R13

Code No: 126AK

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

MICROPROCESSORS AND INTERFACING DEVICES

(Electrical and Electronics 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)	State the function of BHE and A_0 pins of 8086.	[2]
b)	How does the physical address calculated? Give an example.	[3]
c)	What is the role Debugger in assembly language programming?	[2]
d)	Explain any two assembler directives of 8086.	[3]
e)	What is resolution time in ADC?	[2]
f)	What are the modes of operation supported by 8255 ?	[3]
g)	What is simplex and duplex transmission?	[2]
h)	List out the important features of 8251.	[3]
i)	Enlist the features of 8051 microcontroller and compare it with 8086 microprocessor.	[2]
j)	State the functions of ALE and PSEN signals of 8051 microcontroller.	[3]

PART - B

(50 Marks)

2.a) Name the general purpose register of 8086 and describe their function.
b) Draw and explain the timing diagram of a memory read bus cycle. And also draw the timing diagram for the modified memory read bus cycle suppose the READY signal becomes low at the middle of second T state. [5+5]

OR

3.a) Explain the significance of segment register.
b) Draw and explain the architectural diagram of 8086 microprocessor. [4+6]

4.a) What is an addressing mode? With suitable example, explain any 4 addressing modes in 8086.
b) State the advantages and disadvantages of Procedure. And Compare Near and Far Procedure. [6+4]

OR

5.a) Illustrate the use of any three branching instructions.
b) Write an assembly language program to find the average of 10 numbers are stored from location 1000 onwards. Draw the flowchart also. [5+5]

6.a) What is the advantage of using 8279 for keyboard/display interface? What are scan lines used for. Explain its following modes of operations (i) Encoded Scan Mode (ii) Decoded scan mode.

b) With suitable diagram, explain how the Priority Interrupt controller 8259 can be interfaced with 8086 in cascade mode? [5+5]

OR

7.a) Draw the pin diagram of 8257 programmable DMA controller and explain the function of each pin in detail.

b) What are vectored interrupts? How is the address of the Interrupt Service routine calculated in vectored interrupts? Explain with an example. [5+5]

8.a) Draw the internal block diagram of 8251 USART and explain about each block in detail.

b) Compare between serial communication and parallel communication. [5+5]

OR

9. With suitable diagram, explain how the following devices can be interfaced with 8086
a) RS-232 b) IEEE -488 [5+5]

10.a) Analyze the operation of I/O ports in 8051 microcontroller with neat sketch.

b) Explain the function of the XTAL1 and XTAL2 in 8051 microcontroller. [5+5]

OR

11.a) Illustrate with suitable example, instructions for direct addressing mode of 8051 microcontroller.

b) Describe the features of Special Function Registers of 8051 microcontroller. [5+5]

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