Registration No:

Total Number of Pages: 02

Course: B.Tech
Sub_Code: RBM4G001/ RCS4D002/
REI4C003/ RIT4D002/ RME4G002

4th Semester Regular / Back Examination: 2022-23
SUBJECT: Microprocessor and Microcontroller
BRANCH(S): BIOMED, CSE, ELECTRICAL & C.E, ELECTRONICS & C.E, AEIE, EIE, IT, MECH
Time: 3 Hour
Max Marks: 100
Q.Code: M564
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 is the need for timing diagram?
   b)   Mention the purpose of Instruction register and instruction decoder.
   c)   Explain the bits in control word register of PPI 8255.
   d)   Draw the memory organization of 8051.
   e)   Calculate the Digital output value of 8-bit ADC, if Vin = 2.5V and Vref = 2.5V
   f)   Name the different types of interrupts supported by 8086.
   g)   Calculate how many devices can be addressed by 8086.
   h)   Mention the four display modes of 8279 keyboard and display controller.
   i)   Mention, which ports of 8051 is bit addressable.
   j)   What is the function of IO/M signal in the 8085?

Part-II

Q2   Only Focused-Short Answer Type Questions- (Answer Any Eight out of   (6 × 8)
      Twelve)
   a)   Interface a 12-bit D/A converter with an 8-bit microprocessor.
   b)   Write a short note on the following: a) machine cycle b) instruction cycle c) execute cycle.
   c)   Explain the different serial communication modes in 8051.
   d)   Explain the architecture of 80386.
   e)   Write an assembly language program in 8086 to search the largest data in the array.
   f)   Explain the functions of a) HLDA, b) RQ/GT0, c) DEN.
   g)   Explain the Data transfer instructions and Program control instructions of 8051 microcontroller.
   h)   Explain the concept of pipelining in 8086. Discuss its advantages and disadvantages.

i) Explain the Servomotor control using an 8051 microcontroller.

j) Draw and explain the timing diagram of memory write cycle with example.

k) Explain the difference between data processor and IO processor.

l) Explain the register organization of 8086 microprocessor.

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

Q3 Design a traffic light controller system using 8085 and 8255. Give detail schematics. **(16)**

Q4 Draw the flowchart and write the program to calculate division of two numbers with 8086 instruction set. **(16)**

Q5 Explain in details for the maximum mode configuration of 8086 with a neat diagram. Mention the functions of the various signals. **(16)**

Q6 With neat block diagram explain PPI 8255. **(16)**