R15

Code No: 126VM

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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

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 advantages of memory segmentation.	[2]
b)	Describe the implementation of pipelined process of 8086.	[3]
c)	Write about string manipulators.	[2]
d)	Write a sample program to illustrate the concept of programming the stack.	[3]
e)	State the advantages and disadvantages of serial communication.	[2]
f)	Find the necessity of handshake signals in mode-2 configurations of 8255.	[3]
g)	Give two examples of bit manipulation instructions of 8051.	[2]
h)	Describe the 8051 instructions with an example: SWAP and SJMP.	[3]
i)	Give the functions of 8051 real time controls.	[2]
j)	Compare timers and counters.	[3]

PART - B

(50 Marks)

2.a) Draw and explain the each bit of flag register of 8086 family microprocessor.
b) Illustrate the functional description of 8086 microprocessor with a neat sketch. [5+5]

OR

3.a) Explain the physical memory organization of 8086 system.
b) Write briefly about interrupts and its types. Explain the control flow of the microprocessor in detail when interrupt occurs. [5+5]

4.a) Explain the all assembler directives of 8086 with suitable examples.
b) Write detailed note about the following terms: Procedures and Macros. [5+5]

OR

5.a) Explain the following instructions: (i) IMUL (ii) ROR.
b) Write an assembly language program to search data in an array using 8086 instruction set. [5+5]

6.a) Discuss how microprocessors are interfaced with I/O and memory in detail.
b) Draw and explain the serial mode transfer data formats of 8251. [5+5]

OR

7.a) Explain briefly the different modes operation of 8255 PPI.
b) Write in brief about interrupt service routine. [5+5]

8.a) With the functional block diagram, explain the architecture of 8051 microcontroller.

b) Write a program to add any two 16-bit data using 8051. [5+5]

OR

9.a) Discuss in detail about the Addressing Modes of 8051 Microcontroller.

b) Explain in detail about Ports of 8051. [5+5]

10.a) How does the timer overflow interrupt differ from real time clocked interrupts? Discuss in detail.

b) Write a brief note on external hardware interrupts of 8051. [5+5]

OR

11.a) Explain the timer structures of 8051 with TMOD register.

b) Write a brief note on serial communication interrupts in 8051. [5+5]

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