Registration No.:

Total Number of Pages: 02

B.Tech
RME4G002/RIT4D002/RCS4D002/
RBM4G001/REI4C003

4th Semester Regular/Back Examination: 2023-24
Microprocessor and Microcontroller
MECH/IT/CSE, ELECTRICAL & C.E, ELECTRONICS& C.E/ BIOMED/ AEIE, EIE
Time: 3 Hour
Max Marks: 100
Q.Code : P546

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right-hand margin indicate marks.

Part-I

Q1 Answer the following questions: (2 x 10)

a) What are the different types of memories available in a microprocessor kit?
b) Mention the steps involved in instruction execution process.
c) What is the significance of clock in a microprocessor system?
d) Mention one of each 8-bit and 16-bit microprocessor and why is it called 8 bit or 16bit microprocessor?
e) What do you mean by monitor program and in where is it situated in a microprocessor system?
f) What are the different methods of data transfer possible between MPU and I/O?
g) Mention the basic modes of operation of PPI 8255.
h) What is Boolean Processor? Briefly explain.
i) What is the size of internal data memory in 8051 ? Mention its division with names.
j) Mention the predefined interrupts in 8086.

Part-II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 × 8)

a) Draw and explain the timing diagram of memory write cycle with suitable example for 8-bit microprocessor.
b) Describe the functional units present and their functions in BIU and EU of 8086.
c) Explain the requirement of a program counter, stack pointer and status flags in the architecture of 8085 microprocessor
d) Specify handshaking signals and their functions if port-A of 8255 is set-up as input port in mode-1.
e) Explain, how to interface an LCD display with an 8086 microprocessor.
f) What are the functions of EU and BIU in 8086 microprocessor? Explain their utility by taking example of five instructions.

g) Write an assembly language program to find out the largest number from a given unordered array of 8-bit numbers, stored in the locations starting from a known address.

h) Write a 8086 ALP to sort an array of ten bytes in ascending order. Add comments to your Program.

i) Explain the different serial communication modes in 8051.

j) What do you mean by fully static operation in 8051 and how can this feature be useful in limiting power consumption?

k) Draw the bit pattern of program status word of 8051 and explain the significance of each bit with examples.

l) Briefly explain about the basic architecture of 80386 and 80486 microprocessors.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3	Draw the architecture of 8051 microcontroller and explain the blocks in it.	**(16)**
Q4	Explain the block diagram of the 8279 Keyboard/ Display interface and its operations.	**(16)**
Q5	Describe any five addressing modes of 8086 with suitable examples.	**(16)**
Q6	With suitable diagram explain the sensor interfacing with 8051 microcontrollers.	**(16)**