

BACHELOR OF ENGG. (E. T. C. E) SUPPLEMENTARY EXAM., 2018
(3rd Year, 1st Semester Supplementary Examination, 2018)

MICROPROCESSORS & MICROCONTROLLERS

Time: Three Hours

Full Marks: 100

Answer **Q.No.1** and any **Four** from the rest.
(All Parts of a question must be answered at one place only)

1. Fill-in the Blanks / State TRUE or FALSE [2 Marks X 10]

- (a) The MICROPROCESSOR UNIT (MPU) includes _____, _____, and _____ on a single chip.
 - (b) _____ is a computer that includes Microprocessor, Memory and I/O.
 - (c) The 8085 MPU Instruction set is classified into ____ groups according to the word size.
 - (d) Identify the Opcode and Operand in the instruction MOV A,B
 - (e) The number of general purpose registers in 8085 MPU are _____
 - (f) I/O devices or Peripherals can be interfaced with the 8085 MPU in _____ ways.
 - (g) With 15 address lines, the MPU can identify _____ memory locations.
 - (h) The function performed by the Opcode Fetch (OF) machine cycle is _____
 - (i) In the Peripheral mapped I/O, the input and output ports cannot have the same address (State TRUE or FALSE)
 - (j) _____ is used for an Output Port, _____ is used for an Input Port as the Interfacing device with the 8085 MPU.
2. (a) In the logic pinout of 8085 MPU, name the classification / grouping of signals as per their function.
- (b) Explain in detail the functions of the signals in each grouping. [4+16]
3. (a) Show the Block Diagram of I/O Interface Process and the list the steps in I/O Interface Process.
- (b) Design and explain the Decode logic for DIP switch with the address 01H [6+14]

4. The following array of data is stored in the memory locations from XX55H to XX5AH. Data (H): 22, A5, B2, 99, 7F, 37. Explain the algorithm, draw the Flow Chart and write an 8085 Assembly Language Program (ALP) to perform the array addition with carry. Store the results (including the carry) at XX5BH and XX5CH. [5+5+10]
5. (a) Differentiate the two major classification of Interrupt signals in 8085 MPU and the name of the Interrupt signals available in each classification.
(b) Explain in detail the implementation of interrupts in 8085 MPU. [5+15]
6. (a) Draw the Block Diagram of 8255 Programmable Peripheral Interface (PPI), Identify the elements in 8255 PPI and explain its operating modes. [6+6+8]
7. (a) Explain the practical implementation / application of 8085 MPU with a neat Block Diagram, algorithm, flow chart and the 8085 Assembly Language Program. [5+5+5+5]
8. Write short notes on: [2 X 10]
(a) 8254 Interval Timer
(b) MCS51 family of Microcontroller Unit (MCU) and their features.