

**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)**



M.C.A. (First Semester - Regular) Examinations, January – 2026

MCA251004 – Computer System and Architecture

Time: 3 hrs

Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer *ALL* questions

	CO #	Blooms Level
a. What is Instruction Cycle?	CO1	K1
b. Define Boolean Algebra.	CO2	K1
c. What is Secondary Memory?	CO3	K3
d. What is DMA?	CO4	K1
e. What is challenges of parallel processing?	CO5	K1

PART – B

(10 x5=50 Marks)

Answer *ALL* questions

	Marks	CO #	Blooms Level
2. a. Define instruction set architecture (ISA). Comparison between RISC & CISC.	5	CO1	K2
b. Write the different types of addressing modes.	5	CO1	K3
(OR)			
c. Describe different laws of Boolean algebra with example?	5	CO2	K2
d. Explain the working principle of Bus structure diagram?	5	CO2	K2
3.a. What is the difference between primary memory and secondary memory?	5	CO2	K3
b. Define Number system? Mention difference between signed number and unsigned number.	5	CO2	K1
(OR)			
c. What is Cache memory? Write down the performance of the cache memory?	5	CO3	K3
d. What is Cache mapping? Explain concept of Fully Associative Mapping?	5	CO3	K1
4.a. What is parallel processing? Explain with a neat diagram?	5	CO4	K2
b. Explain the concept of SISD with a neat diagram.	5	CO4	K2
(OR)			
c. Explain the instruction format? Write down the different types of instruction formats.	10	CO1	K1
5.a. Describe the different characteristics of a microprocessor.	5	CO5	K3
b. Write down the different challenges of parallel processing.	5	CO5	K2
(OR)			
c. What is digital logic gate? Explain the different types of logic gate with truth table?	10	CO1	K2
6.a. What is a peripheral device? Explain the different types of peripheral devices.	5	CO3	K1
b. Short Notes: - i. Vector processing, ii. Pipelining	5	CO4	K2
(OR)			
c. What is branch instruction? Explain different types of branch instructions.	5	CO4	K2
d. Short Notes: - i. Virtual memory/mapping, ii. 1's & 2's complement	5	CO3	K2

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