1093 **Code : 15CS21T**

Register Number | | | | | | | | | | |

II Semester Diploma Examination, April/May-2019

DIGITAL & COMPUTER FUNDAMENTALS

Time : 3 Hours] **[Max. Marks : 100**

Instructions : (i) Answer any **six** questions from Part – **A**. Each question carries **5** marks.

(ii) Answer any **seven** questions from Part – **B**. Each question carries **10** marks.

PART – A

1. What do you mean by number system ? List types of number system. **5**

2. Explain the concepts of 1's complement and 2's complement. **5**

3. Write the laws of Boolean algebra. **5**

4. Simplify the expression $Y = ACD + \overline{A}BCD$. **5**

5. Explain the working of half adder with logic diagram and truth table. **5**

6. What is race around condition ? In which flip-flop it is overcome ? **5**

7. What is Shift Registers ? List its applications. **5**

8. Define computer. List the characteristics of computers. **5**

9. List input devices of computer. **5**

[Turn over

PART – B

10. Explain the following terms : **10**
    (a) BCD
    (b) EBCDIC
    (c) ASCII CODE
    (d) GRAY CODE
    (e) EXCESS-3 CODE

11. Convert the following from : **10**
    (a) Binary to Decimal 11101_2
    (b) Decimal to Binary 456
    (c) Binary to Octal 10001_2
    (d) Decimal to Octal 567
    (e) Hexadecimal to Binary $7AC_{16}$

12. Give the Logical Symbol & Truth table of logic gates : **10**
    (a) AND
    (b) OR
    (c) NOT
    (d) NAND
    (e) NOR

13. Discuss the working of 1 : 4 de-multiplexer with logical circuit and truth table. **10**

14. Explain RS flip-flop with truth table, logic symbol and logical circuit. **10**

15. Explain the working of 4-bits serial in parallel out (SIPO) with logical circuit and truth table. **10**

16. Draw a block diagram of computer system and explain components of computer. **10**

17. Describe the working principle of keyboard. **10**

18. Draw the block diagram and explain the working principles of CRT. **10**

19. List any **two** uses of **10**
    (a) Scanner
    (b) Web Camera
    (c) Mouse
    (d) Touch Screen
    (e) Laser Printer