

**October 2025**  
**B.A./B.Sc.**  
**Third Semester**  
**MAJOR – 3**  
**COMPUTER SCIENCE**  
*Course Code: CSM 3.11*  
(Computer Organisation & Architecture)

Total Mark: 50

Pass Mark: 20

Time: 2 hours

I. Answer three questions, taking one from each unit.

**UNIT-I**

1. Differentiate between combinational and sequential circuit. List the types of combinational circuit. Explain any three combinational circuit. 4+2+6=12
2. (a) Write the 1's complement of  $11101_2$ . Add  $111101_2$  with  $111110_2$ . 1+2=3  
(b) Subtract  $111011_2$  from  $111111_2$  using 2's complement. 3  
(c) Convert  $45_{16}$  to its equivalent binary, octal, and decimal number. 6

**UNIT-II**

3. How does computer organisation differ from computer design? Explain the functions of the control unit in a computer system. List and explain different types of computer registers. 2+4+6=12
4. What do you mean by interconnected structure? List and explain the types of interconnection structures. Describe the bus structure used in modern computers. 1+6+5=12

**UNIT-III**

5. Explain microprogrammed control. Define assembly language and assembler. Why do we need to study assembly language? What are the applications of assembly language? 6+2+2+2=12

6. What is I/O processing? What are the key tasks of I/O processing?  
Explain the three types of I/O processing. 1+2+9=12

*II. Answer any two of the following questions.*

7. What is digital logic? Explain AND, OR and NOT gates with truth table and logic diagram. 1+6=7
8. Explain the steps involved in the instruction cycle using an example. 7
9. What do you mean by instruction set architecture (ISA)? Compare RISC and CISC architectures. 1+6=7
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