

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE			
Supplementary Summer Examination – 2025			
Course: B. Tech		Branch: Computer Engineering	Semester: III
Subject Code & Name: Computer Architecture & Organization/BTCOC 304			
Max Marks: 60		Date: 24-07-2025	Duration: 3 Hr.
Instructions to the Students: 1. Each question carries 12 marks. 2. Question No. 1 will be compulsory and include objective-type questions. 3. Candidates are required to attempt any four questions from Question No. 2 to Question No. 6. 4. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question. 5. Use of non-programmable scientific calculators is allowed. 6. Assume suitable data wherever necessary and mention it clearly.			
		(Level/CO)	Marks
Q. 1	Objective type questions. (Compulsory Question)		12
1	Which component of CPU performs arithmetic and logical operations? a) Control Unit b) Memory Unit c) ALU d) Register		1
2	Which type of interconnection is used to connect CPU, memory, and I/O devices? a) Hub b) Bridge c) Bus d) Router		1
3	Which operand type typically represents a memory location or register? a) Numeric operand b) Address operand c) Character operand d) Boolean operand		1
4	RISC architecture is characterized by: a) Complex instructions b) Fewer instructions and addressing modes c) Slow execution speed d) High hardware complexity		1
5	Which of the following is a valid integer representation format? a) BCD b) Signed magnitude c) Two’s complement d) Both b and c		1

6	Two's complement of 1010 is: a) 0101 b) 1010 c) 0110 d) 0110		1
7	Which of the following is a type of volatile internal memory? a) ROM b) DRAM c) Flash memory d) Magnetic tape		1
8	In RAID 1 configuration: a) Data is striped across multiple disks b) Data is mirrored c) No redundancy is used d) Only parity bits are stored		1
9	Which of the following allows devices to transfer data without CPU intervention? a) Programmed I/O b) Interrupt-driven I/O c) Direct Memory Access(DMA) d) Memory-mapped I/O		1
10	Which is not a part of I/O organization? a) I/O module b) External devices c) ALU d) DMA		1
11	Which control unit uses a set of instructions stored in memory to generate control signals? a) Hardwired Control Unit b) Arithmetic Unit c) Microprogrammed Control Unit d) Cache Controller		1
12	Which operand type typically represents a memory location or register? a) Numeric operand b) Address operand c) Character operand d) Boolean operand		1
Q. 2	Solve the following.		12
A)	Explain the types of system interconnection buses in detail.		6
B)	Explain the basic structure of a computer system with a neat block diagram.		6
Q.3	Solve the following.		12
A)	Compare RISC and CISC architectures in detail.		6
B)	Explain types of addressing modes in detail with examples.		6

Q. 4	Solve Any Two of the following.		12
A)	Explain floating point representation with a example.		6
B)	What is an arithmetic co-processor? Explain its role and integration with CPU.		6
C)	Explain signed magnitude, 1's complement, and 2's complement representations in detail.		6
Q.5	Solve Any Two of the following.		12
A)	Explain cache memory. Explain its role in a computer system.		6
B)	Describe the organization and working of magnetic disks. How is data accessed and stored?		6
C)	Explain various RAID levels in detail.		6
Q. 6	Solve Any Two of the following.		12
A)	Compare hardwired control and microprogrammed control in detail.		6
B)	Explain Direct Memory Access (DMA) and its working with a block diagram.		6
C)	Explain the basic operations of a control unit with the help of block diagrams.		6
	*** End ***		