

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/Backlog), April 2024
BCA, Semester II

Roll No.....

CS1141: Computer Organisation

Time: 2.5 hours

Max. Marks: 40

Instructions to students:

1. Do not write anything other than your roll number on the question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.
4. Use of Programmable Calculator is not allowed.

Q.1	a. Minimize the given function using Karnaugh Map. $F(X, Y, Z) = X'Y + YZ' + YZ + XY'Z'$ b. Write any four differences between SRM and DRAM. c. Explain Memory Hierarchy used in Computer. d. Explain any four differences between Paging and Segmentation. e. Convert 75.5 in IEEE 754 double precision floating point representation format. Also write the final Hexadecimal Value of the result.	2*5=10 (CO2, CO3)
Q.2	The memory access time is 11 ns for a read operation with a hit in cache, 15 ns for a read operation with a miss in cache, 12 ns for a write operation with a hit in cache and 13 ns for a write operation with a miss in cache. Execution of a sequence of instructions involves 130 instruction fetch operations, 80 memory operand read operations and 50 memory operand write operations. The cache hit ratio is 0.7. Calculate a) Total time required for read operations. b) Total time required for write operations. Calculate the average memory access time (in ns) in executing the sequence of instruction?	05 (CO4)
Q.3	Explain the importance of memory interleaving. Also explain the lower order and higher order interleaving using suitable diagram. OR What do you understand with Content addressable memory? Explain it using suitable diagram.	05 (CO3)
Q.4	What do you understand with Virtual memory used in Computer? What is the role of translational look aside buffer (TLB). Explain virtual memory management in detail.	04 (CO3)

Q.5	Consider the main memory has a three-page frame (0,1,2) and processor requires the pages from the virtual memory in the following order 2,4,5,6,3,2,4,5,3,4,5,6,2,3,4,1,2,3,4,2,2,3,4. Show and compare the implementation of FIFO and LRU. Also calculate Hit ratio in each case.	06 (CO4)
Q.6	Explain the concept of DMA transfer. Where is it used? Also explain the working of DMA transfer using suitable diagram.	05 (CO3)
Q.7	a. What are the different standard I/O interfaces used in Computer. Explain them. b. What will be the value of AL and BL Register after execution following instructions. <pre> MOV AL, 39H MOV BL, 69H SUB BL, AL OR AL, 37H </pre>	03+02 (CO1, CO2)