.
- b) Draw the timing diagram used for minimum mode of chip diagram of 8086 microprocessor. [5+5]

**OR**

- 3.a) Explain signal description of 8086 microprocessor.
- b) What is an interrupt? Explain various types of interrupts in 8086 microprocessor. [5+5]

- 4.a) Explain various addressing modes of 8086 microprocessor.
- b) Describe the instruction set of 8086 microprocessor: [5+5]
  - i) SHR
  - ii) ADD
  - iii) DAA
  - iv) CMP
  - v) CBW

**OR**

- 5.a) Write a program for finding multibyte addition using 8086 microprocessor.
- b) Write a program to print a string 'MICRO' using 8086 microprocessor. [5+5]

- 6.a) Describe the interfacing of D/A Converter with a neat sketch.
- b) Explain about the mode 2 operation used in 8255 PPI in detail. [5+5]

**OR**

- 7.a) Explain about the architecture of 8251 USART with a neat sketch.
- b) Write a short notes on the scheme of serial data transfer. [5+5]

- 8.a) Write an overview of 8051 microcontrollers. [5+5]  
b) Write a program to find 1's and 2's complement of a number using 8051 microcontroller.

OR

- 9.a) Write a program to find 8-bit subtraction using 8051 microcontroller. [5+5]  
b) Write a program to add 16 bit numbers using 8051 microcontroller.

- 10.a) Describe the timer mode 0 used in 8051 microcontroller with a neat sketch. [5+5]  
b) Describe the timer mode 1 used in 8051 microcontroller with a neat sketch.

OR

- 11.a) Describe the timer mode 3 used in 8051 microcontroller. [5+5]  
b) Write a short notes on external interrupts in 8051 microcontroller.

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