Code No: 185DK **R22**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, January - 2025

MICROPROCESSORS AND MICROCONTROLLERS

(Electrical and Electronics Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: This question paper contains two parts A and B.
i) Part- A for 10 marks, ii) Part - B for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of ten questions (numbered from 2 to 11) carrying 10 marks each. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A

(10 Marks)

1.a)	What is the procedures to write a program in assembly language programming.	[1]
b)	What is the use of interrupts in 8086?	[1]
c)	Draw the interfacing diagram of A/D with 8086.	[1]
d)	What is the importance of PPI?	[1]
e)	Explain the need of RS232 interface.	[1]
f)	What is the concept of prototyping in microprocessor?	[1]
g)	List out the interrupts available in 8051.	[1]
h)	Compare silent features of 8051 family of microcontrollers.	[1]
i)	What are the applications of Micro Controllers?	[1]
j)	What is memory interfacing in 8051?	[1]

PART - B

(50 Marks)

2.a) Draw the pin diagram of 8086 processor and explain the functions of each pin.
b) Explain about the execution of all the instructions of 8086 with suitable examples. [5+5]

OR

3.a) Explain various addressing modes that the 8086 microprocessors can support.
b) Define memory segmentation and explain the concept of memory segmentation with diagram. [5+5]

4.a) Explain how to interface Digital-to-Analog Converter (DAC) to 8086 processor.
b) With neat block diagram, explain PPI and its operating modes. [5+5]

OR

5. Explain need of the following devices:
a) 8257 (DMA Controller)
b) 8259 (Interrupt Priority Control). [5+5]

6. Explain 8251 USART architecture and interfacing in detail. [10]

OR

7.a) Write notes on RS-232 Serial data standard.
b) Explain serial communication standards with respect to voltage levels. [5+5]

8.a) Describe with examples various modes of the 8051 timers.
b) Explain the different modes of serial communication in 8051. [5+5]

OR

9.a) Explain the memory organization of 8051 microcontroller.
b) Draw the architectural diagram of 8051 microcontroller and explain in detail about each block. [5+5]

10.a) Explain ADC interfacing with 8051 microcontrollers using the relevant diagram.
b) Explain the interfacing of LEDs with 8051 microcontrollers in detail. [5+5]

OR

11.a) Explain the interfacing of keyboard with 8051 microcontrollers using relevant diagram.
b) Explain interfacing diagram of stepper motor with 8051. [5+5]

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