Reg. No ..... Name **23U110**

B.Sc. DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023

SEMESTER 1 : COMPUTER APPLICATION

COURSE : **19U1CRCAP1 : DIGITAL ELECTRONICS AND MICRO PROCESSOR**

(For Regular 2023 Admission and Improvement/Supplementary 2022/2021/2020/2019 Admissions)

Time : Three Hours Max. Marks: 75

PART A

Answer All (1 mark each)

1. Define synchronous counter.
2. What do you mean by toggling?
3. Name the two forms of Boolean expression.
4. What are the various methods used for triggering flip-flops?
5. What do you mean by BCD counter?
6. What you mean by odd parity bit?
7. What do you mean by address bus?
8. What is a data bus?
9. Define number system.
10. Convert (110011.1001)2 to decimal.

(1 x 10 = 10)

PART B

Answer any 8 (2 marks each)

11. Explain about SIPO shift register.
12. Explain about master slave flip-flops.
13. Add 234 + 4567 using excess-3 code.
14. What you mean by controlled inverter?
15. What do you mean by a latch? Why that name?
16. Subtract 1001000 - 110101100 Using 2's Compliment.
17. Simplify using K-map F(N,X,Y,Z)=∑(0,1,2,3,4,6,7,11,15).
18. What is minimum mode and maximum mode in 8086?
19. Explain about PISO shift register.
20. Explain general purpose registers.

(2 x 8 = 16)

PART C

Answer any 5 (5 marks each)

21. Differentiate SISO and PISO shift registers
22. Explain about demultiplexers and draw a 1:4 demux.
23. Differentiate full adder and half adder.
24. Explain the basic operational concept of microprocessor with a diagram.
25. Perform BCD addition: 1005+345.
26. Explain the method of converting a hexadecimal number to decimal,binary and octal with examples.
27. Simplify the expression A'BC+AB'C+ABC'+ABC=BC+AB+AC.

(5 x 5 = 25)

PART D

Answer any 2 (12 marks each)

28. Construct 6*64 decoder using four 4*16 decoder.
29. Prove De morgans theorem using truth table and logical expression.
30. Explain the functional units of 8086 microprocessor.
31. Explain the steps to convert SOP and POS to its standard normal form and convert the expressions given below. a) F(A,B,C) = (A+B).(B+C).(A+C) b) F(A,B,C) = AC+AB+BC.

(12 x 2 = 24)