

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular/Supplementary Winter Examination – 2024

Course: B.Tech **Branch :**Computer Engineering/Computer Science Engineering(AIDS) and Allied

Subject Code & Name: BTCOC304 & Computer Architecture & Organization **Semester :III**

Max Marks: 60

Date:12/02/2025

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 acts as the "brain" of a computer and is responsible for executing instructions?	1	1
	a. Memory b. CPU c. ALU d. Hard Disk		
2	The part of the CPU responsible for performing arithmetic and logical operations is	1	1
	a. Control Unit b. Arithmetic Logic Unit (ALU) c. Register d. Cache Memory		
3	Which of the following is NOT a type of addressing mode?	2	1
	a. Immediate b. Direct c. Indirect d. Inline		
4	The process of fetching, decoding, and executing an instruction is called	2	1
	a. Instruction Cycle b. Machine Cycle c. Fetch Cycle d. Execute Cycle		
5	The binary equivalent of the decimal number 13 is:	2	1
	a. 1011 b. 1101 c. 0010 d. 1111		
6	Which of the following is NOT a positional number system?	2	1
	a. Binary b. Decimal c. Roman d. Octal		
7	In binary arithmetic, what is the 2's complement of 1010?		1

	a. 0101	b. 0110	c. 1010	d. 0110		
8	n IEEE 754 single-precision format, how many bits are allocated for the exponent?				2	1
	a. 8	b. 10	c. 23	d. 32		
9	The data transfer method where CPU is involved in the transfer is called:				3	1
	a. DMA	b. Programmed I/O	c. Interrupt-driven I/O	d. Cache I/O		
10	Which of the following is a secondary storage device?				3	1
	a. Cache	b. SSD	c. DRAM	d. Registers		
11	Microprogramming is a technique used to design				4	1
	a. Memory Hierarchy	b. Control Units	c. ALU	d. Registers		
12	The Control Unit generates which of the following signals?				5	1
	a. Control Signals	b. Arithmetic Signals	c. Data Transfer Signals	d. Machine Language Signals		
Q. 2	Solve the following.					12
A)	Explain briefly main structural components of computer				1	6
B)	Define concept Computer organization and Computer Architecture, Structure and Function				1	6
Q.3	Solve the following.					12
A)	List Addressing modes with example				2	6
B)	Differentiate RISC Vs CISC Architecture				2	6
Q. 4	Solve Any Two of the following.					12
A)	Calculate 1's and 2's Complement of following a) 12 b) 18 c) 27 d)9				3	6
B)	Perform Multiplication Using Booths Algorithm i) 12 x 13 ii) -14 x 15				3	6
C)	Write Steps of Binary Division restoring algorithm with example				3	6
Q.5	Solve Any Two of the following.					12

A)	Explain Cache Memory with Property "Locality of reference" and replacement algorithm.	4	6
B)	What is mapping function? explain Direct mapping method with neat diagram.	4	6
C)	Write Short Note on Magnetic Disk, Magnetic Tape and Optical Memory.	4	6
Q. 6	Solve Any Two of the following.		12
A)	Explain Microprogrammed control Unit with neat diagram.	5	6
B)	Write a short note on I/O channels, Direct Memory Access (DMA) and I/O Module.	5	6
C)	List the phases of Microinstruction Execution.	5	6
*** End ***			