Code No: 126AK **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, December - 2019
MICROPROCESSORS AND INTERFACING DEVICES
(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	List the advantages of memory segmentation.	[2]
b)	What physical address is represented by 4000:561E?	[3]
c)	How is 8255 configured if its control register contains 80_H?	[2]
d)	Explain the differences between static and dynamic memories.	[3]
e)	What is the function of Stack and stack register?	[2]
f)	Give important IEEE-488 standards.	[3]
g)	Draw the hardware diagram to acquire data using 8-bit ADC.	[2]
h)	Compare PUSH and POP instructions in 8086.	[3]
i)	Name the addressing modes of 8086.	[2]
j)	What is the need of timers in 8051?	[3]

PART - B

(50 Marks)

2.a) Draw the internal register diagram of 8086 and explain the function of each register.
b) Explain the function of following pins of 8086. [5+5]
i) DT/$\overline{R}$
ii) READY
iii) $\overline{INTA}$

OR

3.a) Discuss the function of maximum mode control bus signals and explain how they are produced.
b) Explain the following pins of 8086. [5+5]
(i) MN/$\overline{MX}$ (ii) $\overline{TEST}$ (iii) $\overline{BHE}$ (iv) $\overline{DEN}$

4.a) What are assembler directives and explain the following assembler directives.
i) ASSUME (ii) SEGMENT (iii) DB (iv) PUBLIC
b) Write an Assembly Language Program to sort the numbers in ascending order using bubble sort. [5+5]

OR

5.a) Explain the instructions related to arithmetic and logical shift with an examples.
b) Write an 8086 program to add two 16 bit numbers in CX and DX and store the result in location 0500H addressed by DL. [5+5]

6.a) Sketch and explain the interface of PIC 8259 to the 8086 microprocessor in minimum mode. Write an assembly language program.

b) Discuss the Asynchronous and synchronous data transfer schemes. [5+5]

OR

7.a) Explain the interfacing of stepper motor to the 8086 MP with Assembly Language Program.

b) Explain D/A and A/D interfacing done by 8086 with an application. [5+5]

8.a) What is the need for conversion of TTL to RS232C. With the help of diagram explain the Conversion.

b) Explain the need of serial data transfer schemes. [5+5]

OR

9.a) With a block diagram explain the architecture of USART.

b) Discuss the mode instruction format of 8251 for synchronous and asynchronous mode of operation. [5+5]

10.a) Explain SCON register programming in 8051.

b) Write a program to multiply the data in RAM location $3A_H$ by the number 11_H. Put the result in R_4 and R_5 registers. [5+5]

OR

11.a) Write a program to double the number in register R_2 and put the result in R_3 and R_4 of 8051.

b) What are the addressing modes supported in 8051? Give examples. [5+5]

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