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(FOR THE CANDIDATES ADMITTED

SUBJECT CODE **23UCT102**

DURING THE ACADEMIC YEAR 2023 ONLY)

REG.NO. :

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

**END-OF-SEMESTER EXAMINATIONS : NOVEMBER – 2023**

**B.Sc. – COMPUTER TECHNOLOGY**

**MAXIMUM MARKS: 75**

**SEMESTER : I**

**TIME : 3 HOURS**

**PART – III**

**DIGITAL FUNDAMENTALS & COMPUTER ORGANIZATION**

**SECTION – A**

**(10 X 1 = 10 MARKS)**

**ANSWER THE FOLLOWING QUESTIONS.**

**MULTIPLE CHOICE QUESTIONS.**

**(K1)**

1. The given hexadecimal number (1E.53)<sub>16</sub> is equivalent to \_\_\_\_\_
  - a) (35.684)<sub>8</sub>
  - b) (36.246)<sub>8</sub>
  - c) (34.340)<sub>8</sub>
  - d) (34.340)<sub>8</sub>
2. The NOR gate output will be high if the two inputs are \_\_\_\_\_
  - a) 00
  - b) 01
  - c) 10
  - d) 11
3. When both inputs of a J-K flip-flop cycle, the output will \_\_\_\_\_
  - a) Be invalid.
  - b) Change
  - c) Not change.
  - d) Toggle
4. Both the CISC and RISC architectures have been developed to reduce the \_\_\_\_\_
  - a) Cost
  - b) Time delay
  - c) Semantic gap
  - d) All of the mentioned
5. What is true about memory unit?
  - a) memory unit is the collection of storage units or devices together.
  - b) The memory unit stores the binary information in the form of bits.
  - c) Both A and B
  - d) None of the above

**ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.**

**(K2)**

6. What is Number System and its types?
7. What is a combinational circuit?
8. What are Arithmetic circuits ?
9. What are the advantages of RISC technology?
10. What is volatile and non volatile memory?

**(CONTD .... 2)**

**SECTION – B****(5 X 5 = 25 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.****(K3)**

11. a) Describe 1's complement with example  
(OR)  
b) Discuss parity bit with example
12. a) Describe De Morgan's Theorems  
(OR)  
b) Describe Exclusive NOR Gate with truth table and diagram
13. a) Describe Full Adder with suitable diagram.  
(OR)  
b) Describe Multiplexer.
14. a) Describe the Features of a Central Processing Unit.  
(OR)  
b) Describe the advantages and disadvantages of General Register based CPU organization
15. a) Describe memory hierarchy with diagram  
(OR)  
b) Describe Virtual memory

**SECTION – C****(5 X 8 = 40 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.****(K4 (Or) K5)**

16. a) Explain 9's Complement and 10's Complement with example  
(OR)  
b) Discuss BCD and Gray Code
17. a) Discuss OR Gate and AND Gate.  
(OR)  
b) Discuss minimization of POS form using Karnaugh map.
18. a) Discuss R-S Flip with diagram.  
(OR)  
b) Discuss J-K Flip-Flop.
19. a) Discuss Stack Organization  
(OR)  
b) Discuss Instruction Formats .
20. a) Discuss Main Memory.  
(OR)  
b) Explain Auxiliary Memory with a suitable diagram.

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