# K. K. Wagh Polytechnic, Nashik

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Course & Code: Digital Techniques (DTE -313303)

Semester & Code: AN-3-K Class: SYAN Sem: III(ODD)

## Question Bank for Practical End Semester Examination Winter-2024

1. Test the functionality of specified logic gates using breadboard.
   (IC 7404, 7408, 7432)
   a) Write down voltage at logic level 0 & 1.
   b) Draw the symbol & Truth Table of NAND & NOR Gate.

2. Test the functionality of NAND & NOR logic gates using Breadboard.
   (IC 7400, 7402)
   a) Design 3 input NAND gate using 2 input NAND Gate.
   b) Draw Symbol & Truth Table of AND, OR & NOT Gate

3. Construct AND, NOT gates using NAND gates.
   a) Draw IC pin diagram of NAND gate(IC 7400)
   b) State Demorgan's theorems.

4. Construct OR, NOT gates using NOR gates.
   a) Draw IC pin diagram of NOR gate(IC 7402)
   b) Write Truth table & Symbol of AND & NAND Gate

5. Verify De-Morgan's First & Second theorem.
   a) List the IC numbers used in Demorgan's First & Second theorem
   b) Write Truth table & Symbol of AND, OR & NOT Gate.

6. Design Full Adder using Boolean expression.
   a) Draw full adder & its truth table.
   b) Design half adder using K-map

7. Design Half Subtractor using Boolean expression.
   a) Draw full subtractor & its Truth table.
   b) Design half subtractor using K-map

8. Build/ test functionality of MUX74151
   a) List the function of Pin 5,6 & 7 of IC74151
   b) What is DEMUX?

9. Build/ test functionality of DEMUX74155/74154
   a) List the function of Pin 2,3 & 5 of IC74154
   b)What is MUX?

10. Build/ test functionality of RS Flip-Flop.
    a) What is drawback of RS Flip Flop?
    b) Draw the circuit diagram & Truth Table of JK Flip Flop

11. Use IC 7476 to construct and test functionality of D Flip-Flop & T Flip-Flop.
    a) What is Race around Condition?
    b) Draw the circuit diagram & Truth Table of SR Flip Flop.

12. Implement Ripple counter using Digital IC
    a) Draw timing diagram for 4 bit up ripple counter.
    b) give the applications of counter

13. Implement Decade counter using Digital IC
    a) Draw timing diagram for decade counter
    b) What is mod 5 counter, write it's truth table.

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Subject Teacher