

R13

Code No: 126EM

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, October/November - 2016

MICROPROCESSORS AND MICROCONTROLLERS

(Common to ECE, BME)

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) When the 8086 processor is in minimum mode and maximum mode? [2]
- b) List different types of 8086 hardware interrupts. [3]
- c) Draw the 8086 flag register. [2]
- d) Assume that the accumulator contains data type 82H and the instruction MOVCA(4FH) is fetched. List the steps in encoding and executing the instruction. [3]
- e) Write the advantage and disadvantage of parallel communication over serial communication. [2]
- f) List out the important features of the A/D converter. [3]
- g) What is the difference between microprocessor and micro controller? [2]
- h) List the addressing modes of 8051. [3]
- i) Define baud rate of 8051. [2]
- j) Mention the interrupt priority in 8051. [3]

PART - B**(50 Marks)**

- 2.a) Explain the internal hardware architecture of 8086 microprocessor with neat diagram.
- b) Draw the read and write cycle timing diagrams of 8086 in minimum mode. [5+5]

OR

- 3.a) Explain the concept of segmented memory. What are the advantages?
- b) Discuss the physical address formation in 8086. [5+5]
- 4.a) Explain the various addressing modes of 8086 microprocessor with examples.
- b) Write short note about assembler directives. [5+5]

OR

- 5.a) Explain Data transfer, arithmetic and branch instructions.
- b) Write an 8086 ALP to find the sum of numbers in the array of 10 elements. [5+5]
- 6.a) Explain the interfacing 8279 keyboard controller with neat block diagram.
- b) With neat block diagram explain the 8251 and its operating modes. [5+5]

OR

7. Explain how to interface (a) ADC and (b) DAC to microprocessor. [10]

- 8.a) Explain the architecture of 8051 with its diagram.
b) Draw the Internal RAM memory organization in 8051. [5+5]

OR

- 9.a) Explain the I/O pins ports and circuit details of 8051 with its diagram.
b) Write an ALP to generate the 1kHz square wave form using mode 1 timer programming. [5+5]

- 10.a) Explain: i) TCON ii) TMOD registers in detail.
b) How does 8051 differentiate between the external and internal program memory? [5+5]

OR

- 11.a) Explain how interrupts are handled in 8051.
b) Write notes on 8051 serial port programming. [5+5]

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