Reg. No……...…

Name.…….....……

B. Voc. DEGREE EXAMINATION, OCTOBER, 2016

FIRST SEMESTER- CORE COURSE (SOFTWARE DEVELOPMENT)

VSD1G02TB - COMPUTER FUNDAMENTALS

Time: Three Hours **Maximum: 80 Marks**

PART A

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

1. The number of digits in HEXA number system…….

   a.15 b.8

   c.16 d.10

2. The output of an OR gate is HIGH ……. ….

   a. all the time b. when any input is LOW

   c. when any input is HIGH d. when all inputs are HIGH

3. Each individual term in standard SOP is called …..

   a.Minterm b.Signal

   c.Maxterm d.variable

4. Any number with an exponent of zero is equal to ….

   a.Zero b.One

   c.Two d.that number

5. Give the decimal value of binary 10010.
6. $A + A' =$ ……
7. 1 BYTE consists of ….. bits.
8. How is a J-K flip-flop made to toggle?

a. $J = 0, K = 0$ b. $J = 1, K = 0$

c. $J = 0, K = 1$ d. $J = 1, K = 1$

9. Give the decimal value of binary 10010.
10. The output of an AND gate is LOW ……. ….

a. all the time b. when any input is LOW
c. when any input is HIGH d. when all inputs are HIGH

(10×1 =10)

Part B

*Answer any **Eight** questions in **one** or **two** sentences*
*Each question carries **2** marks*

11. Define Digital System.
12. Explain AND gate with logic symbol and truth table.
13. Design Logic circuit of the given expression.
    a. (AB)'(C'+D)
14. What is SOP Expressions?
15. Find the Minterm Designator of A'B'C'D'.
16. Explain Duality Principle.
17. Differentiate volatile and nonvolatile memory.
18. Prove the following expression using Boolean Algebra.
    a. A+A'B+AB' = A+B
19. Explain SR flip-flop.
20. Draw the block diagram of sequential circuit.
21. Explain 2s complement subtraction.

22. Define Counter .

(8×2=16)

Part C

*Answer any **Six** questions in 50 words each*
*Each question carries **4** marks*

23. Explain various shift registers.
24. Explain Full Adder with circuit diagram.
25. Find the minterm and Maxterm designator for the following.
    a. AB'C'D
    b. ABC'D
26. Explain the laws of Boolean Algebra.
27. Explain the advantages and disadvantages of K-Map.
28. Explain the classifications of ROM.
29. Explain BCD addition with examples.
30. Explain the canonical forms of Boolean expressions using examples.
31. Explain universal gates.

(6×4=24)

Part D

*Answer any **two** questions in 100 words*
*Each question carries **15** marks.*

32. Simplify the following Boolean functions using K-Map
    1. Y(ABCD)=∑m(0,2,4,5,6,7,8,10,12,14)
33. Design 16×1 Multiplexer .
34. Explain Half Adder with Logic Symbols and truth tables.
35. Explain flip-flops.

(2×15=30)