

R16

Code No: 136CT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, March - 2024

MICROPROCESSORS AND MICROCONTROLLERS

(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A

(25 Marks)

- 1.a) List the general purpose registers of 8086. [2]
- b) What is Macro? Give the examples. [3]
- c) Compare the microprocessor and microcontrollers. [2]
- d) Write about PSW used in 8051 microcontroller. [3]
- e) What is On board Communication Interface? [2]
- f) Write a short note on external memory RAM. [3]
- g) What is exception? [2]
- h) Compare RISC and CISC processors. [3]
- i) What are the advantages of OMAP? [2]
- j) Explain the Priority concept in Cortex processor. [3]

PART - B

(50 Marks)

2. Draw and explain signal descriptions of 8086 in minimum mode. [10]

OR

- 3.a) Name the various Addressing modes of 8086 and explain any 3 of them.
- b) Write an 8086 ALP to find the sum of numbers in the array of 10 elements. [5+5]

- 4.a) Write an Assemble language program to add two 16-bit Hexa decimal numbers in 8051.

- b) Explain the Memory organization of 8051. [5+5]

OR

5. Classify and explain the instruction set of 8051 microcontroller with examples. [10]

- 6.a) Draw the block diagram of Serial Peripheral Interface bus (SPI bus) and explain its working.

- b) Explain memory mapped I/O and I/O mapped I/O. [5+5]

OR

- 7.a) Write a program for DAC Interface to 8051 microcontroller.
- b) Write a short note on External Communication Interfaces. [5+5]

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8. Name various modes of ARM processor and discuss how the change of mode takes place in it. [10]

9.a) Discuss the main features of the ARM Processor. [10]

b) Explain the concept of thumb instructions in ARM processor. [5+5]

10. Draw the functional block diagram of OMAP Processor and explain working of all blocks available in it. [10]

OR

11.a) What is Pipeline mechanism? Explain briefly the pipeline mechanism in Cortex processor. [10]

b) Discuss about memory access attributes of Cortex processor. [5+5]

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