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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)

- What are the different ports available in 8255? Mention the size of each port.
- Mention the number of register banks and their addresses in 8051.
- Mention the types of addressing modes of 8086 instruction set.
- Give one example of 8-bit microprocessor and mention the size of data bus and address bus of the microprocessor.
- Explain about synchronous data transmission.
- What will happen if a label within a macro is not declared local?
- What is microprocessor? What is the significance of bit size in microprocessor specification?
- Write a program to perform multiplication of 2 numbers using 8051.
- How a keyboard matrix is formed in keyboard interface?
- 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 x 8)

- List the functions performed by 8279. Explain the Scanned sensor matrix mode.
- Analyze how to interface a 16 X 2 LCD display using 8051 microcontroller.
- Draw the timing diagram for the execution of the MOV instruction in 8086.
- What is A/D and D/A converter? Explain D/A interface with 8085.
- Explain the concept of pipelining in 8086. Discuss its advantages and disadvantages.
- Explain the interfacing of Keyboard/Display with 8051 microcontroller.
- What is the use of addressing modes in 8085, explain with example for different types of addressing modes?
- What is flash memory? Explain how a flash memory is interfaced to 8086 microprocessor.
- 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 (a) Programmed I/O, (b) Interrupt I/O **(16)**
- 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)**