Reg. No……. Name……

15U107

B.Sc. DEGREE END SEMESTER EXAMINATION NOVEMBER 2017

SEMESTER –1: B.Sc. COMPUTER APPLICATION

COURSE: 15U1CRCAP1: FUNDAMENTALS OF DIGITAL SYSTEMS

(Common for Regular 2017 admission and Supplementary/Improvement 2016/2015 admission)

Time: Three Hours Max. Marks: 75

PART A

Answer ***all*** questions. Each question carries **1** mark.

1. What do you mean by a latch?
2. What do you mean by GUI?
3. What is a parity bit?
4. Design the logic circuits of the following expression AB'(C'+D)
5. What is PROM?
6. Define Operating System
7. List any two web browsers
8. Name the functional units of a computer
9. Define the Base/radix of a number system
10. Give the truth table for a NAND gate (1 x 10 = 10)

PART B

Answer ***any eight*** questions. Each question carries **2** marks.

11. Explain Duality Principle.
12. List types of ROM.
13. State and explain De-Morgan's theorem
14. Differentiate volatile and nonvolatile memory
15. Prove the following expression using Boolean algebra.
    a. A+A'B+AB' = A+B
16. State the limitations of Karnaugh map.
17. List the applications of flip-flops
18. What do you mean by priority encoder?
19. What is a decoder and how is it different from a de-multiplexer?
20. Write short note on registers (2 x 8 = 16)

PART C

Answer ***any five*** questions. Each question carries **5** marks.

21. Explain Master-Slave JK flip-flop
22. Convert the boolean expression (AB+AC'+B'C) into canonical SOP form.
23. Discuss XOR and its applications

24. Explain Half-Adder and Full Adder with neat circuit diagram
25. Differentiate Static and Dynamic RAM
26. Explain various logic gates with truth tables and logic symbols.
27. Explain the working of 4x1 multiplexer with a neat diagram (5 x 5 = 25)

PART D

Answer ***any two*** questions. Each question carries **12** marks.

28. Design and explain the working of the following shift registers (a) SIPO (b) PISO
29. Which are the universal gates and why are they called so?
30. a) Explain K – Map and its uses

    b) Simplify using K-Map F(WXYZ) = ∑m (2,5,7,9,10,11,13,15)
31. Discuss Synchronous and Asynchronous Counters. (12 x 2 = 24)

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