Registration No:

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B.Tech
PEL5I102

5ᵗʰSemester Regular Examination 2017-18
Microprocessor & Microcontroller
BRANCH: EEE
Time: 3 Hours
Max Marks: 100
Q.CODE: B403
Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions:** *multiple type or dash fill up type*   **(2x10)**
  a) What is the addressing mode of the instruction LDA 9001H?
  (i) Register Direct **(ii)** Immediate **(iii)** Memory direct **(iv)** Indirect
  b) How much memory, in terms of bytes, can be interfaced with the 8086 _____.
  c) Which one of the following is not a maskable interrupt?
  (i) TRAP **(ii)** INTR **(iii)** RST 7.5 **(iv)** RST 5.5
  d) The minimum pulse width of 8085 INTR signal is _____.
  e) The size of instruction queue in the 8086 is _____.
  f) Let CS = 3000H and IP = 2000H. The memory address from which the next instruction is to be fetched is _____.
  g) How many ports are available in 8255?
  (i) 2 **(ii)** 3 **(iii)** 4 **(iv)** 5
  h) The size of stack memory in 8051 is _____.
  i) Which register contains all the flags of the 8051?
  (i) A **(ii)** B **(iii)** PSW **(iv)** SP
  j) The 8259 can be initialized by writing a word in the _____ register.

Q2   **Answer the following questions:** *Short answer type*   **(2x10)**
  a) Mention the three ways to disable 8085 vector interrupts.
  b) What is the length of stack pointer in 8051? What is its use?
  c) What is the need of interrupt controller?
  d) Which instruction can be used to access the I/O ports of the 8051?
  e) What is the function of segment override prefix? Give two examples.
  f) What are the control and status signals lines available in 8085?
  g) What are the common features of Intel 8255 IC?
  h) Explain 8086 XLAT instruction.
  i) Name some applications of the 8253.
  j) Describe the difference between the instruction MOV AX, 2437H and MOV [2437H] in 8086.

Q3 **a)** Explain the operation of the following instructions. Also specify the number of T-states and name of the machine cycles involved in each instruction: **(10)**
  (i) ADD r (ii) CPI 8-bit (iii) JZ 16-bit (iv) PUSH Rp and (v) MOV A, M
   b) What is addressing? What are the addressing modes available in the 8085? Explain each addressing mode with an example.   **(5)**

Q4 **a)** What is meant by 'priority of interrupts'? Explain the operation of the interrupts structure of the 8085, with the help of a circuit diagram.   **(10)**
   b) Write an assembly language program for 8085 to find the square of a number by adding successive odd numbers.   **(5)**

Q5 **a)** Draw the block diagram of the 8259 and explain how it can be used for increasing the interrupt capabilities of the 8085. **(10)**

b) Write 8085 program to generate a delay of 1 second. **(5)**

Q6 **a)** Describe the different data transfer instructions in the 8086 giving examples of each. **(10)**

b) Write a program to generate a staircase waveform using DAC interfaced to 8085. **(5)**

Q7 **a)** List the sequence of operations carried out in DMA. **(10)**

b) Describe the function of general purpose and special purpose registers of 8086. **(5)**

Q8 **a)** Draw and explain the architectural details of the 8051. **(10)**

b) Write 8051 program to add three 8-bit numbers. Store the result in memory locations 50H and 51H of the internal RAM. **(5)**

Q9 **a)** Explain mode 1 operation and BSR mode of operation of 8255 using examples. **(10)**

b) Discuss 8051 addressing modes with suitable example. **(5)**