5TH SEM /ELECTRICAL/ 2020(W)NEW
Th3- Digital Electronics & microprocessor

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10

   a. What do you mean by Radix of a number?

   b. What is the difference between combinational and sequential logic circuit?

   c. What is the function of ALE in 8085 microprocessor?

   d. Define modulus of a counter.

   e. What are the various modes of 8255 programmable peripheral interface?

   f. Distinguish between a multiplexer & a demultiplexer.

   g. Write down the hardware interrupts in 8085 microprocessor.

   h. What is Race around condition in JK flip-flop?

   i. Find the 2's complement of $(110101.01)_2$.

   j. What are the various flag registers available in 8085 microprocessor?

2. Answer **Any Six** Questions 6 x 5

   a. Explain the working of JK flip-flop with the truth table.

   b. What is half adder? Design a full adder circuit using half-adder and OR gate.

   c. State and prove De-morgan's theorem.

   d. Discuss the various types of addressing modes of 8085 microprocessor with suitable examples.

   e. Explain the function of 1:4 Demux circuit with a neat diagram and write its truth table.

   f. Draw the timing diagram for MVI B, 05_H.

   g Write an assembly language program to add two 8-bit decimal numbers, sum may be of 16 bits.

3 Design a 2-Bit magnitude comparator circuit and explain its operation. 10

4 Draw the functional block diagram of Intel 8085 microprocessor and explain the function of each block. 10

5 Simplify and minimise the four variable logic expression using K map: 10

	f(A,B,C,D)=∑ m(0,1,2,3,5,7,8,9,10,12,13) & implement the real minimal expression in universal logic.	
6	With a neat block diagram design a traffic light controller & write an assembly language program using 8255 Programmable peripheral interface.	10
7	Design a 4-bit Asynchronous counter & draw its timing diagram.	10