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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2024 ONLY) **24UDA102**

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS): POLLACHI

END-OF-SEMESTER EXAMINATIONS: NOVEMBER 2024

B.Sc. CS WITH DA **MAXIMUM MARKS: 75**

SEMESTER: I **TIME: 3 HOURS**

PART - III

24UDA102– DIGITAL ELECTRONICS

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. What does ASCII stand for?_____.
a) American Standard Code for Information Interchange
b) American Scientific Code for Information Interchange
c) American Scientific Code for Interchanging Information
d) American Standard Code for Interchanging Information

2. In a combinational circuit, the output at any time depends only on the _____ at that time.
a) Voltage b) Intermediate values c) Input values d) Clock pulses

3. K-map is used for _____
a) logic minimization b) expression maximization c) summing of parity bits d) logic gate creation

4. How many NOT gates are required for the construction of a 4-to-1 multiplexer?
a) 3 b) 4 c) 2 d) 5

5. Other name for Asynchronous counters is _____counters.
a) Ripple b) Up counters c) Down counters d) Modulus

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES (K2)

6. What is the binary equivalent of decimal 10?
7. What are Arithmetic circuits?
8. Define combinational circuit
9. Write any two differences between R-S and J-K Flip flop.
10. Define the term register.

SECTION – B (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Convert the binary number $(1101)_2$ into a decimal number.

(OR)

b) Convert $(1DA6)_{16}$ to decimal number.

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12. a) Sketch the basic gates with circuit diagram.

(OR)

b) Explain NAND, NOR gates with circuit diagram.

13. a) Simplify the function using Karnaugh Map $F(x,y)= \Sigma(0,1,3)$

(OR)

b) Write a short note on Product of Sums Method

14. a) Explain the functions of Multiplexers with Circuit.

(OR)

b) Write the working principle of JK Master Slave Flip Flop with timing diagram.

15. a) Discuss working principle of Parallel In Serial Out register with diagram.

(OR)

b) Write a short note on digital clock.

SECTION – C (5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K4 (Or) K5)

16. a) Convert 294_{10} into a binary number

(OR)

b) Explain Error Detection and Correction Codes

17. a) State and explain the De Morgan's Theorem.

(OR)

b) Explain adder and subtractor with truth table.

18. a) Examine the Boolean Algebra with example

(OR)

b) Discuss two-variable and three-variable Karnaugh Map

19. a) Explain BCD to decimal decoder with neat diagram.

(OR)

b) Discuss R-S Flip Flop with diagram.

20. a) Explain the various types of registers with diagram.

(OR)

b) Discuss the asynchronous counter with its timing diagram and truth table.

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