

HALF YEARLY EXAMINATION, 2020-2021

B.Sc. (Information Technology)- Second Year

Paper- I (Code-0874)

DIGITAL CIRCUITS & COMPUTER H/W

Time: 03 Hours

Max Marks: 50

Note: - Attempt any 2 questions from each section. Each question has equal marks.

Section –I

1. Explain gray code and Excess-3 code with example.
2. Write and prove the demorgan's theorem.
3. Describe simplification of K-map.

Section –II

4. Explain the working of half adder with suitable diagram.
5. What is multiplexer? Explain 4:1 multiplexer with suitable diagram.
6. Explain J-K flip flop with their truth table and logic diagram.

Section –III

7. Describe master slave flip flop .
8. Explain RTL, DTL and TTL.
9. Explain the following: -
(i) CMOS (ii) Multivibrator

Section –IV

10. Explain fixed point representation and floating-point representation.
11. What are logic gates? Explain it.
12. Explain the following-
(i) Shift register (ii) Binary Counter

Section –V

13. Convert number system as following:
(i) $(43)_{10} = (\text{-----})_2$ (ii) $(10110110101)_2 = (\text{-----})_{16}$
14. Draw and explain K-map of following function-
 $Z = \sum A, B, C (1,3,6,7)$
15. Convert the following Boolean expression into logic circuit-

$$Y = A + BCD$$

*****0*****