Reg. No										

AY 25

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

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

BCA251002 – Computer System 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. Define computer architecture?	CO1	K1
b. Name three types of system buses.	CO4	K2
c. Explain opcode.	CO2	K2
d. What is cache miss?	CO3	K1
e. Describe an input and output device with two examples.	CO1	K3

PART – B **(10 x5=50 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Explain the basic architecture of a computer with a neat block diagram. Describe each functional unit in detail.	5	CO1	K2
b. Explain the different types of number systems used in computers with examples.	5	CO1	K1
(OR)			
c. Explain Von Neumann architecture with block diagram.	10	CO1	K3
3.a. Describe instruction codes and instruction formats.	5	CO2	K2
b. Explain the working of Look-Ahead Carry Adder (LCA). Compare it with ripple carry adder.	5	CO2	K2
(OR)			
c. Describe the Arithmetic Logic Unit (ALU).	5	CO2	K2
d. Solve (a) (297)10 + (425)8=(?)2 (b) (125)10 + (2F)16=(?)2	5	CO2	K2
4.a. Describe micro-programmed control with block diagram.	5	CO3	K1
b. Compare Synchronous and Asynchronous Communication.			
(OR)			
c. Explain pipelining in a processor. Describe pipeline hazards (structural, data, control) and solutions.	10	CO3	K2
5.a. Describe semiconductor memory technologies.	5	CO4	K2
b. Describe vector processing and SIMD architecture.	5	CO4	K1
(OR)			

c.	Explain cache memory mapping techniques (Direct, Associative, Set-Associative) with examples.	10	CO4	K2
6.a.	Explain I/O modes: Programmed I/O, Interrupt-driven I/O, and DMA. Compare them.	5	CO5	K2
b.	Differentiate between Superscalar, Scalar, Vector, and Array processors with examples.	5	CO5	K1
	(OR)			
c.	Explain Flynn's Classification of computer architectures (SISD, SIMD, MISD, MIMD) with examples.	10	CO5	K3

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