Enrolment No. | | | | | | | |

NATIONAL INSTITUTE OF TECHNOLOGY AGARTALA

B.Tech Odd Semester End-Term Examination, November 2022

Subject: Digital Electronics :: Code: UEE03B13

Full Marks: 50

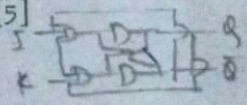
Time : 2 hours

Group A (Answer any five) [2 marks x 5 questions = 10 marks]

1. Convert 524 to Binary, BCD, Gray and Hexadecimal system. [2]
2. Simplify the expression: $(A+C)(A+B)+(A+B)(B+C)+(A+\bar{C})(B+C)$ [2]
3. Prove Associative law using Truth Table. [2]
4. Draw the circuit diagram for full adder with necessary truth table. [2]
5. How is a latch different from a flip-flop? [2]
6. Which gates are called universal gates and why? [2]

Group B (Answer any four) [5 marks x 4 questions = 20 marks]

7. Construct basic gates using universal gates. [5]
8. Explain the working of a SR flip-flop. [5]
9. With neat diagram, explain the working of a 1-bit comparator. [5]
10. How is a D-flipflop different from a SR flipflop? [5]
11. Explain the working of a multiplexor with necessary circuit diagram and truth table. [5]



Group C (Answer both questions) [10 marks x 2 questions = 20 marks]

12. Explain the construction and working of a J-K flipflop. What is Toggle effect? What is the significance of clock pulse in a J-K Flipflop? Can we call it a multivibrator and why? 5+2+1+2 = [10]

13. Explain the construction and working of 8:3 encoder and 3:8 decoder along with necessary circuit diagram and truth table. [10]

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