Code No: 156BU **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, July - 2023

MICROPROCESSORS AND MICROCONTROLLERS

(Common to EEE, MCT)

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)	Define instruction pipelining of 8086 microprocessor.	[2]
b)	What is an assembler? Give any four assembler directives.	[3]
c)	What is the significance of PSEN pin of 8051 microcontroller?	[2]
d)	Give port II structure of 8051 microcontroller.	[3]
e)	Give the control word structure of 8251 PPI.	[2]
f)	Write the features of 8251 USART.	[3]
g)	What are the different applications of ARM controller?	[2]
h)	List out different interrupts occurred in ARM controller.	[3]
i)	What are Interrupt controller of ARM cortex processor?	[2]
j)	List out families of OMAP processor.	[3]

PART – B

(50 Marks)

2.a) What are the different segments registers in 8086? Why need memory segmentation?
b) What is the length of the instruction Queue in 8086? Discuss the use of the queue. Explain the reason for limiting the length of the queue. [5+5]

OR

3.a) Explain the different assembler directives used in 8086 microprocessor.
b) Explain the following instructions: [4+6]
i) AAS ii) DIV iii) CALL

4.a) Discuss about memory organization of 8051 microcontroller.
b) What is the purpose of using I/O ports of 8051? Classify and explain them in detail. [5+5]

OR

5.a) Explain the interrupt structure of 8051 Microcontroller.
b) Draw the 8051 Microcontroller architecture and explain its operation in detail. [5+5]

6.a) Draw the internal architecture of USART 8251 and explain its different status and modes and control formats neatly.
b) Write short notes on Traffic light controls interfacing with 8051. [5+5]

OR

7.a) Explain the methods of serial communications with examples.
b) Write short note son A/D convertor interfacing with 8051. [5+5]

8.a) Explain the different Thumb programming model of ARM controller with examples.
b) Write short notes on subroutines in ARM processor. [5+5]

OR

9.a) Draw the architecture of ARM controller and explain the operation of each block in it.
b) List out different applications of ARM processor. [5+5]

10. Draw and explain the functional description and NVIC programmers' model in detail. [10]

OR

11.a) Draw the block diagram of ARM Cortex-M processor and explain its operation.
b) Explain the Programmers Models of ARM processor in detail. [5+5]

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