

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY
End Term Examination, December 2025
B.C.A. Semester II
(BACKLOG)

Roll No.....

CS1141: Computer Organisation

Time: 2 hours

Max. Marks: 30

Instructions to students:

1. Calculator is not allowed.
2. Assume suitable data wherever required and mention it clearly.

Q. 1	Analyze the design of a Full Subtractor by integrating two Half Subtractors. Construct its truth table, derive the Boolean expressions for Difference and Borrow, and draw a neat circuit diagram to demonstrate the design.	6 Marks CO1
Q. 2	Define the term "functional unit" in a computer system and explain its role with an example. Compare Von Neumann and Harvard architectures, List two advantages and disadvantages of each.	6 Marks CO2
Q. 3	a) Define the term "Arithmetic and Logic Unit (ALU)" and explain its primary functions in a CPU. b) Explain the difference between hardwired control and microprogrammed control in terms of design and flexibility. c) List and explain the different number systems used in digital computers with examples.	6 Marks CO3
Q. 4	a) Define memory hierarchy and explain why it is necessary in modern computer systems. b) Differentiate between RAM and ROM with examples and typical applications. c) Explain the concept of cache memory and its role in improving system performance.	6 Marks CO4
Q. 5	a) Define Programmed I/O and explain how it differs from Interrupt-driven I/O. b) Explain the concept of Direct Memory Access (DMA) and its advantages over programmed I/O. c) List standard I/O interfaces (PCI, SCSI, USB) and describe one typical application of each.	6 Marks CO5

***** All The Best*****