

Seat No. : 2965

**NL-116**  
November-2017  
B.Sc., Sem.-V  
CC-302.: Electronics

[Max. Marks : 70]

Time : 3 Hours]

- Instructions :** (1) All the questions carry equal marks.  
(2) Symbols have their own meaning.

1. (a) Draw a circuit of mod 5 &  $2 \times$  mod 5, mod 10 counter and explain its working in detail. 10

OR

Draw a circuit of mod 3 and  $2 \times$  mod 3, mod 6 counter and explain its working in detail. 4

(b) Draw a circuit of synchronous, 4 bit up-down counter. 4

OR

Draw a circuit of asynchronous, 3 bit down counter.

2. (a) Draw the signal diagram of 8085 microprocessor and explain all the blocks in detail. 10

OR

Draw the timing diagram for execution of instruction MVI A, 36 H & explain all the T States in detail.

(b) Draw the timing diagram of memory read cycle and explain all T states. 4

OR

Draw the timing diagram of memory, write cycle and explain all T states.

3. (a) Write a program to perform the following function and verify the output : 10

- (1) Load 8 BH in regi D
- (2) Load 6 FH in regi C
- (3) Increment the content of regi. C by one
- (4) Add the content of regi C & D & display the sum in regi E.

OR



Write a program to perform the following task :

10

Load 91H in regi B & 87H in regi. C. Mask all the bits except D<sub>0</sub> from regi. B & C. If D<sub>0</sub> is at logic 1 in both the register, turn on the light connected to the D<sub>0</sub> of O/P port 01H, otherwise turn off the light.

- (b) Give comparison of Memory-mapped I/O & Peripheral I/O.

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OR

In a memory mapped I/O, how does the microprocessor differentiate between an I/O & memory ? Can an I/O have the same address as a memory register ?

4. Write a program to perform the following task :

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A set of 3 readings is stored in memory location starting at C090 H. Sort the readings in ascending order.

Data (H) 89, 45, 32.

OR

Write a program to perform the following task :

14

A set of current readings is stored in memory location starting at D060 H. The end of data string is indicated by data byte 00H. Add the set of readings. The answer may be larger than FFH. Display the entire sum at memory location E070 H & E071 H.

Data (H) 32, 62, F2, A1, 09, 00

5. (1) Define Mealy Model.  
(2) Define Moore Model.  
(3) What is ROM ?  
(4) What is glitch ?  
(5) What is the operating frequency of 8085 microprocessor ?  
(6) Give the full form of ALE.  
(7) What is the difference between tri state buffer and latch ?  
(8) OUT is a 2 byte instruction.  
(9) Explain about the following instructions :  
(a) HLT  
(b) NOP  
(c) XRA B  
(d) ADI, 56 H  
(e) STA C050 H  
(f) INX B

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