Reg. No ..... Name **23U111**

B.C.A DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023

SEMESTER 1 : MOBILE APPLICATIONS AND CLOUD TECHNOLOGY

COURSE : **19U1CRBCA1 : COMPUTER FUNDAMENTALS AND ORGANISATION**

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

Time : Three Hours Max. Marks: 75

PART A

Answer All (1 mark each)

1. Convert (110011.1001)2 to decimal.
2. Is Google a web server? Justify your answer.
3. List the fields in an instruction.
4. Define latches.
5. Define enable inputs.
6. List the functional units of a computer.
7. Which gates are used in parity checking and parity generation of binary numbers?
8. Write an example for register addressing mode.
9. What is a trigger?
10. Find the BCD of (25)10

(1 x 10 = 10)

PART B

Answer any 8 (2 marks each)

11. Differentiate WAN and MAN.
12. Simplify Commutative law with truth table and logical circuits.
13. What is direct addressing mode? Write the syntax and example.
14. Simplify [(A+B)' +C'] ' using Demorgans theorem.
15. List the draw backs of second generation computers.
16. What are the various methods used for triggering flip-flops?
17. What do you mean by a latch? Why that name?
18. Subtract 7654 - 34562 using BCD.
19. Subtract (AB16-45DA)16 .
20. What is register addressing mode? Write the syntax and example.

(2 x 8 = 16)

PART C

Answer any 5 (5 marks each)

21. Differentiate half adder and full adder.
22. Convert POS expressionF(X,Y,Z) = (X'+Y'+Z).(X+Y+Z).(X+Y+Z') to SOP expression.
23. Prove NAND gate is a universal gate.
24. Explain about multiplexers and draw 4:1 mux.
25. Explain BCD with its advantage and disadvantage. Perform 243 - 412 and 599 + 984 using BCD.
26. Explain the classification of instruction format of a microprocessor.
27. Explain the functional units of computer.

(5 x 5 = 25)

PART D
Answer any 2 (12 marks each)

28. Discuss about demultiplexers and draw a 1:8 demux with enable inputs.

29. Explain muliplexers and demultiplexers and draw any mux and demux.

30. Define K-map and don't care condition. Simplify using K-map.
a) $F(N,X,Y,Z)=\sum(0,1,2,3,5,7,8,9,10,12,13)$ b) $F(X,Y,Z,W)=\sum M(0,2,6,10,11,12,13)$ and $dc(X,Y,Z,W)=\sum M(3,4,5,14,15)$ c) $F(a,b,c,d)=\sum(0,1,3,4,5,6,7,13,15)$

31. Describe the applications of computer in the field of data processing, information processing and office automation.

(12 x 2 = 24)