Mid-semester Examination, October 2021
B.Tech. (CSE/CSAI/CSDS/MAC) 3rd Semester

Computer Architecture and Organization

CBCSC07/CACSC07/CDCSC07/CMCSC07

Time: 1:30 Hrs. Max. Marks: 25

Q. No.	Question	Marks	CO
1a	What is a stored-program computer? What is instruction cycle? Is instruction cycle a characteristic feature of stored-program computers? Justify your answer.	3	CO1
1b	What is a microoperation? Explain the concepts of logical shift, circular shift and arithmetic shift with suitable examples.	2	CO1
2a	Draw an arithmetic circuit to implement the following microoperations on 4-bit data: add with carry, subtract with borrow, increment and decrement. Provide the function table for the circuit.	3	CO2
2b	A digital system has 6 registers. Each register is of 8 bits. What components will be required for implementing a common bus for the system using multiplexers? Alternatively, what components will be required for implementing a common bus for the system using three-state buffers?	2	CO2
3a	What is microprogrammed control? What are the advantages of microprogrammed control over hardwired control? Is the concept of microprogrammed control relevant now when so many of simulation tools are available?	3	CO3
3b	Registers can be used to store instructions, addresses and data. Elaborate the statement with suitable examples.	2	CO3
4a	Differentiate between machine language, assembly language and high-level programming language. Explain the working of an assembler.	3	CO1
4b	How a pseudoinstruction differs from an instruction? What is the purpose of pseudoinstructions?	2	CO1
5a	Explain how subroutine call and return are implemented at the hardware level.	3	CO2
5b	What is the importance of load and store instructions? Do these instructions affect any register?	2	CO2