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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2022 ONLY)

22UCS102

REG.NO

NGM COLLEGE (AUTONOMOUS) POLLACHI

END-OF-SEMESTER EXAMINATIONS: DECEMBER- 2022

B. Sc - Computer Science (Aided & SF) **MAXIMUM MARKS: 50**

I SEMESTER **TIME: 3 HOURS**

PART - III

DIGITAL COMPUTER FUNDAMENTALS AND ORGANIZATION

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. Find the Octal equivalent of hexa decimal number $(FB2)_{16}$ _____
   a) $(7652)_8$ b) $(7662)_8$ c) $(7654)_8$ d) $(7658)_8$

2. If an input A is given to an inverter, the output will be _____
   a) 1/A b) 1 c) $\bar{A}$ d) A

3. Following flip flop used as latch _____
   a) J-K flip flop b) Master Slave c) T flip flop d) D flip flop

4. Keyboard and mouse comes under?
   a) Input peripherals b) Output peripherals c) I/O Peripherals d) all

5. A computer has only one processor which is known as _____
   a) uniprocessor b) Multiprocessor c) Multithreaded d) multi-meter

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

6. Convert $(23)_8$ into its decimal number.

7. Define gates.

8. What is flip flop?

9. What is bus?

10. Write the Abbreviation of CPU.

SECTION – B (5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.
(Qn. No. 11 to 15 Questions for Short Answers with internal choices) (K3)

11. a) i) Convert hexadecimal value 16 to decimal
    ii) Convert the following decimal number to 8 – bit binary

(OR)

b) i) Convert 59.72_{10} to BCD.
ii) Convert the binary number 1100 to Gray code

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12. a) Solve basic laws of Boolean algebra.

(OR)

b) Sketch the logic gates.

13. a) Function of Half – Adder with neat diagram.

(OR)

b) Apply the multiplexer.

14. a) Describe Input / Output Interface.

(OR)

b) Examine DMA

15. a) Analyze IOP communication.

(OR)

b) Summarize cache memory.

SECTION – C (5 X 5 = 25 MARKS)

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

(Qn. No. 16 to 20 Questions for Long Answers with internal choices (K4 (Or) K5)

16. a) Evaluate K-map simplification.

(OR)

b) Calculate 9's complement and 10's complement of the number (your choice)

17. a) Explain Arithmetic operation with an example.

(OR)

b) Compute 1's complement and 2's complement of the number (your choice)

18. a) Discuss sum of product and product of sum.

(OR)

b) Discuss about various gates.

19. a) Categorize and describe shift registers.

(OR)

b) Draw a neat diagram for full adder and functions.

20. a) Outline DMA controller.

(OR)

b) Describe Input / Output organization