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Third Semester B.E./B.Tech. Degree Examination, June/July 2026
Computer Organization and Architecture

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
 2. M : Marks, L: Bloom's level, C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	With a neat block diagram, explain basic operational concept of computer.	10	L2	CO1
	b.	Explain Big-Endian and Little-Endian with neat diagram.	06	L2	CO1
	c.	Explain computer basic performance equation.	04	L2	CO1
OR					
Q.2	a.	Illustrate Instruction and Instruction Sequencing with an example.	10	L2	CO1
	b.	What is Operating System? Explain user program and OS routine sharing the processor.	05	L2	CO1
	c.	Explain the bus structures.	05	L2	CO1
Module – 2					
Q.3	a.	What is an addressing mode? Explain any five types of addressing modes with example.	10	L2	CO2
	b.	Explain subroutine linkage with an example using linkage register.	06	L2	CO2
	c.	Explain memory operations with examples.	04	L2	CO2
OR					
Q.4	a.	What are Assembler Directives? Explain any five assembler directives.	10	L2	CO2
	b.	Explain stack operation with an example.	10	L2	CO2
Module – 3					
Q.5	a.	Define Interrupt. Explain the various ways of enabling and disabling interrupts.	10	L2	CO3
	b.	Explain the registers involved in a DMA interface, to illustrate DMA.	05	L2	CO3
	c.	Explain the concept of Vectored Interrupt.	05	L2	CO3
1 of 2					

OR

Q.6	a.	Explain program controlled input/output, with the possible register configuration in I/O interface.	10	L2	CO3
	b.	Explain the following methods of handling interrupts from multiple devices: (i) Daisy chain method (ii) Priority structure	10	L2	CO3

Module – 4

Q.7	a.	With a neat diagram, explain Internal Organization of $2M \times 8$ dynamic memory chip.	10	L2	CO4
	b.	Describe the principles of magnetic disk.	05	L2	CO4
	c.	Explain virtual memory organization with diagram.	05	L2	CO4

OR

Q.8	a.	Illustrate Internal structure of static memories.	10	L2	CO4
	b.	Discuss a single-transistor dynamic memory cell.	05	L2	CO4
	c.	Briefly explain any four non-volatile memory concepts.	05	L2	CO4

Module – 5

Q.9	a.	Explain the three-bus organization of the processor and its advantages.	10	L2	CO5
	b.	What are the action required to execute a complete instruction ADD (R_3), R_1	10	L2	CO5

OR

Q.10	a.	With a block diagram, describe the organization of a micro programmed control unit.	10	L2	CO5
	b.	Discuss with neat diagram, the single bus organization of data path inside a processor.	10	L2	CO5

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