**B. Voc. DEGREE EXAMINATION, OCTOBER, 2016**

**FIRST SEMESTER- CORE COURSE (SOFTWARE DEVELOPMENT)**

**VSD1G02TB  - COMPUTER FUNDAMENTALS**

Time: Three Hours                                                      Maximum: 80 Marks

**PART A**

**I. Answer all questions (1 mark each)**

1. The number of digits in OCTAL number system…….
   a.7                b.8

   c.9                d.10

2. 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

3. 1 nibble consists of ……. Bits

   a.5                b.4

   c.16               d.8

4. Logic device or circuit used to store information………….

   a. Counter              b. Register

   c. Inverter             d. Buffer

5. Each individual term in standard POS is called …..

   a.Minterm              b.Signal

   c.Maxterm             d.variable

6. Any number with an exponent of one is equal to ….

   a.Zero             b.One

   c.Two             d.that number

7. Give the decimal value of binary 10010.

8. $A + A' = $ ……………

9. 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. $J = 1, K = 1$

10. 1 BYTE consists of ….. bits.

$(10\times1=10)$

## Part B

*Answer any **Eight** questions in **one** or **two** sentences*

*Each question carries 2 marks*

11. Explain Laws of Boolean Algebra.

12. Name any two minimization techniques.

13. What is a truth table?

14. Perform the addition 11111+101101.

15. What are shift registers?

16. What are sequential circuits?

17. List out the applications of Encoder.

18. List types of ROM.

19. What is the use of set and preset input?

20. Design Logic circuits of the given expression.

   a. (AB)'.(CD)'

21. Explain 2s complement subtraction.

22. What is a counter?

$(8\times2=16)$

2

## Part C

*Answer any **Six** questions in 50 words each*

*Each question carries 4 marks*

23. Explain Master-Slave JK flip-flop.

24. Convert the boolean expression (AB+AC'+B'C) into canonical SOP form.

25. Discuss the steps to convert octal number to binary number.

26. Explain why NAND and NOR are called universal gates.

27. Design the logic circuits of the following expressions

    a. ((AB)'.(CD)')

    b. AB'(C'+D)

28. Explain digital to analog conversion techniques.

29. Discuss XOR and its applications.

30. Explain flip-flops.

31. Explain types of memory.

$$(6 \times 4 = 24)$$

## Part D

*Answer any **two** questions in 100 words*

*Each question carries 15 marks.*

32. Simplify using K-map  F(A,B,C,D) =  (0,1,2,8,10,13,14,15)

33. Design $16 \times 1$ MUX using four $4 \times 1$ multiplexers.

34. Explain Basic, Universal and combinational logic gates with truth tables and logic symbols.

35. Explain various registers.

$$(2 \times 15 = 30)$$