Registration No.: | | | | | | | | | | |

Total Number of Pages: 02 **B.Tech**

RCS4D002/ REI4C003/ RME4G002

4th Semester Back Examination: 2024-25

Microprocessor and Microcontroller

BRANCH(S): AEIE, CSE, ELECTRICAL & C.E, ELECTRONICS & C.E, MECH

Time: 3 Hours

Max Marks: 100

Q.Code : S239

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 ports available in 8255? Mention the size of each port.

b) Mention the number of register banks and their addresses in 8051.

c) Mention the types of addressing modes of 8086 instruction set.

d) Give one example of 8-bit microprocessor and mention the size of data bus and address bus of the microprocessor.

e) Explain about synchronous data transmission.

f) What will happen if a label within a macro is not declared local?

g) What is microprocessor? What is the significance of bit size in microprocessor specification?

h) Write a program to perform multiplication of 2 numbers using 8051.

i) How a keyboard matrix is formed in keyboard interface?

j) Number of instructions for a given microprocessor depends on what? Justify your answer.

Part-II

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

a) List the functions performed by 8279. Explain the Scanned sensor matrix mode.

b) Analyze how to interface a 16 X 2 LCD display using 8051microcontroller.

c) Draw the timing diagram for the execution of the MOV instruction in 8086.

d) What is A/D and D/A converter? Explain D/A interface with 8085.

e) Explain the concept of pipelining in 8086. Discuss its advantages and disadvantages.

f) Explain the interfacing of Keyboard/Display with 8051 microcontroller.

g) What is the use of addressing modes in 8085, explain with example for different types of addressing modes?

h) What is flash memory? Explain how a flash memory is interfaced to 8086 microprocessor.

i) Explain the different serial communication modes in 8051.

j) Mention the special functions registers available in 8051. Explain in brief about the importance of special function registers (SPF) in 8051.

k) Give an example for the 8086 instructions: CWD, JNBE, MOVS, RCL, ROL, and SAHF.

l) What are the basic modes of operation of 8255? Explain the BSR mode.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four) **(16 x 2)**

Q3 Summarize the timing diagram of memory read and memory write operations of 8086 *microprocessor and explain in detail* with diagram. **(16)**

Q4 Write notes on the following **(16)**
(a) Programmed I/O, (b) Interrupt I/O

Q5 Describe about interrupt programming with respect to 8051 microcontroller with neat diagram. **(16)**

Q6 Give a detailed account of different types of memories that can be used in 80386 and 80486 Microprocessor family based on the hierarchy. **(16)**